COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone (626) 458-5100
http://dpw.lacounty.gov

MARK PESTRELLA, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE

ADOPTED

BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

33 December 11, 2018

Celia Zavala

CELIA ZAVALA
EXECUTIVE OFFICER

December 11, 2018

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012

Dear Supervisors:

CONSTRUCTION-RELATED CONTRACT
PUBLIC BUILDINGS CORE SERVICE AREA
MARTIN LUTHER KING, JR. MEDICAL CAMPUS
BEHAVIORAL HEALTH CENTER RENOVATION PROJECT
CERTIFY ENVIRONMENTAL IMPACT REPORT ADDENDUM
APPROVE APPROPRIATION ADJUSTMENT
CAPITAL PROJECT NO. 87446
(SUPERVISORIAL DISTRICT 2)
(4 VOTES)

SUBJECT

Public Works is seeking Board approval to certify the Addendum to the Final Environmental Impact Report for the Martin Luther King, Jr. Behavioral Health Center Renovation project; approve an Appropriation Adjustment; and authority for Public Works to deliver the make-ready work for the Behavioral Health Center renovation project using Board-approved Job Order Contracts.

IT IS RECOMMENDED THAT THE BOARD:

1. Certify that the Addendum to the previously certified Final Environmental Impact Report for the Martin Luther King, Jr. Behavioral Health Center Renovation project has been completed in compliance with the California Environmental Quality Act and reflects the independent judgement and analysis of the County; find that the Board has reviewed and considered the information contained in the Addendum and Final Environmental Impact Report prior to approving the Martin Luther King, Jr. Behavioral Health Center Renovation project; and approve the Addendum.

2. Approve the Fiscal Year 2018-19 Appropriation Adjustment to reallocate a total of $13,395,000 from the Department of Health Services' Enterprise Fund-Committed for the Department of Health Services to fund the projected Fiscal Year 2018-19 expenditures of the Martin Luther King, Jr. Behavioral Health Center Renovation project, Capital Project No. 87446.

3. Approve the Martin Luther King, Jr. Medical Campus Behavioral Health Center Renovation project and authorize the Director of Public Works or his designee to deliver the make-ready work for the Behavioral Health Center Renovation project at the Martin Luther King, Jr. Medical Campus using Board-approved Job Order Contracts.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

Approval of the recommended actions will certify and approve the Addendum to the previously certified Final Environmental Impact Report (FEIR) for the Martin Luther King, Jr. (MLK) Behavioral Health Center (BHC) Renovation project; approve the project, Capital Project (C.P.) No. 87446; and authorize Public Works to deliver the make-ready work for the MLK BHC Renovation project using Board-approved Job Order Contracts (JOCs).

Background

On October 11, 2011, the Board approved the MLK Medical Center Multi-Service Ambulatory Care (Tier I) project, and conceptually approved the future MLK Medical Center Campus Redevelopment (Tier II) project. On January 15, 2013, the Board adopted the MLK Campus Master Plan as a policy document to serve as a guideline for the future development of facilities and services at the campus and found that the master plan is within the scope of the previously conceptually approved Tier II development.

On July 31, 2018, the Board approved the project budget of $322,835,000 and authorized Public Works to award a consultant services agreement with the most qualified firm to provide design services for the MLK BHC Renovation project, C.P. 87446, and related projects, for a not-to-exceed fee of $35,000,000. On October 10, 2018, the consultant services agreement was executed with Perkins Eastman to provide design services for the MLK BHC Renovation project.

The vision for the proposed 500,000 square feet MLK BHC Renovation project is a collaborative effort among Department of Mental Health (DMH), Department of Public Health (DPH), Department of Health Services (DHS), Probation Department, and Workforce Development, Aging and Community Services (WDACS), focusing on (a) County priority populations like individuals with mental illness, substance use disorders, homeless individuals, and justice involved individuals with significant clinical needs; (b) providing a mix of residential, outpatient, and support services to fill major gaps in the continuum of care within South Los Angeles but available for clients Countywide; and (c) leveraging non-County funding in the forms of service based revenue (i.e. Medicaid) and grants.

The scope of work for the proposed MLK BHC Renovation project includes new mechanical, electrical, and plumbing systems, new partitions, flooring, and ceiling throughout the building to the replacement of the mechanical, electrical, and plumbing systems, tenant improvements throughout the building to serve the new programs, upgrades to existing elevators, exterior building refresh, and site improvements.

The make-ready component for the MLK BHC Renovation project includes preparatory work for the tenant improvements, such as interior abatement and demolition, structural upgrades to the building, demolition of the existing single-story waiting room addition, and the relocation of the magnetic resonance imaging trailer. Public Works intends to deliver the make-ready work using Board-approved JOCs.

For the proposed MLK BHC Renovation project, Public Works intends to deliver the project using design-build. Procurement of the design-builder is underway. Upon selection of the design-builder, we will return to the Board to seek approval to award the design-build contract.

Green Building/Sustainable Design Program

On December 20, 2016, the Board adopted a new Leadership in Energy and Environmental Design (LEED) policy. The MLK BHC Renovation project will support the Board's policy by providing a cost-benefit assessment for the proposed renovation projects. If the cost-benefit assessment determines it makes environmental and fiscal sense to retrofit the existing building to be LEED certified, it will pursue the level of certification. Upon completion of this assessment, we will return to the Board to recommend the level of certification based on the cost benefit assessment. The project budget is based on code compliance and does not include costs for LEED certification.

Implementation of Strategic Plan Goals

The County Strategic Plan directs the provision of Strategy II.1, Drive Economic and Workforce Development in the County; Strategy II.2, Support the Wellness of our Communities; and Strategy III.3, Pursue Operational Effectiveness, Fiscal Responsibility, and Accountability. The recommended actions support the Strategic Plan by supporting the wellness of our communities and enhancing the delivery of behavioral healthcare services that will in turn benefit the common good by driving the development of the workforce and the economic development of the County.

FISCAL IMPACT/FINANCING

On October 31, 2017, the Board approved $835,000 for the MLK BHC programming and pre-development activities funded by DHS' operating budget. On July 31, 2018, the Board approved the total project budget of $322,835,000 for the proposed MLK BHC Renovation project (C.P. 87446) which includes programming, pre-development activities, make-ready work, design documents, plan check, construction, construction change order allowance, consultant services, civic art, inspection, and project/construction management services.

Funding will be provided by each participating department based on their specific allocation of space programmed within the facility. Based on the current program and space allocation, the percentage of costs for DMH, DPH, DHS, Probation, and WDACS are as follows: 59 percent, 21 percent, 8 percent, 10 percent, and 2 percent, respectively. Following the expenditure of available funding from the Departments' operating budget, the project costs to be financed would be funded initially with short-term borrowing through the Lease Revenue Note Program and ultimately redeemed through the issuance of long-term bonds.

Approval of the Fiscal Year 2018-19 Appropriation Adjustment (Enclosure A) will reallocate a total of $13,395,000 from DHS' Enterprise Fund-Committed for DHS to fully fund the remaining DHS' percent share of the total project cost for the MLK BHC Renovation project, C.P. No. 87446.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

In accordance with the Board's Civic Art Policy amended on August 11, 2015, the MLK BHC Renovation project and related projects budgets include 1 percent of the design and construction costs be allocated to the Civic Arts fund. The eligible Civic Art Allocation remains at $1,000,000.

In accordance with the Board’s consolidated Local and Targeted Worker Hire Policy adopted on September 6, 2016, the make-ready work for the MLK BHC Renovation project will require that at least 30 percent of the total California craft worker hours for construction of the project be performed by Local Residents and at least 10 percent be performed by Targeted Workers facing employment barriers.

ENVIRONMENTAL DOCUMENTATION

On October 11, 2011, the Board, as lead agency under the California Environmental Quality Act (CEQA), certified the FEIR for the MLK Medical Center Campus Redevelopment project, Tiers I and II. Tier II of the project in the certified FEIR included the development of the remainder of the campus and was analyzed at a program level, which included up to 1,476,010 square feet of master-planned future mixed-use development. The Board adopted a Statement of Overriding Consideration for significant impacts identified in the FEIR in the areas of air quality, cultural resources, greenhouse gas emissions, and construction noise that continues to apply, as well as a Mitigation Monitoring Program. The FEIR analyzed at a programmatic level the environmental impacts of options to either demolish or reuse the BHC building, formerly known as the Multi-Service Ambulatory Care Center building, under Tier II development.

Although the details of the proposed MLK BHC Renovation project were not previously identified when the FEIR was certified, the options to either demolish or reuse the BHC building were considered, and the project is included in both the footprint and square footage of the Tier II development. Public Works retained EFI Global to prepare an Addendum to the 2011 MLK Medical Center Campus Redevelopment FEIR to evaluate the environmental effects associated with the proposed MLK BHC Renovation project. The Addendum to the FEIR (Enclosure B), as well as the FEIR (Enclosure C) is enclosed. Pursuant to Section 15164(a) of the State CEQA Guidelines, an Addendum to a previously certified FEIR is appropriate to evaluate the environmental effects associated with minor modifications to a previously approved project. The Addendum demonstrates that environmental impacts resulting from the proposed MLK BHC Renovation project would not trigger any of the conditions that require the preparation of a subsequent EIR because it will not result in any new significant impacts beyond those analyzed in the previously certified FEIR. In addition, the analysis contained in the Addendum demonstrates that there will be no substantial changes to the previously approved project or with respect to the circumstances under which the proposed project will take place and no new information of substantial importance to the environmental analysis subsequently became known.

The Mitigation Monitoring Program adopted by the Board at the time of certification of the FEIR will continue to apply to the MLK BHC Renovation project to ensure that all impacts of the project remain below the level of significance, and compliance with applicable mitigation measures will be monitored for compliance. According to the Addendum, no additional project level mitigation is necessary.

The location and custodian of the documents and other materials constituting the record of the proceedings upon which the Board's decision is based in this matter is with the Section Head at the County of Los Angeles Department of Public Works, Project Management Division I, 900 South Fremont Avenue, Alhambra, California, 91803.

Upon the Board's approval of the recommended actions, Public Works will file a Notice of Determination for the MLK BHC Renovation project with the Registrar-Recorder/County-Clerk in accordance with Section 21152(a) of the California Public Resources Code.

CONTRACTING PROCESS

Public Works recommends using Board-approved JOCs to complete the make-ready work for the MLK BHC Renovation project and intends to use design-build for the delivery of the MLK BHC Renovation project.

IMPACT ON CURRENT SERVICES (OR PROJECTS)

Approval of the recommended actions will have no impact on current services at the campus. Patient care services on campus will remain fully operational during design and construction.

CONCLUSION

Please return one adopted copy of this Board letter to the Department of Public Works, Project Management Division I.

Respectfully submitted,

MARK PESTRELLA

Director

MP:AKM:ms

Enclosures

c: Arts Commission
Chief Executive Office (Capital Programs Division)
County Counsel
Executive Office
Department of Health Services (Capital Projects Division)
Department of Mental Health
Probation Department
Department of Public Health
Workforce Development, Aging, and Community Services

Enclosure A

PINK

BA FORM 03/13

BOARD OF SUPERVISORS OFFICIAL COPY

COUNTY OF LOS ANGELES

REQUEST FOR APPROPRIATION ADJUSTMENT

DEPT'S. NO. 110

DEPARTMENT OF HEALTH SERVICES

November 9, 2018

AUDITOR-CONTROLLER:

THE FOLLOWING APPROPRIATION ADJUSTMENT IS DEEMED NECESSARY BY THIS DEPARTMENT. PLEASE CONFIRM THE ACCOUNTING ENTRIES AND AVAILABLE BALANCES AND FORWARD TO THE CHIEF EXECUTIVE OFFICER FOR HIS RECOMMENDATION OR ACTION.

ADJUSTMENT REQUESTED AND REASONS THEREFOR

FY 2018-19

4 - VOTES

SOURCES	**USES**
BA Detail - See Attachment Page 1.	BA Detail - See Attachment Page 1.
SOURCES TOTAL: $ 40,185,000	**USES TOTAL:** $ 40,185,000

JUSTIFICATION

This budget adjustment is necessary to provide additional funding for Capital Project No. 87446, MLK - Behavioral Health Center Project, from DHS Enterprise Fund-Committed for DHS for anticipated expenditures in FY 2018-19.

ADOPTED
BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

AUTHORIZED SIGNATURE Mela Guerrero, Controller, DHS

BOARD OF SUPERVISOR'S APPROVAL (AS REQUESTED/REVISED)

#33 DEC 11 2018

Celia Zavala
CELIA ZAVALA
EXECUTIVE OFFICER

REFERRED TO THE CHIEF EXECUTIVE OFFICER FOR ---

☐ ACTION

☑ RECOMMENDATION

☑ APPROVED AS REQUESTED

☐ APPROVED AS REVISED

AUDITOR-CONTROLLER BY

B.A. NO. 067

Nov. 13 20 18

CHIEF EXECUTIVE OFFICER BY

NOV 14 20 18

ATTACHMENT A

DEPARTMENT OF HEALTH SERVICES
REQUEST FOR APPROPRIATION ADJUSTMENT
CAPITAL PROJECTS
FISCAL YEAR 2018-19

4 VOTES

SOURCES:		USES:	
DHS Enterprise Fund MN2-3078 Committed for DHS Decrease Obligated Fund Balance	13,395,000	**DHS Enterprise Fund** MN2-HS-6100-60070 Other Financing Uses Increase Appropriation	13,395,000
Harbor Care South Enterprise Fund MN1-HH-96-9911-60020 Operating Transfers In Increase Revenue	13,395,000	**Harbor Care South Enterprise Fund** MN1-HH-96-9912-60020 Operating Subsidy - General Fund Decrease Revenue	13,395,000
Total Enterprise Fund	**$ 26,790,000**	**Total Enterprise Fund**	**$ 26,790,000**
Ent Sub - Harbor Care South A01-AC-6100-21200-21226 Other Financing Uses Decrease Appropriation	13,395,000	**Martin Luther King Jr. Outpatient Ctr Capital Improvements** **MLK - Behavioral Health Center Project** A01-CP-6014-64020-87446 Capital Assets - Buildings & Improvements Increase Appropriation	13,395,000
Total General Fund	**$ 13,395,000**	**Total General Fund**	**$ 13,395,000**
Total	**$ 40,185,000**	**Total**	**$ 40,185,000**

ADOPTED
BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

#33 DEC 11 2018

Noted & Approved:

Mela Guerrero, Contoller
Department of Health Services

EXECUTIVE OFFICER

BA # 067

11/13/18

Enclosure B

4TH ADDENDUM
FINAL ENVIRONMENTAL IMPACT REPORT
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT
(SCH NO. 2010031040)

TIER II PROJECT: BEHAVIORAL HEALTH CENTER
(MACC RENOVATION AND HAWKINS BUILDING DEMOLITION)

Prepared for

County of Los Angeles

Prepared by:
EFI Global

August 2018

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1. INTRODUCTION

In this Addendum references to the “project site” refer to the entire MLK Medical Center Campus (MLK Campus). The project site includes the Behavioral Health Center (BHC) site that is comprised of 1) the site of the original Multi-Service Ambulatory Care Center (referred to herein as the original MACC since the functions of this original building have been transferred to a new MACC), and 2) the site of the Augustus F. Hawkins Comprehensive Mental Health Center and adjacent landscaping/gardens (referred to herein collectively as the Hawkins Building).

A. Purpose of this Addendum

The purpose of this 4th Addendum to the 2011 Martin Luther King, Jr. (MLK) Medical Center Campus Redevelopment Final Environmental Impact Report (2011 FEIR) is to evaluate the environmental effects associated with the proposed the Behavioral Health Center (BHC) that would include 1) renovation and re-occupation of the original MACC and 2) demolition of the Hawkins Building and replacement with gardens and surface parking (280 spaces).

The 1st Addendum addressed the effects of the East Campus Parking Structure, the 2nd Addendum addressed the effects of the proposed Child Care Center in the Claude Hudson Auditorium and the 3rd Addendum addressed impacts of a 52,000 square foot medical office building at the northeast corner of the MLK Campus.

On October 11, 2011 the County of Los Angeles certified the 2011 FEIR, approved the Tier I project (Tier I MLK Project) and conceptually approved the Tier II MLK Medical Center Campus Redevelopment Project (Tier II MLK Project). The 2011 FEIR evaluated vacation of the original MACC as part of Tier I (as well as maintenance of a number of buildings, provision of space to accommodate the MACC program in a new building and other improvements); the 2011 FEIR programmatically addressed reuse or replacement of the original MACC and Hawkins Building as part of Tier II development on the campus. The 2011 FEIR analyzed an envelope of potential development on the MLK Campus (the development envelope is comprised of: maximum square feet of occupied space, maximum demolition of existing structures, maximum height of new structures, minimum setbacks, depth of excavation, and assumptions with respect to daily construction activity). The maximum square footage at build out for Tier II was identified as 1,814,696 square feet, an increase of 1,476,010 compared to existing conditions identified in the 2011 FEIR. Parking area is not included in developed area as it is not occupied building area and does not generate trips. The 2011 FEIR indicated that development would include a mix of uses, “including medical office, commercial, retail, office space, recreation, and other development in support of the campus.”

The 2011 FEIR indicated that of the 38 acres (1.3 million square feet) of land on the MLK Medical Center Campus, a minimum of 10% was reserved for open space and a maximum of 40% was reserved for up to 100 residential units, walkways and parking structures and/or lots with the remainder occupied by medical center buildings.

As part of the approval of the MLK Medical Center Campus Redevelopment Project (Tier I and conceptual approval of Tier II), the Board of Supervisors adopted Findings of Fact that identified the potential impacts, mitigation measures and alternatives associated with Tier I and Tier II of the MLK Medical Center Campus Redevelopment Project. The Findings of Fact identify four significant unavoidable adverse impacts: Air Quality (construction and operation) for Tier II, Cultural Resources (historic resources – removal of all significant buildings and impact to an historic district) for Tier II, Greenhouse Gas Emissions for Tier I and Tier II and Noise (construction) for Tier I and Tier II. The Board of Supervisors also adopted a Statement of Overriding Considerations for these four significant and unavoidable impacts that outlined the benefits of the MLK Medical Center Campus Redevelopment Project including social and community benefits, economic benefits (jobs and business development), educational opportunities, sustainability of the facilities, provision for needed health care services. Specifically with respect to impacts to historic resources, the Statement of Overriding indicates that, "[t]he cultural resources significant impacts are overridden by the project's ability to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care and establishes the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development.

On January 15, 2013 the County of Los Angeles Board of Supervisors adopted a Master Plan for the MLK Medical Center (2013 Master Plan). The 2013 Master Plan included complete removal of the original MACC as well as the Hawkins Building. The Board of Supervisors approved a finding that the Master Plan was within the scope of the conceptually approved MLK Medical Center Redevelopment (Tier II) Project that was specified in and considered in the 2011 FEIR. In taking the action to approve the Master Plan the County indicated that the Master Plan will serve as a guideline for future development and that before specific projects are approved the Chief Executive Officer will recommend to the Board of Supervisors any further necessary environmental findings and determine whether any additional project-level mitigation is required under the California Environmental Quality Act (CEQA).

The first Tier II project was renovation of three floors of the Interns and Physicians Building as a recuperative care facility completed in 2015; a Categorical Exemption was prepared.

The second Tier II project was the East Campus Parking Structure. The East Campus Parking Structure was approved and 1st Addendum to the 2011 FEIR adopted January 5, 2016. The East Campus Parking Structure is currently under construction.

The third Tier II project, was the Child Care Center, with approximately 9,200 square feet, reusing portions of the Hudson Auditorium. The original Hudson Auditorium was 3,910 square feet. The Child Care Center was approved and 2nd Addendum to the 2011 FEIR adopted January 31, 2017. Construction began in August 2017 and is anticipated to be completed in September 2018, with occupancy in October 2018.

A fourth Tier II project, a 52,000 square foot medical office building (MOB) was approved for the northeast corner of the MLK Campus (southwest corner of Wilmington Avenue and 120th Street), and an addendum adopted by the Board of Supervisors September 26, 2017. Construction is anticipated to start in August 2018 and completed in December 2019 with occupancy anticipated in Spring 2020.

The County is now proposing to develop a mental health facility known as the Behavioral Health Center (BHC). The BHC would entail 1) renovation of the original MACC and 2) demolition of the Hawkins Building and replacement with gardens and surface parking. The BHC would include inpatient and outpatient services for a variety of mental health programs. Renovation of the original MACC (identified as one of five historical resources on the MLK Campus) would result in fewer impacts (as a result of less construction and retention of an historical building) as compared to potential demolition of the original MACC that was contemplated in the 2011 FEIR (both demolition and retention of the original MACC were evaluated in the 2011 FEIR) and the 2013 Master Plan. The Hawkins Building is now proposed for demolition. The original concept identified in the 2011 FEIR did not anticipate demolition of the Hawkins Building, although in order to provide a conservative analysis, demolition of the Hawkins Building was addressed, and mitigation identified. The 2011 FEIR considered impacts and identified mitigation for the worst-case condition of removal of all five historic resources on the MLK Campus (four buildings and the associated MLK Campus Historic District).

The proposed BHC (including renovation and re-occupation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) would be within the assumptions analyzed in the 2011 FEIR (see Sections 2 and 3 of this Addendum for detailed descriptions and analyses by issue area) and would be consistent with the evaluation presented in the prior Addendums to the 2011 FEIR. To comply with CEQA (Public Resources Code Sections 21000 et seq.) and State CEQA Guidelines (California Code of Regulations Sections 15000 et seq., also referred to as Guidelines), this Addendum to the certified 2011 FEIR has been prepared to evaluate impacts from development of the proposed BHC (including renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking).

B. CEQA Requirements

An Addendum to an EIR is the appropriate tool to evaluate the environmental effects associated with *minor modifications* to previously approved projects. It is appropriate when modifications would not result in new or increased significant adverse impacts.

According to Section 15164(a) of the CEQA Guidelines, “the lead agency or a responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.” An addendum may be prepared if only minor technical changes or additions are necessary. A brief explanation of the decision not to prepare a subsequent EIR must also be provided in the addendum, findings or the public record.

Section 15162 of the Guidelines lists the conditions that would require the preparation of a subsequent EIR or negative declaration rather than an addendum. These include the following:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

A. The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

B. Significant effects previously examined will be substantially more severe than shown in the previous EIR;

C. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measures or alternative; or

D. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Unlike a subsequent EIR, per Section 15162, a supplement to an EIR may be prepared per Section 15163 under the following conditions.

(a) The Lead or Responsible Agency may choose to prepare a supplement to an EIR rather than a subsequent EIR if:

(1) Any of the conditions described in Section 15162 would require the preparation of a subsequent EIR, and

(2) Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation.

A supplement to an EIR may be distinguished from a subsequent EIR by the following: a supplement augments a previously certified EIR to the extent necessary to address the conditions described in section 15162 and to examine mitigation and project alternatives accordingly. It is intended to revise the previous EIR through supplementation. A subsequent EIR, in contrast, is a complete EIR, which focuses on the conditions described in section 15162.

The proposed the BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) is described in Section 2 of this Addendum and would be within the assumptions for construction and operation analyzed in the 2011 FEIR. The proposed BHC has been reviewed by the County of Los Angeles in light of Sections 15162 and 15163 of the Guidelines. As the CEQA Lead Agency, the County of Los Angeles has determined, based on the analysis presented herein, that none of the conditions apply which would require preparation of a subsequent or supplemental EIR and that an Addendum to the certified MLK Campus Redevelopment Project 2011 Final EIR is the appropriate environmental documentation under CEQA for the proposed BHC.

Section 3 discusses issue-by-issue how the impacts anticipated for the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) would be within those previously identified in the 2011 FEIR. The Mitigation Monitoring and Reporting Program (MMRP) adopted with the 2011 FEIR would continue to apply to the proposed BHC to ensure that all significant impacts remain less than significant where feasible.

C. Mitigation Measures

The 2011 FEIR identified the mitigation measures shown in **Table 1** as applicable to Tier II projects. These mitigation measures were previously adopted by the Board of Supervisors along with certification of the FEIR on October 11, 2011.

As a result of LACDPW experience working on the MLK Campus one of the historic mitigation measures is proposed to be refined in order to clarify the measure and reflect current practices on the MLK Campus. Revisions to the measure are shown below (added text is shown as underlined and deleted text is shown in strikeout font):

> Measure Cultural-4, Historical Resources. Tier II impacts resulting from demolition or substantial alteration of significant historical resources not in conformance with the Secretary of the Interior's Standards shall be reduced to the maximum extent feasible through archival documentation of as-found condition. Prior to the initiation of construction activities, the County of Los Angeles shall ensure that documentation of the Martin Luther King, Jr. Medical Center Campus Historic District, Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and/or Dr. H. Claude Hudson Auditorium is completed ~~in accordance with Historic American Buildings Survey (HABS) requirements for donated material~~. The documentation shall be in the form of a Historic American Building Survey and shall comply with the Secretary of the Interior's Standards for Architectural and Engineering Documentation. The documentation shall include archival and other appropriate supplementary ~~large-format~~ photographic recordation, detailed historic narrative report, ~~measured~~ architectural drawings, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be provided to the LA Public Library ~~offered as donated material to Historic American Building Survey for inclusion in the Library of Congress~~. Archival copies of the documentation shall be made available on-line and ~~also would~~ be available for review at the Martin Luther King, Jr. Medical Center campus and maintained by the County of Los Angeles.

These refinements are reflected in Table 1. The refined Mitigation Measure Cultural-4 would replace the previous language and would apply to all MLK Campus projects that have the potential to impact historic buildings or appurtenant elements.

These refinements to Measure Cultural-4 would not change the effectiveness of the measure or change the level of significance after mitigation. The refinements would clarify the measure and would provide equivalent mitigation.

The proposed refinements to Measure Cultural-4 have been reviewed by the County of Los Angeles in light of Sections 15162 and 15163 of the Guidelines and the County has determined that none of the conditions apply that would require preparation of a subsequent or supplemental EIR and that an Addendum is the appropriate environmental documentation under CEQA to document these changes.

TABLE 1 **MITIGATION MEASURES**
Aesthetics
Measure Aesthetics-1. All exterior lighting for building and on-site security lighting shall be shielded and directed downwards to minimize the impacts on the surrounding land uses. New development shall not include large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) on the facade. Additionally, any glazed north-facing facade shall be set over 200 feet from the street in order to ensure that it would not be subject to direct sunlight except very early and late in the day for a few winter days.
Measure Aesthetics-2. The County of Los Angeles shall review all plans for the Tier II development. Contractors shall conform with all design features described in the Campus Planning and Programming Report, which is intended to serve as a guide for development at the project site to ensure visual consistency and continuity at the project site and within the surrounding area.
Measure Aesthetics-3. All development shall be limited to three stories in height if the structure would be located along the western or eastern edge of the property. The existing setback includes the pediatric modular building/ oasis clinic located approximately 14 feet from the property line along the eastern boundary at Wilmington Avenue, Interns and Physicians Building at approximately 20 feet from property line along the western boundary at Compton Avenue, the Hawkins Building located at approximately 30 feet from property line along the northern boundary at 120th Street, and the Cooling Tower located at 44 feet from the property line along the south. Alternatively, if a structure would exceed three stories in height along the perimeter of the property (western or eastern perimeter only), at a minimum, the County of Los Angeles shall ensure that the building would be required stay within the approximately 20-foot and 14-foot existing campus respective western and eastern boundary setbacks to reduce shade and shadow impacts to adjacent land uses along Compton Avenue and Wilmington Avenue.
Measure Aesthetics-4. Where parking lots or structures are adjacent to residential areas or near other sensitive light receptors along the southern portion of the campus, Compton Avenue, and Wilmington Avenue, retaining walls and/or landscaping of sufficient height shall be incorporated into the design of the proposed project to shield vehicle headlights (which typically sit at a minimum of 3 feet in height above ground). These project features shall be included in the landscape plans and final project design plans (to avoid and reduce potential light and glare obstructions that could impact residential areas).
Air Quality
Measure Air-1. Water or a stabilizing agent shall be applied during Tier I to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the County of Los Angeles to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour as instantaneous gusts), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the County of Los Angeles. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. The County of Los Angeles shall also ensure that the plans and specifications for each element of the project include a requirement for ground cover to be replaced in disturbed areas as quickly as practicable and that the County of Los Angeles appoints a construction relations officer to act as a community liaison concerning on-site construction activity including addressing issues related to fugitive dust generation.
Measure Air-2. Moistening or covering of excavated soil piles shall be required during Tier II to treat grading areas during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.
Measure Air-3. Discontinuing Tier II construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour as instantaneous gusts) shall be discontinued to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in

TABLE 1 MITIGATION MEASURES
critical pollutants. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour as instantaneous gusts. Measure Air-4. Track-out during Tier II shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Track-out is defined by the South Coast Air Quality Management District as any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday. Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available. Measure Air-5. A wheel washing system shall be installed during Tier II, and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site. Washing of wheels leaving the construction site during construction of each element shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities. Measure Air-6. All haul trucks hauling soil, sand, and other loose materials during Tier II shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). All transport of soils to and from the project site for each element shall be conducted in a manner that avoids fugitive dust emissions and ensures compliance with current air quality standards. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site. Measure Air-7. Traffic speeds on unpaved roads during Tier II shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour. Measure Air-8. Heavy-equipment Tier II operations shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure heavy-equipment operations be suspended during first- and second-stage smog alerts. Measure Air-9. All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized and/or limited to no more than five minutes in accordance with state law. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria. All on-site construction equipment shall be required to meet U.S. EPA Tier 2 or higher emissions standards according to the following: • April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 horsepower (hp) shall meet Tier 2 off-road emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. • January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. • Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve

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emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

Measure Air-10. Wherever possible, contractors shall use materials that do not require painting or use pre-painted materials. In order to minimize emissions of volatile organic compounds, contractors shall use high-pressure, low-volume paint applicators with a minimum transfer efficiency of at least 50 percent and coatings and solvents with a volatile organic compound content lower than required under South Coast Air Quality Management District Rule 1113, Architectural Coatings:

- Clear wood finishes: 275 grams/liter
- Floor coatings: 50 grams/liter
- Sealers: waterproofing sealers 100 grams/liter; sanding sealers 275 grams/liter; all other sealers 100 grams/liter • Shellacs: Clear 730 grams/liter; pigmented 550 grams/liter
- Stains: 100 grams/liter

Measure Air-11. The following measures shall be implemented, wherever feasible, to reduce operational air quality impacts:

- Improve traffic flow by signal synchronization
- Ensure County-owned campus vehicles use clean fuels such as compressed natural gas and that shuttle buses for the campus are "clean" buses, such as 2010 compliant vehicles
- Require all County of Los Angeles and County of Los Angeles contractor vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications
- Provide services that promote ridesharing and vanpools
- Provide charging stations or preferred parking for alternative technology vehicles • Provide preferred parking for carpools and vanpools
- Reduce energy consumption by providing alternative energy sources on site and installing energy-efficient appliances

Cultural Resources

Measure Cultural-1, Paleontological Resources. The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the proposed project shall be reduced to below the level of significance by monitoring, salvage, and curation of unanticipated paleontological resources discovered during ground-disturbing activities in previously undisturbed native soils located 15 or more feet below the ground surface that would have the potential to contact extant older Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology:

- Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found.
- Prior to any ground-disturbing activities, the County of Los Angeles shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium.
- A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources.
- Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find.
- If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing.
- Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered; fossil specimens recovered, and associated specimen data.
- All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their

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placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository, regarding the final disposition, permanent storage, and maintenance of any significant fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written agreement shall specify the level of treatment (i.e., preparation, identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed.

- Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended, itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, signify the completion of the program to mitigate impacts to paleontological resources.

Measure Cultural-2, Human Remains. Although the discovery of human remains is not anticipated during ground-disturbing activities for the proposed project, a process has been delineated for addressing the unanticipated discovery of human remains:

- Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met:
  - The Los Angeles County Coroner has determined that no investigation of the cause of death is required, and
  - Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences in writing to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

Measure Cultural-3, Historical Resources. Potentially significant adverse impacts to historical resources have been identified in relation to five historical resources as a result of implementation of the Tier II project: the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium. Three mitigation measures have been identified in association with Tier II to reduce impacts to the maximum extent practicable. In the event that the five historical resources are not removed or otherwise impacted through significant modifications or alterations to the character-defining features of these resources, this impact would be less than significant and would not require mitigation. Tier II impacts to four significant historical resources (Multi-Service Ambulatory Care Center [MACC], Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium) and the integrity of the Martin Luther King, Jr. Medical Center Campus Historic District (a fifth historic resource) shall be reduced to below the level of significance through utilization of the Secretary of the Interior's Standards for the treatment of Historic Properties with Guidelines of Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings for any proposed alterations, including all site work, structural upgrades, architectural, and mechanical systems improvements and repairs. The work shall conform to the standards and guidelines for "rehabilitation." Conformance with the Secretary of the Interior's Standards shall be monitored by an architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualification Standards. Completion of this mitigation measure shall be monitored and enforced by the County of Los Angeles.

Measure Cultural-4, Historical Resources. Tier II impacts resulting from demolition or substantial alteration of significant historical resources not in conformance with the Secretary of the Interior's Standards shall be reduced to the maximum extent feasible through archival documentation of as-found condition. Prior to the initiation of construction activities, the County of Los Angeles shall ensure that documentation of the Martin Luther King, Jr. Medical Center Campus Historic District, Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and/or Dr. H. Claude Hudson Auditorium is completed. The documentation shall be in the form of a Historic American Building Survey and shall comply with the Secretary of the Interior's Standards for Architectural and Engineering Documentation. The documentation shall include archival and other appropriate photographic recordation, detailed historic narrative report, measured architectural drawings, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be provided to the LA Public Library. Archival copies of the documentation shall be made available on-line and be available for review at the

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Martin Luther King, Jr. Medical Center campus and maintained by the County of Los Angeles.

Measure Cultural-5, Historical Resources. Impacts resulting from the loss of integrity of the Martin Luther King, Jr. Medical Center Campus Historic District such that its significance is materially impaired will be reduced to the maximum extent feasible through the development of a retrospective exhibit detailing the history of the Martin Luther King, Jr. Medical Center Campus Historic District, its significance, and its important details and features. The retrospective exhibit shall be in the form of a physical exhibit installed on the Martin Luther King, Jr. Medical Center Campus, which is located either within a building or on a freestanding kiosk or comparable structure or installation on the property. The exhibit should commemorate the historic appearance of the district and provide the public with sufficient information to understand its historic significance. The exhibit shall be prepared by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The exhibit should be completed within a period of no more than two years from the date of completion of Tier II of the proposed project.

Geology and Soils

Measure Geology-1. The construction contractor shall incorporate best management practices consistent with the guidelines provided in the California Storm Water Best Management Practice Handbooks: Construction. As discussed in the Geotechnical Investigation that was prepared for the project site, earthwork at the project site should be performed in conformance with the Los Angeles County Building Code and other guidelines provided in the geotechnical study, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills.

Measure Geology-2. Due to seismic compliance standards established by the Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or as required, the construction contractor shall incorporate project design elements consistent with Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or required standards, and thus further reduce any potential for impacts resulting from unstable geologic units and soils. The County of Los Angeles shall conform to measures described in the project geotechnical study(ies) to ensure compliance throughout the construction and development of the project.

Measure Geology-3. A geotechnical engineer shall be present on site for observation of earth-moving activities (such as site preparation, excavation) to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered shall be evaluated by the project engineering geologist and the soil engineer.

Greenhouse Gases

Measure Greenhouse Gases-1. Prior to construction of the proposed project, the final design plan and schemes for Tier II shall be reviewed to ensure that the County of Los Angeles conforms to its commitments pursuant to the California Climate Action Registry and the greenhouse gas emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven (7) of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide (CO2) emissions per capita:

- Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use
- Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings
- Create water-efficient landscapes
- Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site.)
- Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods
- Incorporate provisions for future public transit into project design
- Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio

The review shall further ensure that all applicable sustainable design measures or comparable measures have been incorporated into the final project design.

Hazards and Hazardous Materials

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Measure Hazards-1. To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.
Measure Hazards-2. To avoid exposure to asbestos-containing materials and lead-based paints during demolition, construction, and remediation activities, the County of Los Angeles and the Office of Statewide Health Planning and Development shall require that all such materials and wastes be identified and an Operations and Maintenance Plan developed prior to the issuance of demolition permits for each structure constructed prior to 1979. The Operations and Maintenance Plan shall ensure compliance with all applicable federal, state, and local requirements and specify all work to be done, including lead and asbestos surveys of structures to be demolished, proper handling and storage of lubricants and fuels for construction equipment, and methods for remediation of asbestos-containing materials and lead-based paints, if necessary. The Operations and Maintenance Plan shall be submitted to the County of Los Angeles Department of Health Services for review and approval prior to initiation of construction and demolition activities for the MACC building, emergency room, storage building or the cooling towers. The Operations and Maintenance Plan shall, as appropriate and necessary, conform to the requirements of the Los Angeles County Department of Health Services (Local Enforcement Agency), South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, and the Department of Toxic Substances Control. Compliance with the Operations and Maintenance Plan shall be monitored by the County of Los Angeles Regional Planning Department throughout construction and demolition. To reduce impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. These agencies shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.
Measure Hazards-3. Prior to the issuance of grading permits for development, the County of Los Angeles shall ensure that a Soil Management Plan is prepared for the project site and that the Office of Statewide Health Planning and Development reviews the grading plans to ensure that the construction contractor is required to stop work and notify the Certified Unified Program Agency of the unanticipated encounter of underground storage tanks during grading activities. In the event that any leaking underground storage tanks are located or encountered, the County of Los Angeles Department of Public Works shall be notified and the underground storage tank shall be remediated in accordance with County of Los Angeles guidelines and consistent with specifications of the Department of Toxic Substances Control and other relevant standards. The County of Los Angeles Fire Department Health Hazardous Materials Division shall be notified of all other contaminated soils encountered during construction-related site activities.
Measure Hazards-4. To avoid exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the project, the County of Los Angeles shall require that the construction contractor store, use, and transport all hazardous materials in compliance with all relevant regulations and guidelines. The routine transport of hazardous materials to and from the Martin Luther King, Jr. Medical Center Campus during construction and operation of the elements of the project shall be accomplished via Wilmington Avenue, Compton Avenue, and 119th Street. Compliance shall be determined by monitoring by regulatory agencies. Transport, storage, and handling of construction-related hazardous materials shall be consistent with the guidelines provided by the California Department of Transportation, Los Angeles Regional Water Quality Control Board, the South Coast Air Quality Management District, and the Certified Unified Program Agency. Each agency shall regulate and enforce, through permitting and record keeping, the monitoring and enforcement of this mitigation measure.
Measure Hazards-5. At least 30 days prior to approval of Tier II final plans and specifications for development, the Office of Statewide Health Planning and Development shall review and provide comments on the plans and specifications to ensure compliance with all requirements of the Department of Toxic Substances Control and in order to verify that the site remains unlisted on the Hazardous Materials and Substance Sites List maintained by the

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California Environmental Protection Agency, Department of Toxic Substances Control.

Hydrology and Water Quality

Measure Hydro-1. The County of Los Angeles shall ensure that the construction, landscape features, and site grading for Tier II of the project comply with standard best management practices set forth by the Regional Water Quality Control Board. Prior to final plans and specifications for all elements of the project, the County of Los Angeles shall review the plans and specifications for all elements to ensure that the plans and specifications require the construction contractor to prepare a Standard Urban Stormwater Mitigation Plan for construction activities and implement best management practices for construction, materials, and waste handling activities, which will include, but not be limited to:

- Scheduling excavation, grading, and paving activities for dry weather periods.
- Controlling the amount of runoff crossing the construction site by means of berms and drainage ditches to divert water flow around the site.
- Identifying potential pollution sources from materials and wastes that will be used, stored, or disposed of on the site.
- Informing contractors and subcontractors about the clean storm water requirements and enforce their responsibilities in pollution prevention through a contractual agreement
- Sweeping the streets surrounding the proposed project site daily and trash removal throughout the construction of the project to avoid degradation of water quality.

Measure Hydro-2. The construction contractor shall incorporate Standard Urban Stormwater Mitigation Plan requirements and best management practices to mitigate storm water runoff, which include the following:

- The incorporation of bio-retention facilities located within the project area
- The incorporation of catch basin filtration systems
- The use of porous pavements to reduce runoff volume

Measure Hydro-3. In the event that groundwater is encountered during Tier I construction, the County of Los Angeles shall require the construction contractor complete the dewatering operations in accordance with the established National Pollution Discharge Elimination System permit requirements.

Measure Hydro-4. To ensure that operational impacts associated with Tier II remain below the level of significance, the County of Los Angeles shall require that best management practices and sustainable practices, such as regularly removing vegetation and debris from curbs, catch basins, and outlets; limiting the amount of pesticides and fertilizers used in landscaping, and other best management practice as recommended by the Environmental Protection Agency or in the California Stormwater Best Management Practice Handbooks as ongoing maintenance measures, are implemented into a maintenance plan for the campus.

Noise

Measure Noise-1. The County of Los Angeles shall require that the plans and specifications require that construction equipment be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 decibels (dB) or to the maximum extent possible. The height and length of the barriers or curtains shall be determined based on the location of the construction activity and receptor. Because of the close proximity of the source and receptors, the noise impact would be dependent on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during demolition and construction, and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noises shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall take into account the demolition and equipment mix that would be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels.

Measure Noise-2. Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment.

Measure Noise-3. The distance at which impact pile driving would not exceed a peak particle velocity of 0.2 inch per

TABLE 1
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second at a residence would be 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving shall be utilized.

Measure Noise-4. The County of Los Angeles shall ensure that mechanical noise generated by the project is less than 45 A-weighted decibels (dBA) at residences immediately south (approximately 50 feet) of the project. This shall be achieved by implementing one, or a combination of more than one of the following strategies: utilizing quiet mechanical systems; locating mechanical systems away from residences (mechanical systems that produce a noise level of 55 dBA at 50 feet would need to be located a minimum of 160 feet from residences to bring mechanical noise levels below 45 dBA at residences), or utilizing insulating screens to break the line-of-site between the mechanical systems and nearby residences

Traffic

Measure Traffic-1. To reduce the traffic-related construction impacts, the County of Los Angeles shall require the construction contractor to provide a Construction Traffic Management Plan that is prepared in accordance with the California Department of Transportation's Construction Manual and Manual on Uniform Traffic Control Devices. The Construction Traffic Management Plan shall at the minimum address:

- Timing of deliveries of heavy equipment and building materials
- Directing construction traffic with a flag person
- Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic
- Identifying if improvements to the intersection of 120th Street, Wilmington Avenue, or Compton Avenue are necessary to accommodate the turning radii needed by large trucks accessing site Identifying multiple alternate ingress/egress access point for the circulation of traffic and emergency response vehicles
- Determining the need for construction work hours and arrival/departure times outside peak traffic periods
- Ensuring access for emergency vehicles to the project site
- Temporary closure of travel lanes or disruptions to street segments and intersections during materials delivery, transmission line stringing activities, or any other utility connections
- Maintaining access to adjacent property
- Specification of both construction-related vehicle travel and oversize load haul routes, the minimization of construction traffic during the AM and PM peak hour, distributing construction traffic flow across alternative routes to access the proposed project site, and avoiding residential neighborhoods to the maximum extent feasible
- Identification of vehicle safety procedures for entering and exiting site access roads

Measure Traffic-2. In order to address the Tier II project impacts, the County of Los Angeles shall complete the following improvements:

- Compton Avenue / Imperial Highway, County of Los Angeles / City of Los Angeles: Re-stripe westbound approach to provide a separate right-turn lane.
- I-105 / Imperial Highway: Provide a third northbound, left-turn lane by widening off-ramp by 10 feet for approximately 150 to 200 feet.
- Wilmington Avenue / El Segundo Boulevard: Re-stripe eastbound and westbound approaches to have separate right-turn lanes. Allow buses to go through the intersection from the right-turn lanes.
  To be completed as part of East Campus Parking Structure.
- Central Avenue / 120th Street: Re-stripe northbound approach to provide a separate right-turn lane. Also, widen the east leg by 3 feet on each curbside (i.e., reduce sidewalk along 120th Street east of Central Avenue by 3 feet for approximately 120 feet and re-stripe westbound 120th Street approach to provide a left-turn, two through lanes and a separate right-turn lane.
- Wilmington Avenue / I-105 Eastbound Ramps, County of Los Angeles / California Department of Transportation: Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach shall have a left-turn lane, shared left-right turn lane, and a separate right-turn lane. The sidewalks on both sides of Wilmington Avenue (as noted above) shall be reduced by 2 feet and the Wilmington Avenue roadway shall be widened by 2 feet on both sides (a total of 4 feet) from the south leg of this intersection. Provide an additional northbound left-turn lane by widening (reducing the medians).
- Wilmington Avenue / 118th Street, County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on both sides and re-stripe to provide two through lanes, a shared through right-turn lane and dual left-turn lanes along the southbound approach. Re-stripe the westbound approach to provide a separate right-turn lane and a shared left-through lane. Northbound approach shall have the same lane geometry as existing

TABLE 1
MITIGATION MEASURES

conditions. Under cumulative conditions, widen 118th Street roadway by 4 feet and re- tripe to provide a separate right-turn lane and shared left-through lane along the eastbound approach.

- Wilmington Avenue / 120th Street–119th Street, County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on both sides and restripe the southbound approach to provide a separate right-turn lane, three through lanes, and a left-turn lane. Re-stripe northbound approach to provide a shared through-right turn lane, two through lanes, and a left-turn lane. Remove median adjacent to northbound approach to facilitate three southbound receiving lanes. Restrict parking along Wilmington Avenue roadway during morning and evening peak periods along the eastside of Wilmington between 120th Street and Martin Luther King, Jr. Hospital Driveway entrance. Widen 120th Street west of Wilmington Avenue for 250 feet, on the south side by 2 feet, and re-stripe the eastbound approach to provide a separate right-turn lane, dual left-turn lanes, and a through lane. The westbound approach of 119th Street would have the same lane geometry as existing conditions.
  As partial implementation of the above measure to address impacts of the East Campus Parking Structure, the northbound approach to the intersection is to be re-striped to provide two northbound through lanes and one dedicated right-turn lane (on-street parking for 100 to 150 feet south of the intersection to be removed, approximately seven spaces).
- Wilmington Avenue / Martin Luther King, Jr. Hospital Entrance–120th Street, County of Los Angeles: Re-stripe southbound approach to provide a separate right-turn lane, two through lanes, and a left-turn lane. Provide three northbound receiving lanes and restrict on-street curb parking along the eastside of Wilmington Avenue between Martin Luther King, Jr. Hospital Driveway and 120th Street and 120th Street and 119th Street during morning and evening peak hours.
- Remove the median within the hospital entrance and re-stripe the driveway to provide dual left-turn lanes, a through lane, and a separate right-turn lane along the eastbound approach. Re-stripe to provide one receiving lane.
  As partial implementation of this measure to address impacts of the East Campus Parking Structure only, the addition of a left turn lane to the existing (eastbound) driveway configuration, creating a three-lane approach to Wilmington Avenue. As the new eastbound approach would include overlapping left turn lanes, the east-west signal phasing to be modified to operate as separate split phases. This requires modification of the traffic signal, possibly including upgrades of signal mast arms for those two approaches.

The appropriate conceptual signing and striping plans shall be submitted to the County of Los Angeles Department of Public Works, Traffic and Lighting Division for review and approval during the planning phase.

Measure Traffic-3. In order to address the Tier II cumulative projects impacts, using County of Los Angeles traffic study guidelines, the following mitigation measures shall be implemented to alleviate the cumulative significant impacts:

- Avalon Boulevard / El Segundo Boulevard, County of Los Angeles: Widen northbound approach by 2 feet and re-stripe the approach to provide a left turn lane, two through lanes, and a separate right-turn lane (10 feet, 10 feet, 10 feet, 12 feet). The approach could be widened by narrowing the 5-foot-wide median to a 3-foot-wide median, or by reducing the 12-foot-wide sidewalk to a 10-foot-wide sidewalk. This widening would need to occur all the way to an alley located approximately 100 feet south of the intersection. The bus stop at this approach would continue to be located at the same location; however, buses would be allowed to go straight through the intersection.
- Alameda Street / El Segundo Boulevard, County of Los Angeles / Compton: Re-stripe northbound/southbound approaches and provide a southbound right-turn lane. The lanes along the north leg shall be re-striped to provide 13-foot and 11-foot receiving lanes; 10-foot, 11-foot, 10-foot, and 12-foot approach lanes for southbound left-turn lane, southbound through lanes, and southbound right-turn lanes, respectively. The lanes along the south leg would have a 13-foot shared right through-way, 11-foot through lane, 10-foot left-turn lane, 12-foot receiving lane, and a 20-foot receiving lane. Remove two on-street parking spaces along the southbound approach during peak hours.
- Alameda Street / 103rd Street, County of Los Angeles / Lynwood: Re-stripe eastbound approach to provide a 10-foot, left-turn lane and a 12-foot, left-right shared lane. The receiving lane would be re-striped for 18.5 feet.
- Central Avenue / Rosecrans Avenue, County of Los Angeles / Compton: Re-stripe westbound approach to provide a separate right-turn lane. Allow buses to go through the intersection from the right-turn lane. • Central Avenue / El Segundo Boulevard, County of Los Angeles / Compton: Re-stripe southbound approach to provide a separate right-turn lane. Widen northbound approach by reducing median by 1 foot to 2 foot. Provide re-striping to show a separate northbound right-turn lane. Allow buses to go through the intersection from the right-turn lane.

TABLE 1
MITIGATION MEASURES

- Alameda Street / Imperial Highway, County of Los Angeles / City of Lynwood: Re-stripe southbound approach to provide the following roadway geometry: two left-turn lanes, two through lanes, and one right-turn lane.

The appropriate conceptual signing and striping plans shall be submitted to the County of Los Angeles Department of Public Works, Traffic and Lighting Division for review and approval during the planning phase.

Measure Traffic-4. Along the southbound approach of Alameda Street, the County of Los Angeles shall provide two left-turn lanes, two through lanes and one right-turn lane instead of one left-turn lane, two through lanes and a separate right-turn lane (i.e., add a second left turn lane). In addition, the County of Los Angeles shall provide the required signal hardware and supporting software to facilitate a right-turn arrow signal indication for southbound right-turn overlap with eastbound-westbound left-turns at the intersection.

Utilities

Measure Utilities-1. Prior to issuance of the permits to connect to the sewer system, the County of Los Angeles shall ensure payment of the connection fee for the capital facilities has been submitted to the appropriate Sanitation Districts of Los Angeles County for compliance with the California Health and Safety Code.

Measure Utilities-2. The County of Los Angeles shall review the plans and specifications for the project and the parking facilities to ensure that adequate service areas are provided for trash and recycling receptacles for compliance with applicable federal, state, and local statutes related to solid waste, and to reduce direct and cumulative impacts from project operation and maintenance to below the level of significance. Prior to advertising for construction bids for the new building, the County of Los Angeles shall ensure that the plans and specifications designating locations for trash receptacles and recycling receptacles are in conformance with the California Solid Waste Reuse and Recycling Access Act of 1991. Wherever trash receptacles are provided throughout the project site, a recycling receptacle for plastic, aluminum, and metal shall also be provided. Signs encouraging patrons to recycle shall be posted near each recycling receptacle.

To ensure conformance with the Solid Waste Management Act of 1989, the County of Los Angeles shall require the construction contractor to manage the solid waste generated during construction of each element of the project by diverting at least 50 percent of solid waste from disposal in landfills, particularly Class III landfills, through source reduction, reuse, and recycling of construction and demolition debris. The construction contractor shall submit a construction solid waste management plan to the County of Los Angeles for approval prior to initiation of demolition activities. The construction contractor shall demonstrate compliance with the solid waste management plan through the submission of monthly reports during construction and demolition activities that estimate total solid waste generated and diversion of 50 percent of the solid waste.

Notes: Measures Traffic-2, Traffic-3 and Traffic-4 to be implemented as required prior to any impacts occurring; these measures are not required to be implemented for the proposed BHC as trips generated (together with all other projects on the MLK Campus, would be less than existing conditions identified in the 2011 FEIR.
Each Tier II project is analyzed to determine when mitigation measures must be implemented in order to ensure that impacts are mitigated in accordance with the 2011 FEIR.
SOURCE: 2011 FEIR

D. Summary Comparison of Significant Impacts Identified in 2011 FEIR Compared to Impacts of Proposed Behavioral Health Center

Unavoidable significant adverse environmental impacts identified for the 2011 FEIR for Tier II projects as compared to impacts of the BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) are summarized in **Table 2** below:

TABLE 2
COMPARISON OF SIGNIFICANT IMPACTS
2011 FEIR COMPARED TO IMPACTS OF THE PROPOSED BEHAVIORAL HEALTH CENTER

Issue Area	2011 FEIR MLK Medical Center Campus Redevelopment Project	BHC
Air Quality	Construction: Emissions would exceed regional daily thresholds for VOCs and NOx and localized thresholds for NOx, PM2.5 and PM10 -- based on assumed equipment use and distance to sensitive receptors. Operations: Emissions would exceed regional daily thresholds for VOCs, NOx, CO and PM10. Mitigation Measures Air-1 through Air-9 would reduce project and cumulative air quality impacts during construction to the maximum extent feasible.	Demolition of the Hawkins Building would not occur simultaneously with construction of the child care center and/or the medical office building. MACC renovation activities could overlap with some construction activities of the medical office building, Emissions associated with renovation of the original MACC and Hawkins Building demolition even overlapping with construction of the medical office building, would be within those analyzed in the 2011 FEIR. The 2011 FEIR assumed construction activities right up to the property line; construction activities associated with renovation of the original MACC and Hawkins Building demolition would be more than 60 feet from the property line and adjacent single-family sensitive receptors. Nonetheless air quality impacts to sensitive receptors could still be significant; however, they would be within the impacts analyzed in the 2011 FEIR. Impacts of renovation of the original MACC would be far less than impacts associated with demolition and new construction. Impacts of demolition of the Hawkins Building would be less than impacts of demolition of the original MACC because it is a smaller building and further from the single-family homes to the south.
Cultural Resources	Implementation of mitigation measures Cultural-3, Cultural-4 and Cultural-5 would reduce Tier II impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium as a result of Tier II of the proposed project to the maximum extent feasible. The demolition/removal of any one historical resource still would remain significant and unavoidable. The 2011 FEIR identified mitigation for demolition/removal of all five historic resources and identified a residual significant adverse impact as a result.	The East Campus Parking Structure (under construction) significantly impacted the MLK Campus Historic District and the Child Care Center significantly impacted the Hudson Auditorium (even though it involved renovation). The proposed renovation of the original MACC would result in reusing the MACC building. The 2013 Master Plan included demolition of the entire MACC; this impact would be less than the maximum impact considered in the 2011 FEIR since the MACC building would remain. The exterior would be cleaned and potentially a treatment applied to the building. It is not yet clear whether proposed renovations would comply with the Secretary of the Interior's Standards and therefore impacts to the MACC building and associated impacts to the MLK Campus Historic District could still be significant. The 2011 FEIR addressed the potential demolition of the Hawkins Building. Loss of this building would be a significant impact due to loss of the building and impact to the MLK Campus Historic District; this impact was addressed in the 2011 FEIR.
Greenhouse Gas Emissions	Mitigation measure GHG-1 would reduce CO2 emissions contributed by operation of Tier II of the proposed project, thereby assisting compliance with the goals of AB 32 to reduce CO2e emissions to 1990 levels by the year 2020. Mitigation measure GHG-1 would ensure that indirect and cumulative GHG emission impacts would be reduced to the maximum extent feasible. However, potential GHG emission	The renovation of the original MACC and demolition of the Hawkins Building would be part of the MLK Tier II development and as such would be a part of the unavoidable significant impact for the entire Tier II development.

TABLE 2
COMPARISON OF SIGNIFICANT IMPACTS
2011 FEIR COMPARED TO IMPACTS OF THE PROPOSED BEHAVIORAL HEALTH CENTER

Issue Area	2011 FEIR MLK Medical Center Campus Redevelopment Project	BHC
	impacts associated with construction and operation of Tier II would remain significant and unavoidable.	
Noise (Construction)	The distance from the proposed project site at which impacts to affected residential structures would be below the level of significance is 80 feet. The nearest residential land use is approximately 60 feet south of the majority of proposed construction activity. Implementation of mitigation measures Noise-1 through Noise-4 would reduce construction noise. However, the 2011 FEIR indicates that construction noise levels would exceed the 75 dBA permissible level at residences south of the proposed project site that are within 80 feet of the proposed project property. Therefore, noise impacts from construction, while temporary, would remain significant and unavoidable.	The 2011 FEIR analyzed construction impacts associated with construction activities up to the property line. Most of the construction associated with the renovation of the original MACC and demolition of the Hawkins Building would be greater than 60 feet from the southern property line and single-family residences to the south. Renovation of the original MACC would be mostly interior work, although the exterior would be cleaned potentially using sandblasting and potentially a treatment to the exterior would be applied. In general construction noise would be much less in intensity and duration as compared to demolition and new construction. Demolition activities of the Hawkins Building would be buffered from the single-family residences by the original MACC building. However, construction activity could occur on the access road and general area and therefore the impact of construction noise could still be significant, as discussed in the 2011 FEIR.

Other impacts analyzed in the 2011 FEIR (aesthetics; geology and soils; hazards and hazardous materials; hydrology and water quality; population and housing; public services; recreation; traffic and transportation; and utilities and service systems) were determined to be less than significant (see **Table 3** below for a summary comparison of all impacts analyzed in the 2011 FEIR compared to impacts of the BHC.

E. Incorporation by Reference

The following documents were referenced in the preparation of this Addendum, and are incorporated herein by reference, consistent with Section 15150 of the *Guidelines*:

- Martin Luther King Jr. Medical Center, Behavioral Health Center Feasibility Study, HMC Architects, April 16, 2018.
- Martin Luther King Jr. Medical Center Campus Redevelopment Project, Reuse of Historic Buildings and Hawkins Building Demolition, July 2018.
- County of Los Angeles, Martin Luther King, Jr. (MLK) Medical Center Campus Redevelopment, certified Final Environmental Impact Report, certified October 11, 2011. Referred to herein as the 2011 FEIR.
- Gensler, MLK Medical Center Campus Master Plan & the Willowbrook MLK Wellness Community Vision, June 2012; prepared for the County of Los Angeles; adopted January 15, 2013. Referred to herein as the 2013 Master Plan.

These documents are available for review at the LA County Department of Public Works On-Site Office at MLK Medical Campus.

F. Summary of Effects

Section 3 of this Addendum includes a detailed evaluation of any potential change in effects associated with development of the BHC (which entails renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) for each CEQA environmental issue area, organized consistent with the Appendix G of the State CEQA Guidelines. As summarized above, impacts would either be comparable or reduced as compared to those identified in the 2011 FEIR. Therefore, as discussed in this Addendum, the BHC would not trigger any of the conditions that require the preparation of a Subsequent or Supplemental EIR in Sections 15162 and 15163 of the CEQA Guidelines, and therefore an Addendum to the 2011 FEIR is the appropriate CEQA document to address these changes.

2. DESCRIPTION OF PROPOSED BEHAVIORAL HEALTH CENTER

A. Project Location and Background

The project site is the existing 38-acre (1,344,219 square feet) MLK Medical Center Campus, located at 12021 Wilmington Avenue in the unincorporated area of Willowbrook, County of Los Angeles (County), California (see **Figure 1**). The original MACC is located in the southern/center of the project site facing but set back from Wilmington Avenue. The Hawkins Building is located immediately north of the original MACC fronting on East 120th Street. The original MACC is located immediately west of the Hudson Auditorium (which is under construction to be adaptively reused for the Child Care Center) and west of the East Campus Parking Structure (completed in 2018). The MLK Campus Driveway and large green area (central lawn area) are located immediately west of the original MACC and north of the new East Campus Parking Structure and were reconfigured as part of the parking structure construction.

The original MACC is approximately 375 feet south of East 120th Street, and 650 feet west of South Wilmington Avenue. Landscaping and a narrow alley that serves as a service road/emergency driveway separates the MACC from the residential neighborhood to the south. The Hawkins Building fronts on East 120th Street, although it is set back from the roadway. In the setback area is a short wall and landscaped area.

The MLK Campus is in the unincorporated Willowbrook Community of the County of Los Angeles. It is less than 1 mile north of the City of Compton, less than 1 mile south of the City of Los Angeles, and less than 1 mile west of the City of Lynwood. The project site is designated Neighborhood Commercial (C-2; Neighborhood Business Zone) by the County.

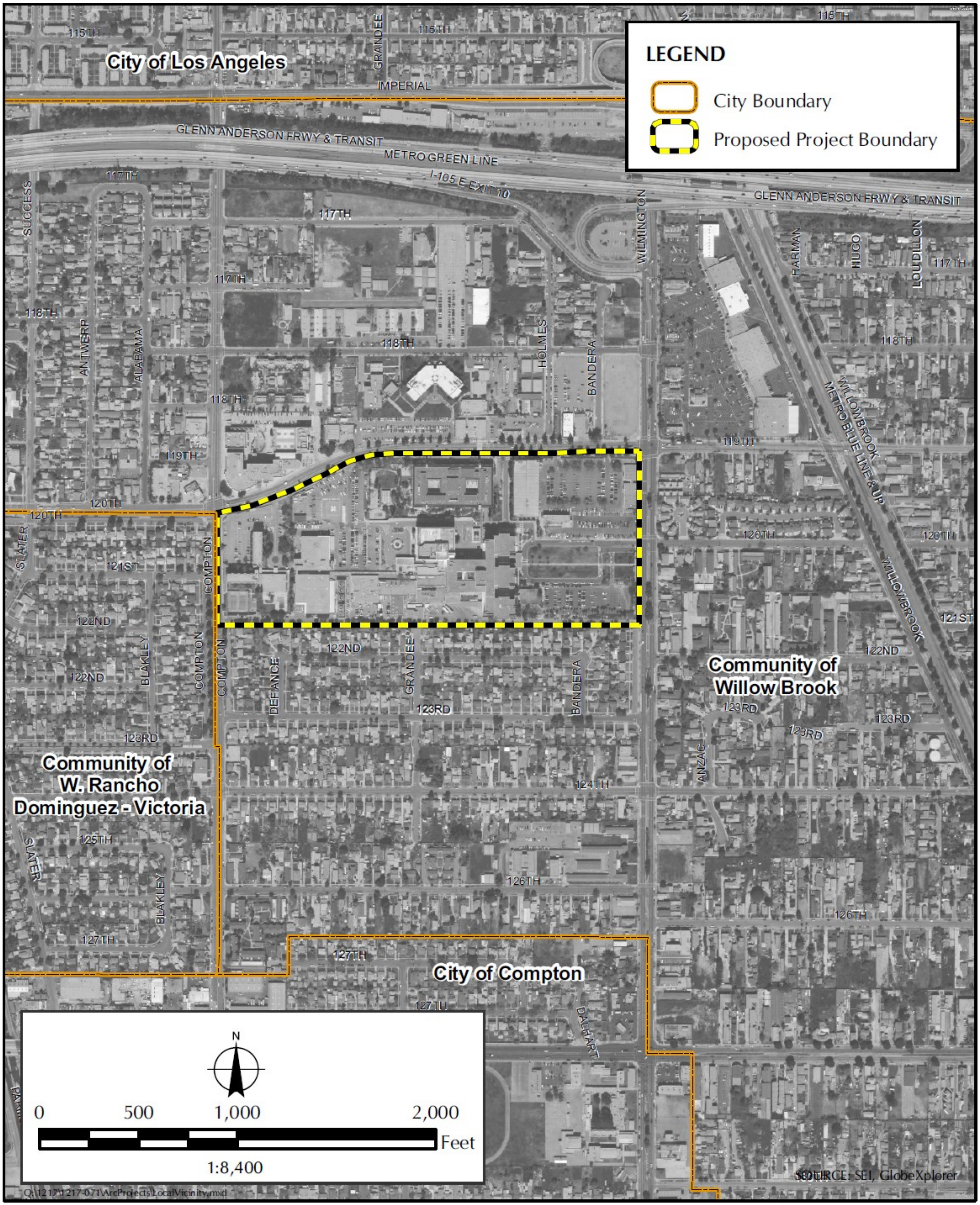
The project site is located approximately 3 miles north of State Route 91 (SR-91; Artesia Freeway), approximately 3 miles northeast of Interstate 710 (I-710; Long Beach Freeway), approximately 2 miles east of I-110 (Harbor Freeway), less than 1 mile south of SR-90 (East Imperial Highway), and less than 1 mile south of I-105 (Glen Anderson Freeway).

The topography in the vicinity of the MACC is generally flat, although it includes landscaped berms adjacent to the Hudson Auditorium southeast of the MACC and the MACC is raised above the adjacent parking lot and service alley. The elevation of the original MACC is also about 10 feet above the Hawkins Building elevation and East 120th Street.

2011 Final EIR

The 2011 FEIR evaluated specific near-term (Tier I) projects and conceptual longer-term (Tier II) projects on the MLK Campus (see **Figure 2**). The renovation of the original MACC and demolition of the Hawkins Building are proposed to be implemented as part of Tier II construction for the larger MLK Medical Center Campus Redevelopment Project.

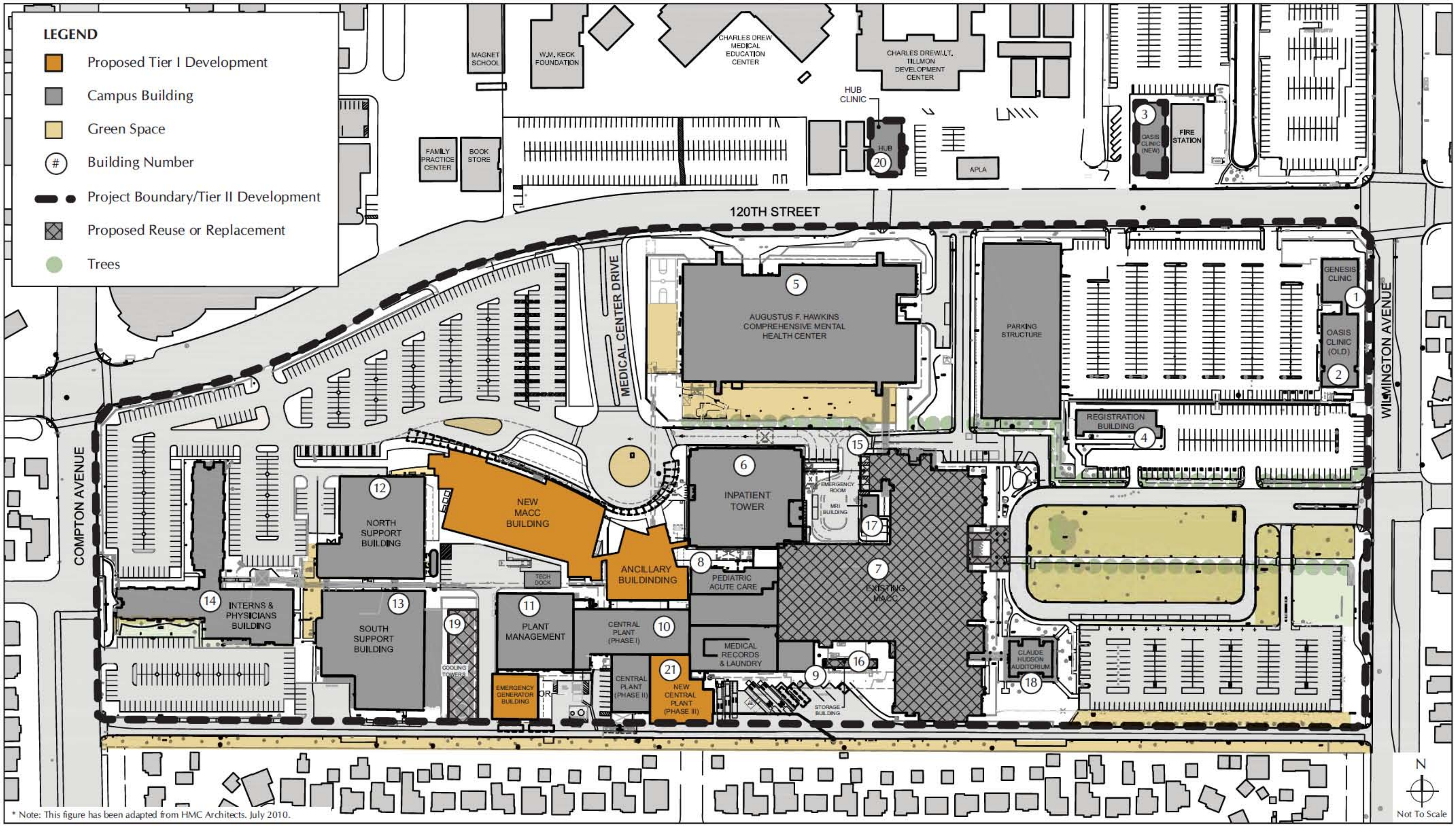
The 2011 FEIR indicated that Tier II would potentially build out approximately 1,814,696 square feet of hospital-related development including medical offices, commercial, retail, office space, and other development in support of the mixed-use campus. The 2011 FEIR stated that Tier II development would provide “sufficient parking” for mixed-use development. The 2011 FEIR analyzed an envelope of construction extending up to 78 feet tall (including all appurtenances) along the site boundaries.



SOURCE: Final Environmental Impact Report, Volume III, 2011

MLK Medical Center Campus EIR 4th Addendum

FIGURE 1
Project Location



* Note: This figure has been adapted from HMC Architects. July 2010.

SOURCE: Final Environmental Impact Report, Volume III, 2011

MLK Medical Center Campus EIR 4th Addendum

FIGURE 2

Site Plan Analyzed in 2011 FEIR

The 2011 FEIR indicated that of the 38 acres of land on the MLK Medical Center Campus, a minimum of 10% was reserved for open space and a maximum of 40% was reserved for up to 100 residential units, walkways and parking structures and/or lots with the remainder occupied by medical center buildings.

2013 Master Plan

In 2013 The Board of Supervisors approved the MLK Medical Center Master Plan (2013 Master Plan) for the campus, which was found to be consistent with the 2011 FEIR (see **Figure 3**). The focus of the 2013 Master Plan was to provide for the growth and development of 124 acres in the Willowbrook community focused on the MLK Medical Center Campus.

The 2013 Master Plan indicates that both the original MACC and the Hawkins Building were anticipated to be demolished, however, the document also indicated that there was a possibility that the original MACC could be re-used. The 2013 Master Plan indicates that Parking Lot A to the east of the Hudson Auditorium, with a total of about 200 parking spaces (in and adjacent) would be replaced with the East Campus Parking Structure in approximately the same area as was addressed in the 1st Addendum to the 2011 FEIR (although not extending as far west) with landscaping along the north, east and south.

The 2013 Master Plan does not specifically address child care, but such uses are typical of ancillary uses to a mixed-use campus (a child care facility was analyzed in the 2nd Addendum to the 2011 FEIR).

The 2013 Master Plan indicates that the LA County Zoning Code would require 2,394 parking spaces for buildout. The total parking spaces indicated to be provided in the 2013 Master Plan is 2,553 spaces (a surplus of 159 parking spaces).

In accordance with County requirements, the 2013 Master Plan incorporates Low Impact Development (LID) Best Management Practices (BMPs) to manage stormwater runoff from the MLK Medical Center Campus.

The original MACC and Hawkins Building are within Development Area 2 that retains the land use designations for public facilities and is intended to be used for medical facilities and related support uses. Recommended BMPs for Development Area 2 include engineered wetlands, planter boxes within medians and along streets, and cisterns/rain barrels and green roofs.

The 2013 Master Plan indicates that further geotechnical testing will need to be conducted to verify that the actual infiltration rates are technically infeasible to permit infiltration.

Current Status of Master Plan

Tier I of the MLK Master Plan was completed over time, with all buildings substantially complete by the end of 2013. Tier I included development of a new MACC Building (132,000 square feet) and Ancillary Building (24,700 square feet) as well as emergency generator (4,223 square feet) and central plant (9,409 square feet). Tier I also included tenant improvements to: North Support Building (52,276 square feet), South Support Building (34,762 square feet), and the Plant Management Building (15,648 square feet); and site improvements. Relocation of the modular MRI Building (1,100 square feet) to the dock area north of the North Support Building is anticipated to occur in late 2018/early 2019.

MLK Medical Center Campus EIR 4th Addendum

SOURCE: MLK Medical Center Campus Master Plan & The Willowbrook MLK Wellness Community Vision, 2012

FIGURE 3

2013 Master Plan Site Plan

The adaptive reuse of three floors of the Interns and Physician Building as a recuperative care facility was the first Tier II project to be completed (in 2015). The East Campus Parking Structure was the second Tier II project and was completed in 2018. A Child Care Center, the third Tier II project, is anticipated to be completed in September 2018. A medical office building proposed for the northeast corner of campus, the fourth Tier II project, is anticipated to start construction in August 2018 and be completed in December 2019. The fifth Tier II project, the BHC (the subject of this Addendum) is anticipated to start with interior demolition in October 2019 (extending through January 2020) and building renovation extending through January 2021, with initial occupancy occurring sometime in early 2021. Interior abatement inside the Hawkins Building and prepatory exterior work would occur December 2019 through February 2020. The demolition of the Hawkins Building would take approximately four months and would begin in late February 2020 and extend through June.

Willowbrook MLK Wellness Community Vision

The 2013 Master Plan is complemented by the Willowbrook MLK Wellness Community Vision to "create a broad-based health care and wellness center of excellence…while enhancing an overall sense of place in the South Los Angeles community." The Willowbrook MLK Wellness Community Vision is comprised of the 82 acres immediately north of the MLK Medical Center Campus extending to the freeway, and includes the Charles Drew University, King Drew Medical Magnet School as well as residential and open space uses.

Willowbrook Area Access Improvements

The Willowbrook Area Access Improvements project is located on Wilmington Avenue and 120th and 119th Streets immediately north and east of the MLK Campus (north of the main Driveway). The Willowbrook Area Access Improvements are designed to improve the mobility of pedestrians and bicyclists in the Willowbrook neighborhood adjacent to the MLK Medical Center Campus. Project improvements will include sidewalk enhancements, pavement repair, renovation of the existing landscaped median, refurbishing existing and providing new street furnishing such as bus shelters, benches, and bike racks, pedestrian lighting, traffic signal upgrades, etc. The project is complete.

B. 2011 FEIR Assumptions

The 2011 FEIR evaluated two tiers of development. Tier I included vacation of approximately 509,000 square feet of space including the emergency room (3,300 square feet) and original MACC (495,335 square feet of space) and development of two buildings and ancillary structures totaling 170,000 square feet (new MACC, ancillary building and central plant). Tier I also included tenant improvements and possible relocation of the MRI building.

Tier II of the MLK Medical Center Campus Redevelopment Plan included up to 1,814,696 square feet of development on the proposed project site. Proposed development assumed a mix of uses, including medical office, commercial, retail, office space, recreation, and other development in support of the campus. In addition, up to 100 residential units, to be developed at a multi-family density consistent with the surrounding was assumed. Tier II was assumed to entail the reuse, replacement, or removal of the existing MACC Building, Emergency Room, Storage Building, and Cooling Towers. The 2011 FEIR allowed for the demolition of the Hawkins Building. The 2011 FEIR indicated that sufficient parking would be provided for Tier II uses, but the location of parking was not specified in the 2011 FEIR.

The 2011 FEIR indicated that of the 38 acres (1.3 million square feet) of land on the MLK Medical Center Campus, a minimum of 10% was reserved for open space and a maximum of 40% was reserved for up to 100 residential units, walkways and parking structures and/or lots with the remainder anticipated to be occupied by medical center buildings.

The development of Tier II was assumed to use and incorporate materials to ensure visual consistency and continuity at the proposed project site and within the surrounding area. Development on the MLK Campus is required to comply with design goals presented in the campus planning and programming report that was prepared for the MLK Medical Center Campus by HMC Architects in 2009. The report stated that the proposed architecture should achieve the following:

- Respect the existing fabric of buildings;
- The selection of exterior material and architectural forms should make reference to the material palette of the existing campus while incorporating contemporary materials and building technologies to project the future vision of this campus;
- The juxtaposition and massing of the new buildings should be strategically located to allow visitors a pleasurable aesthetic experience; and
- The open spaces created in between the buildings are designed the variations in size, shape, and scale that are conducive to pedestrian travel through the campus.

For purposes of assessing aesthetic/shadow impacts the 2011 FEIR evaluated building heights of up to 78 feet tall (including appurtenances) placed along the project site property line.

The potential construction scenario for Tier II was envisioned as a multi-phase process. The construction scenario for Tier II was to develop all Tier II uses within an approximately 10-year timeframe, between 2010 and 2020. Tier I was completed at the end of 2013. Tier II started with the adaptive reuse of three floors of the Interns and Physicians building (completed in 2015); build out of Tier II is currently anticipated to occur later than 2020, likely in 2026 or beyond.

The FEIR indicates (page 2-26) that it is anticipated that the site Emergency Response and Evacuation plans would be updated for both Tier I and Tier II of the proposed project as appropriate and that these plans would address all campus development, as each building is completed. The FEIR indicates (page 2-26) it is understood that communication with the County Fire Department, Sheriff's Department, and other emergency response agencies would continue throughout the development of both tiers of the proposed project. It was further understood that the County of Los Angeles would coordinate with the respective service agencies for Tier II of the proposed project to review the specific proposed development during the planning phase of the proposed project to confirm whether Tier II of the proposed project adequately meets the requirements of the respective service providers.

The analysis of construction impacts was based on an aggressive scenario (allowing build out of the campus to the maximum extent possible with reasonable worst-case assumptions with respect to operation of equipment) to allow the consideration of a reasonable worst-case environmental impacts scenario, which encompasses the maximum anticipated impacts of the proposed project, in the event that the County chooses to complete up to 1,814,696 square feet of development.

The type and quantity of equipment that would potentially be used in construction of Tier II was anticipated to vary for each component. For the purposes of the analysis in the FEIR, it was anticipated that development of Tier II would require multiple phases that would use equipment comparable to that shown in **Table 3**, below.

Site preparation and construction is required to be in accordance with all federal, state, and county building codes. The FEIR anticipated that for Tier I alone, excavation of up to 40,000 cubic yards of dirt to a depth of up to 45 feet. Daily construction activities are subject to County noise regulations. All construction-related activities are required to be scheduled in compliance with the County Noise Ordinance, which prohibits construction activities and operation of construction equipment between the hours of 8:00 p.m. and 7:00 a.m., Monday through Friday, or at any time on Sunday or holidays. Work conducted on Saturdays must not commence before 7:00 a.m. and must end no later than 5:00 p.m. Noise levels exceeding 65 dBA (decibels, A-weighted sound levels) for single-family residences and 70 dBA for multifamily residences during construction hours are prohibited.

TABLE 3
ANTICIPATED CONSTRUCTION EQUIPMENT FOR REDEVELOPMENT PROJECT

Approximate Quantity	Type of Equipment or Vehicle	Approximate Duration of On-Site Construction Activity (in months)
2	Man lift	3
4	Pickup truck	8
2	Hand compactor	5
2	Crane	3
1	Concrete mixer	4
1	Backhoe	3
40–60	Crew members	8
50	Crew vehicles (maximum)	8
1	Pile Driver	6
1	Large Bulldozer	3
2	Dozer	3
1	Front-end loader	1
1	Water truck	2
1	Grader	1
5	Dump truck	6
16	Concrete mix truck	9
1	Roller	1
3	Fork lift / grade all	3

SOURCE: MLK Medical Center Campus Redevelopment, Mitigation Monitoring Program (Table II.2-1 page II-6); February 2011

The construction contractor is required to ensure that source-reduction techniques and the development of recycling programs during construction and operation of the proposed project are considered and implemented whenever possible. The construction contractor is also required to incorporate BMPs consistent with the guidelines provided in the California Storm Water Best Management Practice Handbooks: Construction. BMPs to control surface runoff and soil erosion are required for construction taking place during rainy periods. Construction equipment used during the development of Tier II is required to be turned off when not in use to reduce idling to the maximum extent possible. The construction contractor is required to ensure that all construction and grading equipment is properly maintained. All vehicles and compressors are required to be equipped with exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times.

It was anticipated that on average, up to 400 construction workers would be on-site at any given time during the construction of Tier II projects. In addition, approximately 60 County project and construction management staff are assumed to be at the site during Tier II construction. However, it was indicated this number could vary as a result of the type and/or amount of work being completed on-site. Construction-related ingress and egress to the project site was assumed to occur primarily off East 120th Street to the north or Wilmington Avenue to the east.

C. Behavioral Health Center

The original MACC (495,335 square feet), was vacated as part of Tier I. Demolition of the original MACC was one option considered in the 2011 FEIR and was identified as an option in the 2013 Master Plan although the 2013 Master Plan Site Plan indicated that the original MACC was to be removed. The County has determined that renovation and adaptive reuse for the original MACC for the Behavioral Health Center (BHC) is now the preferred option. Because of the programmatic needs of the BHC (for multiple secure and private garden spaces to complement the multiple BHC programs) it is not possible to keep the Hawkins Building, rather this building is to be demolished and replaced with gardens and surface parking to ensure parking demand for the BHC is met.

Project Characteristics

The County proposes to develop the BHC that would entail 1) renovation of the original MACC, and 2) demolition of the Hawkins Building and replacement with gardens and surface parking. The BHC is to provide integrated healthcare and mental health care outpatient and residential services. This facility is planned to serve as a mental health portal and is designed to provide integrated mental and urgent health care through collaborative and cooperative programs. It is planned to include approximately 10 separate tenants (with different jurisdictional and licensing requirements) and approximately 15 separate programs, totaling over 500,000 square feet of programmed space. The exterior of the building would be cleaned and potentially a treatment applied. An architectural historian will be on the design team to maximize retention of character-defining historic material.

The first and basement levels of the BHC are proposed to house various outpatient programs, administrative programs, and public spaces. The 2nd through 5th levels of the building are proposed to house various residential, outpatient, and inpatient programs, such as mental health rehabilitation, Office of Diversion and Reentry (ODR) housing (criminal justice diversion), substance use disorder residential, crisis residential, and psychiatric health. Many of the inpatient and/or residential programs require dedicated entrances, secured entrances, and/or dual entrances (public and private) to their program space. Separate entrances for certain programs are required to ensure privacy and security and are required by licensing.

The existing sunken garden and courtyard area south of the Hawkins Building, as well as, potentially, the bridge from the 2nd level of the original MACC to the area, would be reconfigured and re-purposed for healthcare-related access and gardens. The design of the gardens has not yet been determined and would be developed with input from the architectural historian working as part of the design team in order to maximize retention of character-defining historic fabric.

The gardens would serve as required outdoor space for some of the various inpatient and/or residential programs. Though the original MACC includes courtyards that provide some recreation/open space, additional garden space is required due to the quantity of programs and the restrictions on intermingling of residents/patients from different programs and the need for security and/or privacy for some of the programs. These gardens will be designed to enhance the central spine of the campus, as well as provide reflective and creative space for both patients and visitors.

Lighting

In accordance with adopted Mitigation Measure Aesthetics-1, all exterior lighting for building and on-site security lighting would be shielded and directed downwards to minimize the impacts on the surrounding land uses.

Days and Hours of Operation

The various programs in the BHC would have different hours of operation. Generally the outpatient programs would be open to the public from approximately 6:30 am to 7:00 pm Monday to Friday and Saturday 8:00 am to 4:00 pm. The inpatient and residential programs accept new patients 24 hours a day, 7 days per week.

Demolition and Construction Activities

Project demolition and renovation activities would be typical of such activities and would be well within the assumptions made in the 2011 FEIR (as identified in Table 3 above). Renovation activities are generally far less intense than construction activities, except for building cleaning (possibly sandblasting) which would be similar in intensity to some of the building construction activities but of much shorter duration. The demolition of the Hawkins Building and subsequent site preparation would entail similar activities to those analyzed to occur within 60 feet of the sensitive single-family homes to the south. Demolition of the Hawkins Building and subsequent site preparation and construction of the gardens and surface parking would be buffered from these sensitive uses by the original MACC that is to remain.

The Mitigation Monitoring Program indicates that Tier II would require multiple phases and would require use of equipment comparable to the equipment identified in Table 3 above. Demolition of the Hawkins Building and renovation of the original MACC would not overlap with construction of the Child Care Center or medical office building at the northwest corner of the MLK Campus. The specific equipment list has not yet been developed for demolition and renovation activities but simultaneous activity renovating the original MACC and demolishing the Hawkins Building would result in use of equipment that would be comparable, with no greater impacts compared to the equipment identified in Table 3. The renovation of the MACC would involve activities that would be mostly internal to the building and therefore considerably less noisy than construction activities associated with demolition and construction of a new building (except for possible sandblasting of the exterior for a brief period).

As noted in the 2011 FEIR, construction is not allowed between 8:00 pm and 7:00 am Monday through Friday or anytime on Sunday. Saturday construction could occur between 7:00 am and 5:00 pm. Duration of the main construction activities is shown below.

Schedule

Renovation of the MACC is anticipated to start with interior demolition in October 2019 (extending through January 2020) and building renovation extending through January 2021, with initial occupancy occurring sometime in early 2021. Interior abatement inside the Hawkins Building and prepatory exterior work would occur December 2019 through February 2020. The demolition of the Hawkins Building would take approximately four months and would begin in late February 2020 and extend through June 2020.

Discretionary Actions and Approvals

The development of the BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) requires approval by the County.

Project Objectives

Project objectives identified in the 2011 FEIR remain relevant and applicable to the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking). The objectives for Tier II include:

- Provide opportunities for development of up to 1,814,696 square feet of mixed use, including medical office, commercial, retail, residential, recreational, office space, and other development in support of the campus that are appurtenant to and compatible with the primary land use of a community-based health program facility.
- Provide sufficient parking for mixed-use development.

3. ENVIRONMENTAL SETTING AND IMPACT ANALYSIS

The certified Final EIR for the Martin Luther King Jr. Medical Center Campus Redevelopment Project (2011 FEIR) determined that the proposed redevelopment of the campus (Tier II, of which the project is a part) would result in significant and unavoidable impacts in the issue areas identified below. The following discussion also compares impacts of the BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) to the conclusions of the 2011 FEIR.

1) Air Quality -- *Construction:* Emissions could exceed regional daily thresholds for VOCs and NOx and localized thresholds for NOx, PM2.5 and PM10 -- based on assumed equipment use and distance to sensitive receptors. *Operations:* Emissions would exceed regional daily thresholds for VOCs, NOx, CO and PM10. Demolition of the Hawkins Building, subsequent site preparation and activities associated with renovation of the original MACC together with any overlapping activities at the medical office building site at the northeast corner of the MLK Campus would result in peak daily emissions within those analyzed in the 2011 FEIR. However, impacts could remain significant. Trips generated by the renovation of the original MACC would be within the trip generation analyzed in the 2011 FEIR and could contribute to the significant impact associated with operation of the overall MLK Campus on completion of the overall MLK Redevelopment Project.

2) Cultural Resources -- Impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium (Hudson Auditorium) as a result of implementation of Tier II. The demolition/removal of these historical resources was identified as a significant and unavoidable impact. Demolition of the Hawkins Building was provided for in the 2011 FEIR and would be a significant impact as a result of loss of an historic building that also contributes to the MLK Historic District. The loss of the Hawkins Building was identified as a potential impact in the 2011 FEIR. Renovation of the original MACC, with the exterior remaining substantially in its current form except possibly with application of a treatment, would result in the retention of one of the five identified historic resources on the MLK Campus, thereby reducing the impact to this historic resource and the MLK Campus in general. However, the extent of renovation may not be fully consistent with the secretary of the Interior's Standards for Rehabilitation and therefore the impact to this resource could still remain significant as identified in the 2011 FEIR. Depending on the extent of exterior treatment, the impact to the MLK Campus Historic District as a result of changes to the original MACC could also be significant.

3) Greenhouse Gases -- Potential GHG emission impacts associated with construction and operation of Tier II would be significant and unavoidable; the renovation of the original MACC and subsequent reuse by the BHC would contribute to GHG emissions for the MLK Campus as a whole on completion of all redevelopment analyzed in the 2011 FEIR resulting in a significant impact.

4) Construction Noise – The nearest residential land use to the original MACC is approximately 64 feet to the south. The 2011 FEIR indicates that construction noise levels would exceed the 75 dBA threshold level at residences that are within 80 feet of construction activities. As discussed in the 2011 FEIR, construction noise impacts would be significant and unavoidable at residences within 80 feet including those south of the MACC. However, construction noise associated with renovation is much less than that associated with new construction both in terms of intensity and duration. Building cleaning could involve brief

sandblasting or other techniques and possibly application of an exterior treatment within 80 feet of the single-family residences to the south. Such activities are typical of maintenance as well as renovation and area reasonably anticipated to occur as a result of development and renovation on the MLK Campus.

All remaining impacts were found to be less than significant with mitigation incorporated, less than significant or no impact.

As documented in the analyses below and summarized in **Table 4** below, with the mitigation measures previously adopted with the 2011 FEIR, impacts previously identified as significant would not be worsened, and no new significant or potentially significant impacts to the physical environment would occur as a result of the BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking). Accordingly, the following discussion supports the County's conclusion, pursuant to State CEQA Guidelines Section 15164, that an Addendum is appropriate, and supports a determination by the County that no subsequent EIR is required.

TABLE 4
SUMMARY OF IMPACTS -- 2011 FEIR COMPARED TO IMPACTS OF THE PROPOSED BEHAVIORAL HEALTH CENTER

Impact	Level of Significance -- Tier II 2011 FEIR	Level of Significance -- BHC
Aesthetics		
Increase in light and glare.	*Less than significant with mitigation.* Based on conceptual height (maximum of 78 feet in this location), setback and mitigation measures.	*Less than significant with mitigation*. The proposed renovation of the original MACC would not increase the height of the existing structure. The project would be required to comply with mitigation measures identified in the 2011 FEIR that would reduce impacts from light and glare to a less than significant level.
Degradation of visual character; or increases in shading of sensitive uses.	*Less than significant with mitigation*. Based on height not exceeding 78 feet, assumed setbacks and mitigation measures.	*Less than significant with mitigation*. The renovated MACC would not be taller than the existing building and would comply with all mitigation measures from the 2011 FEIR.
Agricultural and Forest Resources		
There are no agricultural or forest resources on-site.	*No impact*. This issue was dismissed in the 2011 FEIR Initial Study.	*No Impact*. There are no agricultural or forest resources on the MLK Medical Center Campus.
Air Quality		
Air emissions during construction and operation.	*Significant*. For both construction and operation. Construction: Emissions would exceed regional daily thresholds for VOCs and NOx and localized thresholds for NOx, PM2.5 and PM10 -- based on assumed equipment use and distance to sensitive receptors. Operations: Emissions would exceed regional daily thresholds for VOCs, NOx, CO and PM10.	*Significant.* Renovation of the original MACC and demolition and subsequent site clearing of the Hawkins Building would involve use of equipment resulting in emissions no greater than assumed in the 2011 FEIR. Construction air quality impacts along the southern boundary of the site adjacent to the single-family residential neighborhood would likely be less. Overall impacts would similar to or less than was analyzed in the 2011 FEIR because the original MACC is to remain. Adopted mitigation measures would continue to reduce impacts but possibly not below a level of significance. While trips associated with the BHC would not result in the MLK Campus as a whole exceeding the trips identified as existing in the 2011 FEIR, on completion of Tier II,

TABLE 4
SUMMARY OF IMPACTS -- 2011 FEIR COMPARED TO IMPACTS OF THE PROPOSED BEHAVIORAL HEALTH CENTER

Impact	Level of Significance -- Tier II 2011 FEIR	Level of Significance -- BHC
		emissions could still exceed SCAQMD thresholds.
Biological Resources		
There are minimal biological resources on the campus.	*No impact*. Minimal biological resources present on the campus; compliance with existing regulations is required. This issue was dismissed in the 2011 FEIR Initial Study.	*No impact*. Minimal biological resources are located on the site. Ornamental trees could be removed; County must comply with Migratory Birds Treaty Act to protect nesting birds.
Cultural Resources		
Historic Resources. Impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium. Potential for demolition/removal of all these resources identified as significant and unavoidable impact. Archaeological, Paleontological and human remains impacts.	*Significant*. As a result of potential impacts to the identified resources. The 2011 FEIR analyzed and provided mitigation measures for demolition of all historic resources on the campus (including the original MACC and Hawkins Building). In addition, the 2013 Master Plan (that was found to be consistent with the 2011 FEIR) included demolition of the original MACC and Hawkins Building. As a result of required mitigation measures the 2011 FEIR concludes that impacts to Archaeological, Paleontological and human remains impacts would be less than significant with mitigation.	*Significant*. The renovation of the original MACC would retain an important historic building on the MLK Campus; an exterior treatment may be applied to the building and renovation may not be consistent with the Secretary of the Interior's Standards and therefore impacts to the building while less could still be significant. Depending on the extent of exterior treatment, renovation of the MACC could also significantly impact the MLK Campus Historic District. Demolition of the Hawkins Building would be a significant impact to that histroic building and the MLK Campus Historic District. Archaeological, Paleontological and human remains impacts would continue to be less than significant with mitigation.
Geology and Soils		
Seismicity, erosion, unstable soils.	*Less than significant with mitigation*. As a result of compliance with existing regulations and mitigation.	*Less than significant with mitigation*. Similar impacts due to the same site conditions and compliance with existing regulations and required mitigation measures.
Greenhouse Gas Emissions		
GHG emissions as a result of operational activities.	*Significant*. As a result of building sizes and anticipated vehicle trips.	*Significant.* The renovation of the MACC and reuse with the BHC would be an integral part of the overall MLK Campus redevelopment Plan analyzed in the 2011 FEIR. It would be part of the anticipated significant increase in GHG emissions. Increased use of the nearby transit (Willowbrook Rosa Parks Station) could result in fewer emissions than previously identified.
Hazards and Hazardous Materials		
On-site hazardous materials associated with former uses of the property including older buildings with asbestos and lead based paint.	*Less than significant with mitigation*. As a result of previous use of the site and required mitigation.	*Less than Significant with Mitigation*. Compliance with existing regulations and mitigation measures would result in impacts being similar impacts to 2011 FEIR.

TABLE 4
SUMMARY OF IMPACTS -- 2011 FEIR COMPARED TO IMPACTS OF THE PROPOSED BEHAVIORAL HEALTH CENTER

Impact	Level of Significance -- Tier II 2011 FEIR	Level of Significance -- BHC
Hydrology and Water Quality		
Increased impervious surfaces resulting in increased runoff. Construction activities and polluted runoff and sedimentation.	*Less than significant with mitigation*. As a result of increases in impervious surfaces and compliance with mitigation measures.	*Less than significant with mitigation*. The impact would be similar as site conditions would be similar (to impacts analyzed in EIR).
Land Use and Planning		
Potential to divide a community and consistency with applicable plans.	*No impact*. This issue was dismissed in the 2011 FEIR Initial Study because the proposed redevelopment of the MLK Campus would be continuation of an existing use.	*No impact*. Renovation of the original MACC and demolition of the Hawkins Building and subsequent development with gardens and surface parking would be part of Tier II development analyzed in the 2011 FEIR and would represent continuation of the existing use of the campus.
Mineral Resources		
There are no mineral resources on the campus.	*No impact*. Since there are no mineral resources known to exist on the MLK Medical Center Campus. This issue was dismissed in the 2011 FEIR Initial Study.	*No impact*. No mineral resources are known to exist on the MLK Medical Center Campus including the original MACC and Hawkins Building sites.
Noise		
Construction noise and vibration impacts to adjacent uses. Operational noise from equipment and vehicles.	*Significant*. Based on anticipated construction equipment and distance to sensitive receptors. Mitigation would reduce noise but not below a level of significance. As a result of increased vehicle trips operational noise would increase but by a less than significant amount.	*Significant*. Demolition and site preparation noise at the Hawkins Building site would occur as described in the 2011 FEIR. Renovation of the original MACC would involve mostly interior work which would be much quieter than demolition and new construction analyzed in the 2011 FEIR. However, cleaning of the exterior of the original MACC could involve sandblasting and/or other techniques that would result in a brief period of loud noise. Impacts would not be greater than was analyzed in the 2011 FEIR. Adopted mitigation measures would continue to reduce impacts but not below a level of significance due to proximity to residential uses to the south. The BHC would not result in an increase in trips above those that occurred on the site prior to initiation of master planning in 2011. Ultimate buildout would result in operational noise the same as analyzed in the 2011 FEIR.
Population and Housing		
Induce population growth displace housing or people.	*Less than significant*. Based on job creation (400 construction jobs and 100 permanent jobs) and no housing displaced.	*Less than significant*. The renovation of the MACC and demolition of the Hawkins Building and construction of new gardens and surface parking would create construction jobs and would not displace housing. The BHC would employ about 925 people of which 289 would relocate from uses currently in other buildings on the MLK Campus.

TABLE 4
SUMMARY OF IMPACTS -- 2011 FEIR COMPARED TO IMPACTS OF THE PROPOSED BEHAVIORAL HEALTH CENTER

Impact	Level of Significance -- Tier II 2011 FEIR	Level of Significance -- BHC
Public Services		
Impact to emergency access, police services, library services and parks.	Based on size of proposed development and increased vehicle trips, the 2011 FEIR concludes impacts to Public Services would be less than significant.	Less than significant. The BHC would not generate substantial increase in vehicle trips or demand for public services as a result of increased development. Impacts would be within impacts analyzed in the 2011 FEIR.
Recreation		
Impact on recreational facilities.	*Less than significant*. Based on limited potential for increased population, approximately 400 construction jobs and net new 100 new permanent jobs.	*Less than significant*. The BHC would have multiple on-site garden areas for the patients, staff and visitors, and would not generate impacts on recreational facilities.
Transportation and Traffic		
Traffic impacts during construction; and impacts to local intersections and street segments during operation.	*Less than significant with mitigation*. Based on vehicle trips that would be generated by developed area and required mitigation measures.	*Less than significant with mitigation*. The BHC together with Tier II development undertaken so far would not generate more trips than occurred prior to the analysis undertaken in the 2011 FEIR. Impacts would be within those analyzed in the 2011 FEIR and no additional traffic mitigation measures would be triggered beyond those implemented with the East Campus Parking Structure.
Utilities and Service Systems		
Impacts to wastewater, water, storm water and solid waste.	*Less than significant with mitigation*. Based on developed area and required mitigation measures, the 2011 FEIR concludes that.	*Less than significant with mitigation*. The renovation of the MACC for the BHC would be within the development assumptions for the MLK Campus as a whole; impacts would be within those identified in the 2011 FEIR.

A. AESTHETICS

The potential for the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) to result in new or substantially more adverse significant impacts to aesthetics was evaluated in relation to the 2011 FEIR analysis and required mitigation contained in the 2011 FEIR. Photographs of the original MACC and reconfigured green area are shown in **Figures 4** and **5**. Photographs of the Hawkins Building are shown in **Figures 6** and **7**. A photograph of the walled garden south of the Hawkins Building is shown in **Figure 8**.

Figure 4
View West of Original MACC (Future BHC) and Reconfigured Green Area

Figure 5
Reconfigured Green Area and "Timeline Walkway"

Figure 6
View of Hawkins Building looking South from 120th Street

Figure 7
View of Hawkins Building looking Northeast

Figure 8
View of Hawkins Building and Walled Courtyard looking West

(a) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to impacts on scenic vistas?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates that the MLK Campus (including the BHC site) is not within a scenic vista, and there are no scenic vistas identified within the vicinity. Existing development on the campus consists of the Martin Luther King, Jr. Medical Center, which provides medical services to the South Los Angeles community. The 2011 FEIR concluded no impacts to scenic vistas.

The original MACC would remain in its present configuration; the Hawkins Building would be demolished and replaced with gardens and surface parking. Public facilities, commercial development, and residential development -- all of which are typical of an urban setting -- comprise the land uses surrounding the proposed project site. Consistent with the analysis and conclusions of the 2011 FEIR (Initial Study), the proposed BHC, would not impact scenic vistas. There would be no new or greater impacts than those identified in the certified 2011 FEIR.

(b) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concluded no impacts to scenic resources within a state scenic highway. As analyzed in the 2011 FEIR, the nearest eligible or officially designated scenic highway or historic parkway is California State Route 110 (SR 110), located approximately 2 miles to the west of the proposed project site. The proposed project site cannot be viewed from SR 110 due to distance. The distance from the scenic route, the site's overall flat topography, and the fact that the renovated original MACC height would not change and therefore would result in no impact to public views. (The 2011 FEIR analyzed a maximum height of 78 feet.) The BHC would not result in new or greater impacts in relation to scenic resources within a state scenic highway. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(c) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to degradation of existing visual character or quality of the site and its surroundings?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

As described in the 2011 FEIR, the existing MLK Medical Center Campus includes the six-story main hospital tower located on the south-facing portion of the campus, as well as an adjacent five-story building, and various other structures and support buildings that surround these structures. The support buildings include a two-story medical records building, the one-story Pediatric Acute Care Building, and the three-story Hawkins Building, as well as other support buildings that range in height from one to six stories. The area surrounding the original MACC and Hawkins Building is characterized by common urban development, where land uses include public facilities, commercial development, and residential development. The 2011 FEIR concluded less than significant impacts with mitigation (Mitigation Measures Aesthetics-1 trough Aesthetics-4).

The BHC would be consistent in character with surrounding development. The height of the original MACC structure would remain the same as the existing structure, the Hawkins Building would be replaced with gardens and a small parking lot.

The 2011 FEIR did not specify landscaping for Tier II as the project was conceptual in nature. Landscaping would enhance visual character. The BHC would include a large garden area and small parking lot in the location of the existing Hawkins Building. Given limited changes to the original MACC exterior and removal of a large concrete structure and replacement with gardens and a small parking lot, impacts to visual character and quality would be less than significant consistent with the certified 2011 FEIR.

(d) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to a new source of substantial light or glare which would adversely affect day or nighttime views in the area?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates that the existing campus includes security, landscape and perimeter lighting on the site and adjacent properties, including streetlights along major thoroughfares and the emergency access roadway. The 2011 FEIR concludes a less than significant impact with mitigation with respect to light and glare and nighttime views (Mitigation Measures Aesthetics-1 through Aesthetics-4).

In accordance with Mitigation Measure Aesthetics-1, all exterior lighting for building and on-site security lighting would be shielded and directed downwards to minimize the impacts on the surrounding land uses. The original MACC would stay substantially as is with no new sources of light and glare. Removal of the Hawkins Building would not adversely affect light and glare.

No additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

B. AGRICULTURAL AND FOREST RESOURCES

The potential for the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) to result in new or substantially more adverse significant impacts to agricultural and forest resources compared to the 2011 FEIR was evaluated in relation to five questions recommended for consideration by the State CEQA Guidelines.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to any of the following:

- (a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
- (b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?
- (c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?
- (d) Result in the loss of forest land or conversion of forest land to non-forest use?
- (e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concluded no impacts to agricultural and forest resources as there are no such resources present on the project site. The project site is located in an urban area. There is no farmland, timberland or forest located on the project site or in the vicinity. The project site does not contain any farmland or agricultural uses, nor are any such lands located within close proximity to the site such that the proposed project could potentially create indirect impacts. The proposed BHC would continue to have no impact with respect to agricultural and forest resources, consistent with the analysis and conclusions in the 2011 FEIR (Initial Study). Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

C. AIR QUALITY

Air quality impacts of the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) were evaluated with regard to the 2011 FEIR. The potential for the proposed BHC to result in new or substantially more adverse significant impacts to air quality than analyzed in the 2011 FEIR was evaluated in relation to five questions recommended for consideration by the State CEQA Guidelines.

(a) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to conflict with or the potential to obstruct implementation of the applicable air quality plan?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR determined that development of the proposed MLK Medical Center was within the Southern California Association of Governments (SCAG) forecast for the area and would therefore be consistent with growth assumptions included within the most recent AQMP. As indicated in the 2011 FEIR, the proposed Tier II development (of which the BHC would be an integral part) would result in significant construction and operational impacts associated with emissions of criteria pollutants (see below). The proposed BHC would be within the assumptions made in the 2011 FEIR and would not result in additional air quality impacts. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(b) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the potential to violate any air quality standard or contribute substantially to existing or projected air violation?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates that Mitigation Measure Air-9 would ensure that criteria pollutants emissions associated with the use of construction equipment would be reduced to the maximum extent feasible. However, VOCs and NOx emissions during construction could still exceed regional daily thresholds and could result in temporary significant and unavoidable impacts. Mitigation Measures Air-1 through Air-9 would ensure that air quality impacts on sensitive receptors during construction would be reduced to the maximum extent feasible. However, construction of Tier II (that includes renovation of the original MACC, and demolition of the Hawkins Building together with any overlapping construction activity at the medical office building at the northeast corner of the MLK Campus) would still have the potential to briefly result in significant impacts to sensitive receptors related to emissions of NOx, PM2.5, and PM10.

The 2011 FEIR indicated that there are no feasible mitigation measures for operation of Tier II and therefore, criteria pollutant emissions from mobile sources on completion of Tier II would exceed daily regional emissions thresholds and would remain significant for VOCs, NOx, CO and PM10. The proposed BHC would not increase the number of trips compared to existing conditions identified in the 2011 FEIR, and therefore emissions as a result of the BHC together with Tier II development completed and proposed to date would not be expected to result in a significant impact. However, the project would be a part of the development as a whole and would therefore be a component of the impacts analyzed in the 2011 FEIR. The proposed BHC would be within the assumptions made in the 2011 FEIR and would not result in any additional air quality impacts. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(c) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

As discussed above, Tier II development of the MLK Medical Center (of which the proposed BHC is a part) could briefly result in significant impacts to sensitive receptors during demolition and construction activities as a result of emissions of NOx, PM2.5 and PM10.

Construction could also result in exceedances of regional daily thresholds for VOC and NOx. On completion of the MLK Redevelopment project as a whole, operational emissions were calculated to exceed regional daily thresholds for VOCs, NOx, CO and PM10. The proposed BHC would be within the assumptions made in the 2011 FEIR and would not result in any additional air quality impacts. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(d) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the potential to expose sensitive receptors to substantial pollutant concentrations?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR analyzed a development envelope for the entire campus assuming grading to property lines. The 2011 FEIR found that adjacent sensitive receptors would be exposed to NOx, PM10 and PM2.5 above the level of significance even after implementation of Mitigation Measures Air-1 through Air-9.

The majority of construction activity associated with the proposed BHC would be set back more than 60 feet from the property line adjacent to sensitive receptors (single-family homes) to the south. Since the majority of construction activity would be set back further than analyzed in the 2011 FEIR, impacts could be less than analyzed in the 2011 FEIR but could remain significant. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(e) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to creating objectionable odors affecting a substantial number of people?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concluded less than significant impact with mitigation with respect to odors. Consistent with the analysis in the 2011 FEIR, the proposed BHC would not result in unusual or objectionable odors. During demolition, construction and renovation, paving of the site would involve application of asphalt that can produce discernible odors typical of most construction sites. In addition, use of heavy construction equipment and the application of paints and coatings can also be a source of discernable odors. Mitigation measures to reduce construction emissions would also reduce odors. Any temporary odors would be typical in an urban environment and would be short-term in nature. Therefore, they would not be considered a significant environmental impact. With respect to operation, uses that are typically considered by the SCAQMD to be a source of odor complaints (agriculture uses, food processing and chemical plants, composting refineries, landfills and other uses) are not proposed. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

D. BIOLOGICAL RESOURCES

The potential for the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) to result in new or substantially more adverse significant impacts to biological resources than analyzed in the 2011 FEIR was evaluated in relation to six questions recommended for consideration by the State California Environmental Quality Act Guidelines.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following:

(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (USFWS)?

(b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

(c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

As indicated in the 2011 FEIR, the MLK Medical Center Campus is a hospital facility with landscaped areas, characterized by hospital and medical functions. The campus is a completely developed property. The 2011 FEIR concluded no impacts to biological resources.

The 2011 FEIR summarizes the California Natural Diversity Database (CNDDB) with respect to the project site. The 2011 FEIR indicates that 18 listed species that are known to exist in the area, including 8 plant species and 10 wildlife species. Of the 18 species listed as rare, threatened, or endangered pursuant to the federal and state Endangered Species Acts that were identified as having the potential to occur in the region of southwestern County of Los Angeles, none were determined to have the potential to occur within the project area due to lack of suitable habitat.

Due to the lack of habitats suitable to support sensitive and locally important species, the 2011 FEIR determined that locally important species are absent from the MLK Campus. Therefore, the 2011 FEIR identifies no impacts to biological resources related to sensitive species recognized by the USFWS as federal species of concern, by the California Department of Fish and Wildlife as California special concern species or locally important species afforded protection by the California Native Plant Society (CNPS).

The 2011 FEIR indicated that the MLK Medical Center Campus does not contain riparian habitat, wetlands or other sensitive natural communities. Based on the results of the review of the USGS 7.5-minute series South Gate topographic quadrangle and the National Wetlands Inventory map, no natural communities exist within the proposed project area. No suitable habitat exists to encourage wildlife movement.

The MLK Campus (including the area to be impacted by the BHC) has landscaping and large trees that may be suitable for nesting birds. The project would remove a number of trees of varying sizes and replace them with new trees in the new gardens (the design has yet to be determined). In removing large trees, the 2011 FEIR indicates that the County must comply with the Migratory Birds Treat Act, which prohibits destruction or removal of any active nest of a migratory bird. The 2011 FEIR indicates that the scope of the proposed project (Tier I and Tier II) is not expected to have an effect on nesting birds in the area. Therefore, the 2011 FEIR indicates that there would be no impacts to biological resources related to impeding the use of native wildlife nursery sites.

The proposed BHC would result in the same impacts as identified in the 2011 FEIR. The BHC would include removal of existing landscaping, including potentially a number of large ornamental trees, and replacing it with new landscaping including the new gardens that would provide additional ornamental trees on-site. The design of the new gardens has yet to be determined so the number of trees to be removed/added is unknown at this time.

Consistent with the 2011 FEIR, the BHC would continue to result in no impacts to biological resources related to species listed as sensitive, locally important, rare, threatened, or endangered, nor would there be impacts to wetlands or riparian communities. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(e) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concluded no impacts with respect to ordinances protecting biological resources. The BHC site includes the Hawkins Building sunken garden which contains a number of ornamental trees of varying sizes. None of these trees are protected. Therefore, consistent with the 2011 FEIR, the proposed BHC would not result in impacts to biological resources in relation to conflicts with any local policies or ordinances protecting biological resources. Development on the MLK Campus (including the proposed BHC) would not interfere with or impact biological resources. Therefore, there would be no expected impacts to biological resources related to conflicts with any local policies or ordinances protecting biological resources. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(f) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

As indicated in the 2011 FEIR, the CDFW's National Community Conservation Planning (NCCP) program, the only NCCP region within the County is the Palos Verdes Peninsula NCCP. There are no proposed or adopted NCCPs or Habitat Conservation Plans (HCPs) that applies to the project site. The 2011 FEIR concluded no impact with respect to adopted approved conservation plans. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

E. CULTURAL RESOURCES

The potential for the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) to result in new or substantially more adverse significant impacts to cultural resources was evaluated in relation to the 2011 FEIR and four questions recommended for consideration by the State CEQA Guidelines.

(a) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to causing a substantial adverse change in the significance of a historical resource as defined in §15064.5?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

Five historical resources, the Martin Luther King, Jr. Medical Center Campus Historic District and four contributing buildings, are located on the proposed project site. (Historical resources in a historic district consist of individual contributors to the district plus the district itself.) A total of 21 buildings are located on the MLK Campus. The 2011 FEIR indicates that four of these buildings appear to meet the criteria for listing in the National Register of Historic Places (NRHP) and the California Resources Historic Register (CRHR) as contributors to a potential Martin Luther King, Jr. Medical Center Campus Historic District (California Historical Resources Status Code [CHR] 3D). The four buildings are: Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building and Dr. H. Claude Hudson Auditorium (Hudson Auditorium).

In addition to the four historic buildings, the 2011 FEIR indicates that the Historic District contains seven character-defining appurtenant elements:

- Elongated lawn located east of the MACC, which is bounded by a primary entrance road
- Sunken garden and walled courtyard located south and west of the Augustus F. Hawkins Comprehensive Mental Health Center.
- Walled courtyard and recreation area located south of the Interns and Physicians Building.
- Drop-off area located north of the Interns and Physicians Building and west of the
- North Support Building Pedestrian walkway extending from the MACC's east facade to the Dr. H. Claude Hudson Auditorium.
- Pedestrian walkway extending from the north elevation of the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center.

- Pedestrian walkway extending from the east facade of the Interns and Physicians Building to the MACC.

The 2011 FEIR describes the original MACC as follows:

> The MACC is a significant contributing building of the Martin Luther King, Jr. Medical Center Campus Historic District. The MACC was constructed as the primary component of the Martin Luther King, Jr. Medical Center Campus, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of health care services between South Los Angeles and the rest of the City of Los Angeles. Located at the far west end of a large grassy lawn, the MACC occupies a commanding location within the site, conveying the prominence of its hospital function to visitors entering the facility from the property's main entrance at Wilmington Avenue. The building is a highly characteristic example of the Brutalism style. The Brutalism style, considered easy to construct and maintain, was a popular choice for government, civic and institutional buildings during the 1960s and 1970s and thus use of Brutalist architecture reflects the building's public function and era of construction.
>
> Landscape elements, including the central lawn crossed by a single paved sidewalk, an allée of tall palms to the south of the property, and ornamental trees and shrubs located along the building's primary façade, serve to further emphasize the building's role as the primary care facility of the Martin Luther King, Jr. Medical Center Campus.
>
> The three pedestrian walkways associated with the MACC (consisting of a low- covered walkway extending from the MACC's east façade to the Dr. H. Claude Hudson Auditorium, an elevated walkway constructed of reinforced concrete, providing pedestrian access from the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center, and a walkway extending from the west elevation of the MACC, constructed of reinforced concrete columns, and traversing past several medical campus buildings before terminating at the Dr. Julius W. Hill Interns and Physicians Building), contribute to the property's architectural and functional character.

The 2011 FEIR identifies the MACC as having the following character-defining features:

- Ample use of concrete (e.g., vertically striated concrete supports and exterior framing)
- Monolithic massing
- Geometric repetition (e.g., the plan configuration consisting of three identical towers, repetitive bands of windows, and a series of balconies located on the building's façade)
- Recessed primary entrance with deeply cantilevered canopy
- Minimal ornamentation
- Overall simplicity of form
- Original landscaping (elongated central lawn crossed by a single path)

The 2011 FEIR describes the Hawkins Building and associated landscaping as follows:

> Brutalism style buildings, considered easy to construct and maintain, were widely popular for government, civic and institutional buildings built during the 1960s and 1970s, and thus use of Brutalist architecture reflects the building's public function. The building's unusual

> massing, weighted upwards, incorporates elements of the Brutalism style in its ample use of reinforced concrete with striated unfinished detailing, small recessed fixed tinted windows, general appearance of solidity, and lack of ornamentation.
>
> Landscape elements include a low planter wall that extends along the building's north facade and continues beyond the building to the west, consisting of a thickly planted assortment of compact trees, ornamental shrubs, and landscape plantings, which contribute to the architectural and functional character of the property. An entrance located on the building's south elevation is accessed via a pedestrian bridge that passes over a sunken garden containing numerous examples of evergreens and ornamental vegetation.
>
> To the west, the sunken garden transitions into a landscaped recreational area with a swimming pool, handball courts, and a small playground.

The 2011 FEIR identifies character-defining features of the Hawkins Building as follows:

- Ample use of concrete with vertically striated, unfinished detailing
- Monumental horizontal massing with overhanging upper floor
- Small, recessed, fixed, tinted windows
- Recessed primary entrance
- Elevated pedestrian walkway extending from south elevation to the MACC
- Original landscaping (walled courtyard with pathways, sunken garden along south elevation, low planter wall along north facade)

The landscaped recreational area with a swimming pool, handball courts, and a small playground were removed as part of Tier I and construction of the new MACC.

Previously, adopted Mitigation Measures Cultural-3 through Cultural-5 would apply to the project. Mitigation Measure Cultural-3, requires use of the Secretary of the Interior's Standards for the treatment of Historic Properties with Guidelines of Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings; Mitigation Measure Cultural-4, requires that for any non-conformance with these standards, archival quality photo-documentation of resources, and Mitigation Measure Cultural-5, requires that impacts to loss of integrity of the Historic District be addressed through development of a retrospective exhibit detailing the history of the Martin Luther King, Jr. Medical Center Campus Historic District.

The 2011 FEIR addressed potential impacts of entirely removing the five historical resources identified above. The impact of removing any one or more of these resources was identified as significant after application of mitigation measures. The demolition of the Hawkins Building would result in loss of one of the four identified historic buildings and would therefore be a significant impact due to loss of the building and the impact on the MLK Campus Historic District. The gardens associated with the Hawkins Building would be retained but reconfigured to suit the needs of the programs within the BHC (the design of these gardens has not yet been determined so the number of trees to be removed is unknown).

The proposed renovation of the original MACC would impact (but not remove) one of the character-defining features of the MLK Medical Center Campus Historic District. The building would remain in its existing configuration, the exterior of the building would be cleaned and potentially a treatment would be applied. The interior of the building would be reconfigured. Design of the renovation has not yet been completed and therefore it is not possible to determine whether the renovation would comply with the Secretary of the Interiors Standards.

Therefore, the impact to the original MACC and the impact to the MLK Campus Historic District could still be significant (although less than anticipated in the 2011 FEIR). An architectural historian will be part of the design team to ensure that character-defining historic fabric is retained to the extent feasible.

Th renovation of the original MACC and demolition of the Hawkins Building are both within the scope of impacts previously analyzed in the 2011 FEIR. The 2013 Master Plan (which the Board of Supervisors found to be within the scope of the 2011 FEIR) entirely removed both the original MACC and the Hawkins Building, although renovation of the original MACC was identified as an option.

As noted in the Introduction to this Addendum, as part of the approval of the MLK Medical Center Campus Redevelopment Project the Board of Supervisors adopted Findings of Fact and a Statement of Overriding Considerations that identified potential impacts, mitigation measures and alternatives. The Statement of Overriding Considerations indicates that "[t]he project may result in impacts from the significant alternation or removal of structures or character-defining features that may be identified as historic resources." The Statement of Overriding Considerations outlines the benefits of the MLK Medical Center Campus Redevelopment Project and indicates that, "[t]he cultural resources significant impacts are overridden by the project's ability to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care and establishes the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development.

The County reviewed each of four historical buildings on the campus as well as character defining appurtenant elements and has proceeded with adaptive reuse of the buildings and retention of appurtenant elements as feasible and appropriate:

- The Interns and Physicians building was renovated and adaptively reused as a recuperative care center.
- The Hudson Auditorium is in the process of being renovated and expanded to adaptively reuse the building as a childcare center.
- It is proposed that the MACC be adaptively reused for the new Behavioral Health Center.
- The MLK Historic District is comprised of the four historic buildings -- three of which have been or are in the process of being substantially retained (see above). The historic district also includes landscaping and walkways -- the iconic large green space and main driveway in front of the original MACC is being reconfigured but substantially retained.

Therefore, three of the four historic buildings on the MLK campus are already or are proposed to be substantially adaptively reused and substantial components of historic landscaping and pathways are being retained.

The County considered the feasibility of adaptive reuse of the Hawkins Building and determined that it was not feasible primarily due to 1) its size, and 2) lack of windows and light and air. The poor design and layout of the interior, the location of the building, the general condition of the building, as well as the necessity of the site to be used for required programs (gardens and parking) all contribute to the determination that it is infeasible to retain the Hawkins Building.[1]

As compared to the 2013 Master Plan and contemplated potential for complete removal of the original MACC in the 2011 FEIR, the proposed renovation would reduce but not eliminate potentially significant impacts to that building and the MLK Campus Historic District. Demolition of the Hawkins Building would be a significant impact to the building and the MLK Campus Historic District. These changes would not cause additional impacts (impacts to the original MACC would be reduced as it would not be demolished) and no additional mitigation is necessary. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the flowing:

- (b) Would the proposed BHC cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?
- (c) Would the proposed BHC directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
- (d) Would the proposed BHC disturb any human remains, including those interred outside of formal cemeteries?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates that the project site has been substantially disturbed, but that new excavation exceeding 20 feet in depth has the potential to impact native soils. The proposed renovation of the original MACC would require no excavation. Demolition of the Hawkins Building and reconfiguration of the gardens and construction of a surface parking lot would require minimal excavation. The 2011 FEIR provides mitigation measures for excavation below a depth of 15 feet.

A records search conducted as part of the 2011 FEIR for the MLK Campus indicated that all, or portions of, 28 previous archaeological and/or historic architectural surveys have been conducted within 1 mile from the Campus. No archaeological surveys have been conducted on the MLK Campus. Two prehistoric burials and two historic archaeological sites have been recorded within 1 mile of the MLK Campus. No known prehistoric or historic archaeological sites have been recorded on the project site. No mitigation measures were identified as necessary in the 2011 FEIR to ensure impacts remain below a level of significance. The same conclusion is valid for the BHC as it falls within the scope of anticipated development on the Campus.

The 2011 FEIR indicates that the closest known fossil localities have been identified west of the proposed project site in the Athens vicinity around the Harbor Freeway (I-110), from north of Imperial Highway to near El Segundo Boulevard. These localities produced Late Pleistocene fossil specimens of pond turtle (Clemmys), puffin (Mancalla), turkey (Parapova), ground sloth

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[1] Martin Luther King Jr. Medical Center Campus Redevelopment Project, Reuse of Historic Buildings and Hawkins Building Demolition, July 2018

(Paramylodon), mammoth (Mammuthus), dire wolf (Canis dirus), rabbit (Sylvilagus), squirrel (Sciuridae), deer mouse (Microtus), pocket gopher (Thomomys), horse (Equus), deer (Cervus), pronghorn antelope (Capromeryx), and bison (Bison) at depths as shallow as 15 feet below the surface.

Previously adopted mitigation of paleontological resource impacts included in the 2011 FEIR, to address the potential for encountering paleontological resources, would reduce impacts to below a level of significance through the requirement to fully recover paleontological resources from the area of potential effect in accordance with standards for such recovery established by the Society of Vertebrate Paleontology. Therefore, consistent with the analysis and conclusions of the 2011 FEIR, Mitigation Measure Cultural-1 would continue to reduce impacts related to the destruction of unique paleontological resources or unique geologic features below the level of significance.

Mitigation Measure Cultural-1 requires that prior to any ground-disturbing activities, the County of Los Angeles create a site plan indicating all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Construction monitoring by a qualified paleontological monitor is required during all ground-disturbing activities that could affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet must stop until a qualified paleontologist assesses the find.

There are no formal cemeteries on the property, and the ground has been substantially disturbed for the construction of the Martin Luther King, Jr. Medical Center Campus. A record search with the Native American Heritage Commission failed to indicate the known presence of Native American sacred sites, including burial sites, on or within a ½-mile radius of the proposed project site. Therefore, the proposed project would not be expected to disturb any human remains, including those interred outside of formal cemeteries. Consistent with the findings of the 2011 FEIR, implementation of Mitigation Measure Cultural – 2 would ensure that this impact remains less than significant. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

F. GEOLOGY AND SOILS

Impacts to geology and soils of the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) were evaluated with regard to the 2011 FEIR including adopted mitigation measures. The potential for the proposed BHC to result in new or substantially more adverse significant impacts to geology and soils was evaluated in relation to eight questions recommended for consideration by the State CEQA Guidelines.

In 2015, the California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management District (CBIA v. BAAQMD)*, held that CEQA generally does not require a lead agency to consider the impacts of the existing environment on the future residents or users of a project. However, if a project exacerbates a condition in the existing environment, the lead agency is required to analyze the impact of that exacerbated condition on the environment, which may include future residents and users within the Project Area. Analysis of the Appendix G questions in this impact analysis will apply to the decision from *CBIA v. BAAQMD*. The following analysis recaps the 2011 FEIR for informational purposes, but potential impacts of the environment on a project are no longer considered potentially significant.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following:

- *(a)* Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - *i)* Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
  - *ii)* Strong seismic ground shaking?
  - *iii)* Seismic-related ground failure, including liquefaction as delineated on the most recent Seismic Hazards Zones Map issued by the State Geologist for the area or based on other substantial evidence of known areas of liquefaction?
  - *iv)* Landslides as delineated on the most recent Seismic Hazards Zones Map issued by the State Geologist for the area or based on other substantial evidence of known areas of landslides?
- (b) Result in substantial soil erosion or the loss of topsoil?
- (c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed ordinance, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?
- (d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?
- (e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates that development on the project site would be expected to result in less than significant impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault and strong seismic shaking. There are no known surface faults within the MLK Campus, and the proposed project location does not lie within an Alquist-Priolo Earthquake Fault Zones (APEFZ). The project site is located approximately 1.8 miles northeast of the Newport-Inglewood Alquist-Priolo Fault Zone. The project site is roughly 42 miles south of the active San Andreas Fault. The 2011 FEIR indicates that conformance to applicable requirements under the California Building Code (CBC) and Uniform Building Code (UBC) would reduce impacts related to the rupture of a surface fault to the maximum extent possible under current engineering practices.

The overall MLK Medical Campus site is located within a liquefaction zone. A site-specific liquefaction analysis was performed for the East Campus Parking Structure site. That site is primarily underlain by mixture of clayey soil and sandy soils with relatively high fines contents, which have low liquefaction potential, the likelihood of liquefaction is considered low. The 2011 FEIR concludes less than significant impacts with respect to strong groundshaking and seismic-related ground failure including liquefaction.

The 2011 FEIR summarizes the California Geological Survey, that indicates that the project site is located within a Seismic Hazard Zone for liquefaction, which indicates a potential for permanent ground displacements such that mitigation, as defined in Public Resources Code Section 2693(c), would be required. The 2011 FEIR indicates that compliance with Office of Statewide Planning and Development (OSHPD) standards would further reduce any potential for impacts resulting from liquefaction.

The 2011 FEIR concludes a less than significant impact related to landslides. The topography of the project site and surrounding area is generally flat, and therefore would pose no potential risk for landslides to occur. Moreover, no areas susceptible to seismic-induced landslides are shown in the proposed project vicinity on the USGS 7.5-minute series South Gate topographic quadrangle. Due to the absence of steep slopes, there would be no expected impacts from exposing people or structures to potentially substantial adverse effects involving landslides.

The proposed BHC would not exacerbate existing conditions with respect to rupture of a known earthquake fault, liquefaction conditions or slopes. No additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

The 2011 FEIR concludes less than significant impacts with respect to soil erosion and loss of topsoil and impacts associated with being located on expansive soils (Mitigation Measures Geology-1 through Geology-3).

The proposed demolition of the Hawkins Building and reconfiguration of the gardens could result in impacts related to soil erosion and loss of topsoil, such impacts would be reduced to below the level of significance with implementation of best management practices (BMPs) consistent with the guidelines provided in the California Storm Water Best Management Practice Handbooks: Construction. Impacts related to soil erosion or the loss of topsoil would be reduced to below the level of significance by the incorporation of Mitigation Measures Geology-1 through Geology-3.

The proposed project would not have the potential to exacerbate conditions related to being located on a geologic unit or soil that is unstable, or that would become unstable and/or being located on expansive soils. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

The 2011 FEIR concluded no impact with respect to soils incapable of supporting septic tanks. The proposed project would not result in impacts to geology and soils in relation to being located on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. The proposed project would not require the use of septic tanks or alternative wastewater disposal systems. The original MACC is connected to existing sewers. Wastewater generated at the project site is treated at the Hyperion Treatment Plant. The Hyperion Treatment Plant is the largest wastewater treatment plant in the City of Los Angeles and is anticipated to have the capacity to support the entire Tier II MLK Campus Redevelopment Project. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

G. GREENHOUSE GAS EMISSIONS

Greenhouse gas emissions associated with the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) were evaluated based on a review of the 2011 FEIR and the required mitigation measures. The potential for the proposed BHC to result in new or substantially more adverse significant impacts related to greenhouse gas emissions was evaluated in relation to two questions recommended for consideration by the State CEQA Guidelines.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: (a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates that, conservatively, the proposed development of the MLK Medical Center Campus would result in significant GHG emissions as a result of building construction, operation and vehicle trips which would be inconsistent with State and regional plans focused on reducing greenhouse gas emissions. The proposed BHC would a variety of mental health facilities in one location, allowing for coordination of many different programs.

The proposed project would generate GHG emissions associated with construction and operation of the building (mainly associated with lighting). While staff of the BHC would generate new trips, trips form the BHC together with other Tier II projects proposed and completed to date would not yet exceed existing trips identified in the 2011 FEIR. But eventually on completion of Tier II, trips are anticipated to substantially exceed existing conditions identified in the 2011 FEIR.

The 2011 FEIR identified a total net increase of 19,677 new daily vehicle trips as a result of the proposed Master Plan. As part of the buildout proposed for the approved Tier II project, the proposed BHC would contribute to the significant GHG emissions identified in the 2011 FEIR. The proposed BHC would be within the assumptions of the 2011 FEIR and therefore would not generate additional impacts. Compliance with Mitigation Measure GHG-1 would reduce emissions and ensure sustainable development to the extent feasible. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

H. HAZARDS AND HAZARDOUS MATERIALS

Hazards and hazardous materials of the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) were evaluated based on a review of the studies included in the 2011 FEIR and impacts were evaluated compared to impacts of the 2011 FEIR and the required mitigation measures.

Hazardous waste can pose a potential or substantial hazard to human health or the environment when improperly managed. Designated hazardous waste possesses at least one of four defined characteristics–ignitability, corrosivity, reactivity, or toxicity–or appears on special U.S. Environmental Protection Agency lists. The potential for the proposed BHC to result in new or substantially more adverse significant impacts related to hazards and hazardous materials was evaluated in relation to eight questions recommended for consideration by the State CEQA Guidelines.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following:

(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

(b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

(d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates that with Mitigation Measures Hazards-1 through Hazards-5, the entire proposed Tier II MLK Campus Redevelopment Project would result in less than significant impacts with respect to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The original MACC was constructed in the early seventies and contains some asbestos containing materials and lead-based paints; Mitigation Measure Hazards-2 requires that for buildings constructed before 1979, such materials be identified and removed properly in accordance with applicable regulations. The proposed renovation of the original MACC would involve the use of minimal hazardous materials. Demolition and renovation activities would include standard cleaning materials, lubricants, and oils.

Because it is a hospital, the entire campus is registered as a small- and large-quantity generator of hazardous materials such as waste oil and mixed oil; oxygenated solvents including acetone, butanol, and ethyl acetate; spent halogenated solvents; and other hazardous materials including batteries, lamps, pesticides, thermostats, mercury, and silver. The hospital may also deal with biomedical and radiological wastes. However, there are specific government regulations restricting the transport, use, and disposal of these hazardous materials, and the Tier II MLK Campus Redevelopment Project would not entail use of such materials beyond regulated parameters.

The BHC would use minimal amounts of hazardous materials typically used in hospitals, and residences such as certain cleaning supplies (e.g. bleach). Consistent with the analysis and conclusions of the 2011 FEIR, the proposed BHC, with implementation of required Mitigation Measures Hazards-1 through Hazards-5, would result in less than significant impacts related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

The 2011 FEIR indicates that the MLK Campus is the location of documented past releases of gasoline and oil from leaking underground storage tanks (LUSTs), which occurred prior to existing underground storage tank (UST) regulations. Cleanup of the campus has been completed for the release of oil and gasoline, and no further action is warranted. Because the project site is both a small- and a large-quantity generator of hazardous materials, the potential exists for a hazardous materials release to occur.

Any tank relocations would be conducted according to the following applicable federal and state regulations related to tank management: Code of Federal Regulations (CFR) 40, Part 112; 40 CFR, Part 280; CFR 281; 40 CFR, Part 282; and the California Code of Regulations (CCR) Title 22 and Title 23 Regulations. It is unlikely that the proposed project would result in accidental leaks and spills that would affect the public or the environment. Therefore, consistent with the analysis and conclusions of the 2011 FEIR, with implementation of required Mitigation Measures Hazards-1 through Hazards-5, the proposed BHC would result in less than significant impacts related to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous material, and with respect to the emission of hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

Due to the nature of the hospital use of the campus, it is included on multiple environmental regulatory databases for permitted Underground Storage tanks (USTs) and Leaking Underground Storage Tanks (LUSTs). A LUST on the MLK Campus involved an unauthorized release of gasoline, which affected soil. Cleanup of the LUST was completed, and the case was closed by the Regional Water Quality Control Board in 1996. Therefore, this LUST would not result in impacts to people or the environment.

An additional release of 14,000 gallons of oily water occurred on the campus in 2006 due to a ruptured pipe coming from the on-site power plant. The substance was pumped into tanker trucks and cleanup was nearing completion when the 2011 FEIR was prepared. No significant impact to people or the environment occurred as a result of this release. This release was reported through the California Hazardous Material Incident Reporting System (CHMIRS) database.

The MLK Campus is included on a list of Resource Conservation and Recovery Act (RCRA) small quantity generators (SQGs), but no violations have been reported. The proposed project site is also listed under the Hazardous Waste Information System (HAZNET) because it disposes waste oil and mixed oil, paint sludge, inorganic solid waste, oxygenated solvents, polychlorinated biphenyls (PCBs), mercury waste, and asbestos-containing waste. In addition, the proposed project site is considered an RCRA large-quantity generator (LQG) of waste products such as batteries, lamps, pesticides, thermostats, mercury, silver, halogenated solvents, as well as other ignitable and corrosive hazardous materials. However, no violations were identified.

Three LUST sites are located within 0.5-mile up-gradient of the project site and have undergone/are undergoing remediation and are not expected to impact the project site. No violations have been reported for these LUST sites. The Phase I ESA for the East Campus

Parking Structure identified the potential for trace elements of petroleum hydrocarbons and metals and the potential for pesticide residue from past agricultural use on the site (which could also be true for the Hawkins Building site). The Phase II ESA collected and analyzed 27 soil samples at depths of 1, 5 and 10 feet below ground surface, and identified the following:

- In 17 samples (at varying depths), arsenic was detected above the screening level but below the accepted background level. To ensure worker safety, compliance with applicable regulations as well as standard Best Management Practices (BMPs) including dermal coverage (gloves, long pants) would be required for soil management and disposal during construction activities.
- One sample (at a depth of one foot) contained lead concentrations above regulatory disposal limits.
- Two samples (at a depth of one foot) contained pesticides above regulatory disposal limits.

Soils contaminated with lead and pesticide above regulatory limits are required to be tested and disposed of in accordance with applicable regulations. The Phase II ESA recommended that shallow soils (less than five feet) generated in the areas of lead and pesticide exceedances be segregated during stockpiling for proper disposal. To ensure proper handling of contaminated soils (in accordance with applicable regulations), a soils management plan would be implemented by a qualified contractor as appropriate, to perform excavation, soil profiling, and transportation and disposal.

Consistent with the analysis and conclusions of the 2011 FEIR, the proposed BHC, with implementation of required Mitigation Measures Hazards-1 through Hazards-5, would result in less than significant impacts related to location on a hazardous waste site. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following:

(e) Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
(f) Be located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?
(g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
(h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates development on the project site would not be expected to result in impacts from hazards and hazardous materials in relation to proximity to an airport or private airstrip, and the creation of safety hazards for people residing or working in the proposed project area. The nearest airports are the Compton Airport, located at 901 West Alondra Boulevard in the City of Compton, approximately 2.1 miles south; the Saint Francis Medical Center Helistop in the City of Lynwood, approximately 2.7 miles east; the Gardena Valley Airport in the City of Gardena, approximately 4 miles southeast; and the Hawthorne Municipal Airport in the City of Hawthorne, approximately 4.6 miles west of the proposed project site. The nearest private airstrip is located in Playa Vista at 5510 Lincoln Boulevard, approximately 11.5 miles northwest of the proposed project site. The proposed MLK Campus Redevelopment Project would improve the safety of the existing hospital helipad facilities; no change in impacts involving this helipad would occur. Consistent with the 2011 FEIR analysis and conclusions, the proposed BHC would not be expected to result in significant impacts from hazards and hazardous materials in relation to proximity to an airport or private airstrip and the creation of safety hazards for people residing or working in the proposed project area. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

The purpose of the MLK Campus Redevelopment Project is to improve conditions related to healthcare services. Consistent with the analysis and conclusions of the 2011 FEIR, the BHC would not interfere with an emergency response plan or evacuation plan and would therefore not result in significant impacts related to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

As indicated in the 2011 FEIR, the MLK Campus is located in an urban environment without adjacent or nearby wildlands. In addition, the campus is not considered to be in a fire hazard severity zone. Consistent with the analysis and conclusions of the 2011 FEIR (Initial Study), the BHC would not result in significant impacts related to exposure of people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

I. HYDROLOGY AND WATER QUALITY

Hydrology and water quality impacts of the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) were evaluated in relation to the 2011 FEIR and required mitigation measures. The potential for the proposed BHC to result in new or substantially more adverse significant impacts related to hydrology and water quality was evaluated in relation to 10 questions recommended for consideration by the State CEQA Guidelines.

In 2015, the California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management District (CBIA v. BAAQMD)*, held that CEQA generally does not require a lead agency to consider the impacts of the existing environment on the future residents or users of a project. However, if a project exacerbates a condition in the existing environment, the lead agency is required to analyze the impact of that exacerbated condition on the environment, which may include future residents and users within the Project Area. Analysis of the Appendix G questions in this impact analysis will apply to the decision from *CBIA v. BAAQMD*. The following analysis recaps the 2011 FEIR for informational purposes, but potential impacts of the environment on a project are no longer considered potentially significant.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following:

(a) Violate any water quality standards or waste discharge requirements?

(b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes that construction could result in erosion, sediment-laden runoff, and discharge of non-storm water runoff. Mitigation would be required to reduce impacts to water quality and groundwater recharge below a level of significance.

With implementation of the adopted mitigation measures, the proposed BHC, including demolition of the Hawkins Building and construction of new gardens and a surface parking lot would result in less than significant impacts with respect to violating any water quality standards or waste discharge requirements. The proposed project would entail both construction and operational elements. The demolition of the Hawkins Building and subsequent site clearing could contribute to erosion, sediment-laden runoff, discharge of non-storm water runoff, or other water quality–related events. All construction activities would include implementation of best management practices (BMPs) to reduce or eliminate non-storm discharges to the storm water system. Implementation of BMPs would result in meeting the water quality standards set forth by responsible agencies, and would address storm runoff quantity and flow rate, suspended solids (primarily from erosion), and contaminants such as phosphorus and hydrocarbons. BMPs would be incorporated in accordance with the NPDES permit issued to the County by the LA-RWQCB, the County Storm Water Management, and the County General Plan. With implementation of Mitigation Measures Hydrology-1 through Hydrology-4 and Hazards-1, the proposed BHC (together with other completed Tier II projects) would result in less than significant impacts in relation to violating any water quality standards or waste discharge requirements.

The 2011 FEIR indicates that the MLK Campus is located within the Central Basin Municipal Water District. Groundwater has been encountered on the campus at approximately 38 to 52 feet below ground surface. The MLK Campus and its existing uses do not influence the local groundwater basin, and the site does not serve as a groundwater recharge site. Further, neither Tier I nor Tier II of the MLK Campus Redevelopment Project would use groundwater supplies or interfere with groundwater recharge into this basin. Therefore, consistent with the 2011 FEIR, the proposed BHC would not result in impacts to groundwater. There is no potential for the BHC to contribute to the depletion of groundwater supplies or to create substantial interference with groundwater recharge for the area. Consistent with the 2011 FEIR, the proposed BHC would not result in impacts to hydrology and water quality in relation to groundwater supplies or groundwater recharge. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: (c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? (d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? (e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? (f) Otherwise substantially degrade water quality?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates that development on the project site would not be expected to result in impacts to hydrology and water quality in relation to alteration of existing drainage patterns in a manner that would result in substantial erosion or siltation on or off site. The proposed BHC would not substantially alter the existing drainage pattern of the site or area or alter the course of any existing streams or rivers in the proposed project area. While the demolition of the Hawkins Building and reconfiguration of associated gardens would result in the removal of vegetated areas, it would result in the addition of landscaped areas that would likely increase pervious surfaces. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

The 2011 FEIR concludes less than significant impacts with mitigation with respect to potential impacts on water quality (Mitigation Measures Hydrology 1 through Hydrology-4 and Hazards-1). The BHC would result in reuse of an existing building and development of new gardens and a surface parking lot. The entire area has been previously disturbed. The project would be required to comply with Mitigation Measures Hydrology-1 through Hydrology-4 and Hazards-1 as well as BMPs consistent with guidelines provided in the California Storm Water Best Management Practices Handbook for Construction Activities and in the Los Angeles County Storm Water Management Program for substantiated erosion or siltation. Consistent with the 2011 FEIR, the proposed BHC (together with Tier II projects completed to date) would result in less than significant impacts with mitigation related to drainage patterns, erosion, siltation and degradation of water quality. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

The 2011 FEIR concludes no impact to altering existing drainage patterns. There are no existing drainage patterns on or within the vicinity that would be substantially impacted by the proposed project. The MLK Campus is part of the Los Angeles storm drain system and the County of Los Angeles Department of Public Works has implemented measures to initiate storm water pollution reduction programs throughout the County. The project together with other development completed to date on the MLK Campus would not be expected to contribute substantial additional runoff as the project together with completed would not substantially increase impervious surfaces. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: (g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? (i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? (j) Inundation by seiche, tsunami, or mudflow?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concluded no impact with respect to placing housing within a 100-year flood hazard area. As indicated in the 2011 FEIR, the MLK Campus is not located within a 100-year or 500-year flood zone. Therefore, there would be no expected impacts to hydrology and water quality related to placement of housing within a 100-year flood hazard area. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

The 2011 FEIR concludes no impact with respect to placing structures in a 100-year flood hazard area, exposing people or structures to significant risk or loss as a result of failure of a dam or levee. As indicated in the 2011 FEIR, the County of Los Angeles maintains over 15 major dams and a host of other flood control facilities such as spreading grounds within the County. The flood control facilities within the MLK Medical Campus vicinity are maintained by the County Flood Control District and are in compliance with local, state, and federal regulations. The 2011 FEIR indicates that development on the MLK Campus would have no impacts on, nor be impacted by, the operation of the existing levees or dams. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

The 2011 FEIR concludes no impact with respect to seiche, tsunami and mudflow. Tsunamis are tidal waves generated in large bodies of water in response to ground shaking. The elevation of the campus ranges from approximately 85 feet above mean sea level (MSL) to 105 feet above MSL. As indicated in the 2011 FEIR, the campus is roughly 10 miles east of the Pacific Ocean. Due to the elevation of the project area and its distance from the ocean and other bodies of water, there would be no direct or indirect impacts related to seiches or tsunamis. A mudflow is a large flow of mud resulting from soil saturation on steep slopes. The campus is not located in a section of the County that is susceptible to mudslides and there are no steep slopes with soils or vegetation on or immediately adjacent to the campus. Consistent with the analysis and conclusions of the 2011 FEIR, the proposed BHC would not be expected to result in impacts in relation to the inundation by seiche, tsunami, or mudflow. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

J. LAND USE AND PLANNING

Land use and planning impacts of the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) were evaluated in light of the 2011 FEIR. The potential for the proposed BHC to result in new or substantially more adverse significant impacts related to land use and planning was evaluated in relation to three questions recommended for consideration by the State CEQA Guidelines.

(a) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the potential to physically divide an existing community?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes no impact with respect to dividing an established community. Physical division of an established community typically occurs when linear elements such as train tracks or a new highway separates parts of the community. No such elements would occur with the proposed BHC. As indicated in the 2011 FEIR, development of the MLK Medical Center Campus would not extend development beyond the existing medical facility site and, therefore, would not cause a physical division within the established community. The proposed BHC would be a continuation of medical and medical-related uses on the existing Medical Center Campus, and consistent with the analysis and conclusions of the 2011 FEIR there would be no expected impacts to land use and planning resulting in a physical division to the established community. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(b) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes less than significant impact with respect to conflicts with an applicable plan. The proposed BHC would result in reuse of an existing building, reconfiguration and expansion of existing gardens and creating of surface parking (280 spaces). As indicated in the 2011 FEIR, the General Plan designates the MLK Medical Center Campus for Public and Semi-Public land use (P), which provides for activities by public and quasi-public entities and allows for the establishment of facilities, infrastructure, and their related operations in these areas that are public or semipublic in nature, including hospitals. As such, use of the campus as a medical facility is in conformance with this land use designation. As indicated in the 2011 FEIR, the County zoning designation for all parcels within the MLK Campus is

Neighborhood Commercial (C-2; Neighborhood Business Zone). This zoning designation is established to identify community-related commercial uses and permits the following uses: drugstores, medical clinics (including laboratories), professional or business office space, parking lots and buildings, and hospital equipment and supply rentals.

As indicated in the 2011 FEIR, the County has established development standards for the Neighborhood Business Zone:

> *No more than 90 percent of the net area can be occupied by buildings, with a minimum of 10 percent of the net area landscaped with a lawn, shrubbery, flowers, and/or trees, which shall be continuously maintained in good condition. Incidental walkways, if needed, may be developed in the landscaped area; that there be parking facilities as required by Part 11 of Chapter 22.52; and that a building or structure shall not exceed a height of 35 feet above grade, excluding signs which are permitted by Part 10 of Chapter 22.52 (such as chimneys, and rooftop antennas).*

The zoning classification for C-2 does not have a set-back requirement. The County indicated in the 2011 FEIR Initial Study, "[t]he County would seek to ensure compatibility of the proposed project with the existing campus and its surroundings but reserves the right to exempt elements of the proposed project from the zoning designation. Therefore, the proposed development would not conflict with the permitted uses of this zoning designation, and no General Plan amendment or zone change would be required. Therefore, with respect to the proposed BHC, consistent with the analysis and conclusions of the 2011 FEIR impacts to land use and planning related to a conflict with adopted or proposed land use plans, policies, or regulations would be less than significant. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(c) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to conflict with any applicable habitat conservation plan (HCP) or natural community conservation plan (NCCP)?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes no impact with respect to conflicts with habitat conservation planning. As evaluated in the 2011 FEIR, the project site is located in a densely populated urban setting and no adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan are applicable to the project area. Consequently, the proposed BHC would not have an impact on any such plans consistent with the analysis and conclusions of the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

K. MINERAL RESOURCES

The potential for the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) to result in new or substantially more adverse significant impacts to mineral resources was evaluated in relation to the 2011 FEIR and two questions recommended for consideration by the State CEQA Guidelines.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: (a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? (b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates that development on the MLK Campus is not expected to result in impacts to mineral resources in relation to the loss of availability of a known mineral resource and concludes no impact with respect to mineral resources. The 2011 FEIR summarizes the California Geological Survey report and indicates that there are no known mineral resources of statewide or regional importance produced within the proposed project site. According to the Mines and Minerals Producers Active in California (1977–1998), the County of Los Angeles contains 25 active mines. However, there are no mining districts located in or around the vicinity of the project site. Therefore, there would be no expected impacts to mineral resources related to the loss of availability of a known mineral resource. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

L. NOISE

The potential for the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) to result in new or substantially more adverse significant impacts related to noise was evaluated in relation to the 2011 FEIR and six questions recommended for consideration by the State CEQA Guidelines.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
b) Exposure of persons to or generation of excessive groundborne vibration or noise levels?
(b) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates that an increase of 4 dBA CNEL or more would result in a significant adverse impact. (CNEL is a 24-hour noise descriptor that averages noise over a 24-hour period and artificially adds a decibel increment to noise that occurs in the evenings and at night). In the 2011 FEIR, the measured ambient noise levels in the neighborhood south of the project site during peak afternoon hours is indicated to be 55.2 dBA.

Demolition/Construction/Renovation

Project demolition, site preparation, construction and renovation activities would be typical of such activities and would be within the assumptions made in the 2011 FEIR. Demolition activities associated with the Hawkins Building would be shielded from single-family homes to the south, educational facilities to the north are more than 300 feet from the site. Construction vehicle activity on the emergency access road would result in elevated noise levels at the single-family residences. Demolition, site preparation, and renovation activities would be within the assumptions identified in Table 3. Construction is not allowed between 8:00 pm and 7:00 am Monday through Friday or anytime on Sunday. Saturday construction could occur between 7:00 am and 5:00 pm.

Anticipated construction noise at 50 feet is shown in Table 5 (reproduced from the 2011 FEIR – FEIR Table 3.8.4.2-1, page 3.8-10). Residential uses within 80 feet of a construction site are identified in the 2011 FEIR as significantly impacted (with mitigation). The original MACC is about 60 feet from single-family homes to the south, any sandblasting of the southern façade of the original MACC could result in a brief period of noise levels similar to those shown in Table 5.

Implementation of Mitigation Measures Noise-1 through Noise-3 (which require noise muffling devices, barriers/curtains, vehicle maintenance and use of sonic piles within 55 feet of residences) would reduce noise as feasible. Nonetheless, the noise generated by sandblasting and potential application of treatments to the building exterior could briefly exceed County construction noise thresholds at sensitive receptors to the south. Such activities are reasonably expected renovation activities within the scope of activities analyzed in the 2011 FEIR. The majority of construction activity would not be expected to exceed thresholds at sensitive receptors. No additional mitigation is feasible or necessary and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

TABLE 5
CONSTRUCTION NOISE LEVELS AT 50 FEET

Activity	Noise Level at 50 feet (dBA)
Ground Clearing/Demolition	84 ± 6 dBA
Excavations	89 ± 6 dBA
Foundations	78 ± 3 dBA
Erection of structures	85 ± 5 dBA
Finishing (i.e., paving)	89 ± 6 dBA

SOURCE: Bolt, Beranek, and Newman. December 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*. Washington, DC.

The 2011 FEIR found that construction activities would result in less than significant impacts with mitigation with respect to vibration impacts to residential structures within 50 feet of pile driving (Mitigation Measure Noise-3). No pile driving is proposed as part of the BHC. Therefore, induced structural damage is not anticipated. No additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

The 2011 FEIR indicates that vibration from construction activities (pile driving, large bull dozers and loaded trucks) would be perceptible in adjacent residences but that because construction activities would be limited to daytime hours and activities would be infrequent, vibration perception impacts from construction are considered less than significant. No additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

Operation

The 2011 FEIR indicates that mechanical equipment would result in a less than significant impact with mitigation (Mitigation Measure Noise-4). The proposed BHC could include new mechanical equipment for the original MACC (primarily Heating, Ventilation, Air Conditioning) that could be audible adjacent to the structure. Adopted Mitigation Measure Noise-4 would ensure that noise from mechanical equipment remained below 45 dBA at residences to the south through use of quiet equipment and/or use of insulating screens. Therefore, no additional mitigation would be required and there would be no new or greater stationary-source noise impacts than those identified in the certified 2011 FEIR.

The 2011 FEIR indicates that operational noise from mobile sources would be less than significant. The BHC together with Tier II development completed and proposed to date would not result in traffic exceeding existing levels identified in the 2011 FEIR. Therefore, mobile-source noise levels resulting from operation of the MLK Campus would not be greater than existing conditions identified in the 2011 FEIR. Eventually on completion of Tier II, traffic and associated noise is expected to increase but not to a level where mobile-source noise would result in a significant impact.

There would be no vibration impacts associated with operation of the BHC. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: (e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes no impact with respect to noise from airports and airstrips. The 2011 FEIR indicates that the project site is neither located within 2 miles of a public or private airstrip nor is it located within an airport land use plan.

The nearest airport, the Compton/Woodley Airport, is located approximately 2.1 miles south of the proposed project site, and the next nearest airport, the Gardena Valley Airport in the City of Gardena, is located approximately 4 miles southeast of the Campus. The proposed project site is not located within the immediate vicinity of any private airstrip. The nearest private airstrip is located in Playa Vista at 5510 Lincoln Boulevard, approximately 11.5 miles northwest of the MLK Campus. The Saint Francis Medical Center, which is located in the City of Lynwood, approximately 2.7 miles east of the MLK Medical Center Campus, has a helistop.

The 2011 FEIR identifies a helipad on the roof of the Inpatient Tower for hospital-specific emergency use. The proposed BHC would not change impacts as compared to the evaluation included in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

M. POPULATION AND HOUSING

Population and housing impacts of the project were evaluated with regard to the 2011 FEIR. The potential for the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) to result in new or substantially more adverse significant was evaluated in relation to three questions recommended for consideration by the State CEQA Guidelines.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: (a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? (b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? (c) Displace substantial numbers of people, necessitating the construction of replacement housing?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes less than significant impacts with respect to population, and no impact with respect to displacement of housing and people. As indicated in the 2011 FEIR, the density and type of new development proposed by the Tier II project, is within the growth anticipated and accommodated by the County General Plan. The proposed BHC would be within the assumed MLK Campus population identified in the 2011 FEIR and would have a less than significant impact as identified in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

N. PUBLIC SERVICES

Public Services impacts of the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) were evaluated based on a review of the 2011 FEIR. The potential for the proposed BHC to result in new or substantially more adverse significant impacts to public services was evaluated in relation to one question (relevant to each public service) recommended for consideration by the State CEQA Guidelines.

(a) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services listed below.		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

i) Fire

The 2011 FEIR indicates that the proposed redevelopment of the MLK Campus would result in less than significant impacts with respect to fire protection. The analysis indicates that the project area is served adequately by the existing fire protection facilities, therefore no mitigation is required. The proposed BHC together with all Tier I and Tier II development completed to date is within the assumptions for Tier II development analyzed in the 2011 FEIR and therefore would not create any additional demand for fire protection beyond what was analyzed.

The 2011 FEIR indicates that, *[i]t is understood however, that the County of Los Angeles Fire Department will review the specific fire department requirements during the planning phase of the proposed project in order to determine whether Tier II of the proposed project adequately meets the requirements of the County of Los Angeles Fire Department."* LA County Fire Department will approve the final project plan prior to issuance of building permits. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

ii) Libraries

The proposed BHC would not generate additional population and therefore would have no impact on libraries consistent with the evaluation in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

iii) Parks

The 2011 FEIR indicates a less than significant impact to parks as a result of development of the MLK Medical Center Campus. The proposed BHC would include a number of garden areas and would not generate additional population and therefore would not result in impacts to park facilities consistent with the evaluation in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

iv) Police Protection

The 2011 FEIR indicates that redevelopment of the MLK Medical Center Campus would not lead to additional population growth in the area and that overall development on the MLK Campus would have a less than significant impact on police protection. The 2011 FEIR indicates that while the allocation of police services would shift and grow consistent with population growth in the area, development on the MLK Medical Center Campus would not cause the provision of, or need for, new or physically altered governmental police protection facilities in order to maintain acceptable response times, and therefore there would be no significant impacts related to police protection facilities.

The Los Angeles County Sheriff's Department will review the final project plans prior to issuance of permits to ensure that appropriate security features are included in the project. Therefore, the proposed BHC would have a less than significant impact on police services consistent with the evaluation in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

v) Schools

The 2011 FEIR indicates a less than significant impact to schools as a result of development of the MLK Medical Center Campus. The proposed BHC would not generate additional population and would not result in additional children in the project area; it would therefore have no impact on school facilities consistent with the evaluation in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

vi) Other public facilities

The 2011 FEIR indicates a less than significant impact to other public facilities as a result of development of the MLK Medical Center Campus. The proposed BHC would have no impact to other public facilities consistent with the discussion in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

O. RECREATION

The potential for the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) to result in new or substantially more adverse significant impacts to recreation was evaluated in relation to the 2011 FEIR and two questions recommended for consideration by the State CEQA Guidelines.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following:
- (a) Increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- (b) On-site recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR indicates no impact to recreation as a result of redevelopment of the MLK Medical Center Campus. The BHC would include garden areas for by patients, visitors and staff. The BHC would not generate additional population and therefore would not have an impact on recreational facilities consistent with the evaluation in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

P. TRANSPORTATION AND CIRCULATION

Transportation and traffic impacts of the project were evaluated in light of the 2011 FEIR. The potential for the BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) to result in new or substantially more adverse significant impacts related to transportation and traffic was evaluated in relation to six questions recommended for consideration by the State CEQA Guidelines.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: (a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? (b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes that traffic impacts (including impacts related to applicable plans and the Congestion Management Plan) would be less than significant with mitigation (Mitigation Measures Traffic-1 through Traffic-3).

In order to analyze impacts of the BHC, total trips generated by MLK Campus redevelopment was calculated and trips anticipated to be generated by the BHC were added to that:[2]

- Trips generated by existing conditions evaluated in the 2011 FEIR were identified.
- Trips generated by the MLK Campus on completion of Tier I elements identified and analyzed in the 2011 FEIR including vacation of the original MACC and the construction and use of the replacement MACC and ancillary structures were identified.
- Trips generated by Tier II projects proposed and/or completed to date were identified, including the campus daycare facility (in the Hudson Auditorium), a planned medical office building (net addition of 45,470 square feet) at the northeast corner of campus, the completed East Campus Parking Structure (which does not generate trips), and the now proposed BHC. (The recuperative care facility in the Interns and Physicians Building would not generate new trips as it was a replacement use in an existing, occupied building.)

The BHC was analyzed based on a net employee addition to the MLK Campus of 636 people (total number of employees would be 925 but 289 employees would transfer from other buildings on the MLK Campus). The BHC would represent a much less intense use of the original MACC building than was identified as existing conditions in the 2011 FEIR.

As a result of vacation of the original MACC and construction of Tier I project components there was still a large reduction in trips (-4,905 daily trips, -332 AM peak hour trips and -338 PM peak hour trips) compared to existing conditions identified in the 2011 FEIR.

The addition of trips associated with the daycare center, the medical office building and the now-proposed BHC would still result in total trips generated by the MLK Campus being less

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[2] Technical Memorandum, Traffic Study of MLK Medical Center Campus Proposed Projects, KOA Corporation, July 16, 2018

than existing conditions identified in the 2011 FEIR -1,334 daily trips, -48 AM peak hour trips and -18 trips PM peak hour trips).

Since the BHC together with all development on the MLK Campus to date, would not exceed existing conditions for the MLK Campus identified in the 2011 FEIR, and would not redistribute traffic (as for the East Campus Parking Structure) no further analysis is necessary and the BHC project does not trigger any additional operational traffic mitigation measures (Mitigation Measures Traffic-2 through Traffic-4) beyond those implemented as a result of the East Campus Parking Structure.

The MLK Campus encourages alternate modes of travel (pedestrian amenities, proximity to transit stops). Impacts of the proposed BHC would not result in impacts from the MLK Campus greater than those identified as existing conditions in the 2011 FEIR. Therefore, implementation of traffic mitigation measures identified in the 2011 FEIR is not required and no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(c) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes no impact with respect to air traffic patterns. Consistent with the analysis in the 2011 FEIR, the proposed BHC would have no impact on air traffic patterns. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(d) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concluded a less than significant impact with respect to increased hazards due to a design feature. The proposed BHC would not introduce a new design feature that would increase hazards**.** Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(e) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to inadequate emergency access?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concluded less than significant impact with respect to emergency access. The 2011 FEIR indicates that evacuation plans and procedures, emergency access ingress and egress points, fire lanes, and appropriate turnaround radii for internal and external streets will be provided to the satisfaction of the Los Angeles County Fire Department. No permanent lane closures or obstructions that could impede emergency response to or from the site from surrounding streets would occur with the proposed BHC. Consequently, the proposed BHC would result in a less than significant impacts related to emergency access and impacts would be comparable to those anticipated in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(f) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to potential conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes less than significant impact with respect to adopted plans and policies regarding transit, bicycle or pedestrian facilities. The proposed BHC would be consistent with applicable plans, programs and policies regarding transit, bicycle and pedestrian facilities in much the same way as the 2011 FEIR. The proposed BHC would incorporate design features that encourage alternate modes of travel (pedestrian amenities, proximity to transit). The 2011 FEIR did not identify adverse impacts to bicycle facilities. Consequently, the proposed BHC would have a comparable less than significant impact as the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

Q. UTILITIES

Utilities and service systems impacts of the proposed BHC (renovation of the original MACC and demolition of the Hawkins Building and replacement with gardens and surface parking) were evaluated with regard to the 2011 FEIR (including the Initial Study) and required mitigation measures. The potential for the proposed BHC to result in new or substantially more adverse significant impacts to utilities and service systems was evaluated in relation to seven questions recommended for consideration by the State CEQA Guidelines.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: (a) Exceeding wastewater treatment requirements of the applicable Regional Water Quality Control Board? (b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes less than significant impacts with mitigation with respect to wastewater treatment requirements and wastewater treatment facilities (Mitigation Measure Utilities-1). The proposed BHC would occupy an existing building and would not result in a substantial change in wastewater generation as compared to existing conditions identified in the 2011 FEIR. The 2011 FEIR indicates that Tier II development as a whole would not exceed the wastewater treatment requirements or standards of the RWQCB. The wastewater generated would be treated at the Hyperion Treatment Plant. The proposed BHC is within an existing building that connects to the existing wastewater system and would not include the development of major new sewer lines. Therefore, the proposed BHC would have a less than significant impact on wastewater consistent with the evaluation in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(c) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to requiring or resulting in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes impacts to storm drains related to Tier II development would be less than significant. Although the proposed MLK Campus Redevelopment Project as a whole could result in an increase of the impervious surface area of the site, compliance with proper building design and the LA County Low Impact Development (LID) Ordinance would ensure that the site is adequately drained and that storm water is infiltrated to the extent feasible. The BHC would occupy the original MACC and result in new gardens and a small surface parking lot. No increase in impervious surfaces is anticipated compared to that considered in the 2011 FEIR. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(d) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes less than significant impacts with respect to water supplies. As indicated in the 2011 FEIR the Park Water Company, Central Division (PWC) provides potable water supplies for the Compton West service area that includes the proposed project area. The estimated MLK Campus water demand on completion of Tier II was calculated to be 442 AFY during a single dry year. The highest demand estimated for Tier II is 473.4 AFY, which would be during a single dry year or the first dry year of multiple dry year conditions. On completion of Tier II, the MLK Campus would add approximately three percent to the PWC's overall projected demand. A Water Supply Assessment for the MLK Redevelopment Project concluded that there would be sufficient water to meet the anticipated demand from the MLK Campus in addition to other existing and planned future uses in the service territory.[3] Both the PWC and MWD predicted sufficient water supplies through 2030; thus, the proposed Tier II Phase (of which the BHC is a part) would have sufficient water supplies. The 2011 FEIR concluded that Tier II would result in less than significant impacts with regard to water supply. The proposed BHC would result in water consumption within that analyzed in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

(e) Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to resulting in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes less than significant impacts with mitigation with respect to wastewater treatment providers (Mitigation Measure Utilities-1, requiring payment of connection fees for the sewer system). The 2011 FEIR indicates that the Hyperion Treatment Plant has the capacity to absorb projects that are consistent with regional growth projections identified by SCAG. Additionally, the 2011 FEIR indicates that although the site is well served by major pipeline infrastructure for wastewater collection, new project related connections associated with Tier II development as a whole could be needed. As noted above, the proposed BHC would occupy an existing building with existing sewer connections and would not require new sewer

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[3] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr.* Inc., Los Angeles, CA, p. 8-2.

facilities. Wastewater generated at the MLK Campus is treated at the Hyperion Treatment Plant. Implementation of Mitigation Measure Utilities -1 for new development projects on the MLK Campus would ensure expansion of the sewage system as needed to accommodate needs. Therefore, consistent with the 2011 FEIR implementation of the proposed BHC would result in less than significant impacts with incorporation of mitigation. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2011 FEIR.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: (f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? (g) Comply with federal, state, and local statutes and regulations related to solid waste?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 FEIR concludes that impacts related to solid waste would be less than significant with mitigation (Mitigation Measure Utilities-2). Consistent with the findings of the 2011 FEIR, the proposed BHC would generate new sources of solid waste (construction debris from demolition of the Hawkins Building and renovation of the original MACC, trash and green waste). Such generation of solid waste would be consistent with the analysis in the 2011 FEIR. Operation of the proposed BHC would generate waste that would be within the assumed increases in solid waste for Tier II as a whole analyzed in the 2011 FEIR. Therefore, there would be no new or greater impacts than those identified in the certified 2011 FEIR.

R. GROWTH INDUCING IMPACTS

The 2011 FEIR determined that the MLK Campus Redevelopment Project would not result in substantial growth inducing impacts.

Consistent with the 2011 FEIR, as one component of Tier II development analyzed in the 2011 FEIR, the proposed BHC would not induce growth in an area that is not already developed with infrastructure to accommodate such growth. The BHC would entail renovation of the original MACC and provision of necessary gardens and parking. The BHC would be located in an urban area within the unincorporated area of Los Angeles County consistent with permitted uses and densities called for by the General Plan designation of the site. Additionally, the project would be located in close proximity to various public transportation opportunities.

The proposed BHC would employ 925 people (289 of whom would relocate from the existing Hawkins Building).

Overall, as with the 2011 FEIR, the proposed BHC would not result in an increase in the population that could tax existing community service facilities or encourage or facilitate other activities that could significantly affect the environment or the area, either individually or cumulatively. Thus, the proposed BHC would not result in significant growth-inducing impacts.

The proposed BHC would be built in an existing urban setting and served by existing infrastructure and adjacent streets. The proposed BHC would not provide through access to vacant undeveloped parcels whose development potential could otherwise be enhanced, nor would it require extending or improving infrastructure in a manner that would facilitate off-site growth.

Overall, the proposed BHC would not remove obstacles to population growth, result in an increase in the population that may tax existing community service facilities, or encourage or facilitate other activities that could significantly affect the environment or the area, either individually or cumulative. Thus, as discussed in the 2011 FEIR, the proposed BHC would not result in significant growth-inducing impacts.

S. MANDATORY FINDINGS OF SIGNIFICANCE

Mandatory Findings of Significance were evaluated with respect to the 2011 FEIR and three questions.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: a) Potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The 2011 certified FEIR concluded that the MLK Redevelopment Project would have significant impacts with respect to the issue areas identified below. (How the proposed BHC would relate to these issues is also discussed.)

5) **Air Quality** -- *Construction:* Emissions would exceed regional daily thresholds for VOCs and NOx and localized thresholds for NOx, PM2.5 and PM10 -- based on assumed equipment use and distance to sensitive receptors. *Operations:* Emissions would exceed regional daily thresholds for VOCs, NOx, CO and PM10. Demolition of the Hawkins Building, subsequent site preparation, and activities associated with renovation of the original MACC together with any overlapping construction activities at the medical office building at the northeast corner of the MLK Campus would result in peak daily emissions within those analyzed in the 2011 FEIR. However, impacts could remain significant. Trips generated by the BHC together with other development on the MLK Campus to date would be within the trip generation identified as existing conditions in the 2011 FEIR. However, on completion of Tier II, the BHC would be a part of a net increase in trips that could contribute to a significant impact associated with operation of the overall MLK Campus on completion of the overall MLK Redevelopment Project.

- **Cultural Resources** -- Impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium (Hudson Auditorium) as a result of Tier II. The demolition/removal of these historical resources was identified as a significant and unavoidable impact. The renovation of the original MACC would retain the iconic original MACC with the exterior character-defining features substantially as is. The exterior of the building would be cleaned, and a treatment may be applied. The feasibility of complying with the Secretary of the Interior's Standards has not been determined and therefore impacts (to the building and the MLK Campus Historic District) could still be significant although still less than full demolition. The demolition of the Hawkins Building would be significant (to the building and the MLK Campus Historic District).

- **Greenhouse Gases** -- Potential GHG emission impacts associated with construction and operation of Tier II would be significant and unavoidable; the BHC would contribute to GHG emissions analyzed in the 2011 FEIR contributing to the significant impact. The BHC together with other tier II projects to date would not exceed trips occurring when the 2011 EIR was prepared, however, the BHC would be one component of the overall MLK Redevelopment project and would contribute to total GHG emissions onon competion of all Tier Ii projects.

- **Construction Noise** – The nearest residential land use to the original MACC is approximately 60 feet to the south. The 2011 FEIR indicates that construction noise levels would exceed the 75 dBA threshold level at residences that are within 80 feet of construction activities. Most of the demolition, construction and renovation activities would be more than 80-feet from the single-family homes to the south. However, cleaning could include sandblasting and/or other treatments of the original MACC exterior that could briefly impact homes in the immediate vicinity.

These significant impacts have the potential to degrade the quality of the environment and potentially eliminate important examples of major periods of California history (the impact to the Hawkins Building and MLK Historic District, and potential impact to the original MACC if compliance with the Secretary of the Interior's Standards is not feasible). No additional mitigation has been identified and there would be no new or greater impacts than those identified in the certified 2011 FEIR with respect to these issue areas.

The 2011 FEIR did not find that redevelopment of the MLK Medical Center had the potential to, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California prehistory. The proposed BHC would not increase impacts compared to those analyzed in the 2011 FEIR and therefore similarly would not substantially impact these issues.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: (b) Impacts, which are individually limited, but cumulatively considerable? (Cumulatively considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects).		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

Other than the significant impacts identified above, the 2011 FEIR did not identify any other impacts that would be individually limited, but cumulatively considerable. All impacts associated with the proposed BHC would not exceed those analyzed in the 2011 FEIR and therefore would not result in individually limited impacts that could be cumulatively considerable.

Does the proposed Behavioral Health Center require Subsequent or Supplemental CEQA Documentation with respect to the following: (c) Environmental effects, which cause substantial adverse effects on human beings, either directly or indirectly?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☑
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☑
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☑
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☑

The four significant impacts identified above that were analyzed in the 2011 FEIR would have the potential to cause substantial adverse effects on human beings, either directly or indirectly. However, the proposed BHC would not require additional mitigation or result in new or greater impacts than those identified in the certified 2011 FEIR with respect to these issue areas.

T. CONCLUSION

The proposed BHC is described in Section 2 of this Addendum and would be within the assumptions analyzed in the 2011 FEIR. The proposed BHC has been reviewed by the County of Los Angeles in light of Sections 15162 and 15163 of the Guidelines. As the CEQA Lead Agency, the County of Los Angeles has determined, based on the analysis presented herein, that none of the conditions (identified in Section 1) apply which would require preparation of a subsequent or supplemental EIR and that an Addendum to the certified MLK Campus Redevelopment Project Final EIR is the appropriate environmental documentation under CEQA for the proposed BHC.

Section 3 discusses issue-by-issue how the impacts anticipated for the proposed BHC would be within those previously identified in the 2011 FEIR. The Mitigation Monitoring Program (MMP) adopted with the 2011 FEIR would continue to apply to the proposed BHC to ensure that all impacts are reduced as necessary and feasible.

As discussed throughout this Addendum (see in particular the summary presented in **Table 4**), the proposed BHC would result in environmental impacts within those analyzed for Tier II development for every issue with implementation of applicable mitigation measures as included in the adopted Mitigation Monitoring Plan for the MLK Medical Center Campus Redevelopment Project.

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5. REPORT PREPARATION

County of Los Angeles
Department of Public Works
Martin Luther King, Jr. Medical Center Projects
    Esther Diaz, Senior Project Manager
    Gillian Tiede, Project Manager

EFI Global
5261 West Imperial Highway
Los Angeles, CA 90045
    Matt Rodda, SoCal/SoNevada District Manager

Wendy Lockwood, Project Manager

Enclosure C

MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

FINAL ENVIRONMENTAL IMPACT REPORT

(SCH #2010031040)

VOLUME III

PREPARED FOR:

COUNTY OF LOS ANGELES
CHIEF EXECUTIVE OFFICE
KENNETH HAHN HALL OF ADMINISTRATION
WEST TEMPLE STREET, ROOM 754
LOS ANGELES, CALIFORNIA 90012

PREPARED BY:

SAPPHOS ENVIRONMENTAL, INC.
430 NORTH HALSTEAD STREET
PASADENA, CALIFORNIA 91107

FEBRUARY 2011

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B URBEMIS Output for the Proposed Project

SECTION 13.0
CLARIFICATIONS AND REVISIONS TO THE DRAFT ENVIRONMENTAL IMPACT REPORT

Note to reader:

Section 13.0 consists of clarifications and revisions to the Draft Environmental Impact Report (EIR), which have resulted from responses to comments received from agencies and the public. All clarifications and revisions to the Draft EIR were made to increase the understanding of the EIR. These changes are minor and do not change the findings or conclusions of the EIR. The Draft EIR was released for a public-review period between August 31, 2010, and October 14, 2010. The review period met the California Environmental Impact Report (CEQA) required 45-day review period, although the County of Los Angeles (County) extended it by one additional day, to end on October 15, 2010 (as noted in the NOC) and accepted three (3) anticipated late letters of comments. The County received nine (9) letters of comment on the Draft EIR.

The clarifications and revisions presented in this section provide information that is not required as a result of the following: new significant environmental impacts; substantial increases in the severity of the environmental impacts that have been proposed; the presentation of new, considerably different, and feasible alternatives or mitigation measures that would lessen the environmental impacts and were not adopted by the proponent; or the inadequacy of the Draft EIR. The updates presented in this section are consistent with the findings as presented in the EIR and/or are minor. In accordance with Section 15088.5 of the State CEQA Guidelines, recirculation of the EIR document is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.

GLOBAL

The following global point of clarification should be made to all mitigation measures where appropriate:

Please replace all references to the "lead agency" or "County" in the mitigation measures with "County of Los Angeles" as applicable.

SECTION ES EXECUTIVE SUMMARY

The following revisions were made to Section ES, Executive Summary, as clarifications and in response to letters of comment received by the County. The revisions are considered minor and do not change the finding or conclusions discussed in the EIR.

Table ES.4-1 Summary of Impacts

Tier I

Page ES-4 In order to incorporate minor revisions, please add the text that is in bold italicized font in mitigation measure Aesthetics-1.

Measure Aesthetics-1

All exterior lighting ~~proposed~~ for building and on-site security lighting shall be shielded and directed downward***s*** to minimize the impacts on the surrounding land uses. ~~No~~ ***New development shall not include*** large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) ~~would be included within the building components or materials.~~ ***on three facade. In addition, any glazed north-facing facade shall be set over 200 feet from the street in order to ensure that it would not be subject to direct sunlight except very early and late in the day for a few winter days.***

Tier II

Page ES-4 In order to incorporate minor revisions, please add the text that is in bold italicized font in mitigation measure Aesthetics-1.

Measure Aesthetics-1

All exterior lighting ~~proposed~~ for building and on-site security lighting shall be shielded and directed downward***s*** to minimize the impacts on the surrounding land uses. ~~No~~ ***New development shall not include*** large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) ~~would be included within the building components or materials.~~ ***on three facade. In addition, any glazed north-facing facade shall be set over 200 feet from the street in order to ensure that it would not be subject to direct sunlight except very early and late in the day for a few winter days.***

Page ES-4 In order to incorporate minor revisions, please add the text that is in bold italicized font in mitigation measure Aesthetics-3.

Measure Aesthetics-3

All development shall be limited to three stories in height if the proposed structure would be located along the western or eastern edge of the property. The existing setback include the pediatric modular building/ oasis clinic located approximately 14 feet from the property line along the eastern boundary at Wilmington Avenue, Interns and Physicians Building at approximately 20 feet from property line along the western boundary at Compton Avenue, the Hawkins Building located at approximately 30 feet from property line along the northern boundary at 120th Street, and the Cooling Tower located at 44 feet from the property line along the south. Alternatively, if a structure would exceed three stories in height along the perimeter of the property (western or eastern perimeter only), at a minimum, ***the County of Los Angeles shall ensure that*** the building would be required stay within the approximately 20-foot and for 14-foot existing campus respective western and eastern boundary setbacks to reduce shade and shadow impacts to adjacent land uses along Compton Avenue and Wilmington Avenue.

Page ES-5 In order to incorporate recommendations received in a letter from the South Coast Air Quality Management District (SCAQMD), please add the text that is in bold italicized font in mitigation measure Air-1:

Water or a stabilizing agent shall be applied during Tier I to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the ~~lead agency~~ ***County of Los Angeles*** to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour ***as instantaneous gusts***), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the ~~lead agency~~ ***County of Los Angeles***. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. ***The County of Los Angeles shall also ensure that the plans and specifications for each element of the project include a requirement for ground cover to be replaced in disturbed areas as quickly as practicable and that the County of Los Angeles appoints a construction relations officer to act as a community liaison concerning on-site construction activity including addressing issues related to fugitive dust generation.***

Page ES-5 In order to incorporate the minor clarifications received in a letter of comment from SCAQMD, please add the text that is in bold italicized font in mitigation measure Air-3:

Discontinuing Tier I construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour ***as instantaneous gusts***) shall be ~~required~~ ***discontinued*** to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the ~~lead agency~~ ***County of Los Angeles*** shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour ***as instantaneous gusts***.

Page ES-5 In order to incorporate the minor clarifications received in a letter of comment from SCAQMD, please add the following sentence to the end of mitigation measure Air-4:

Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available.

Page ES-6 In order to provide additional detail regarding mitigation measure Air-9, and in response to recommendations received in a letter of comment from SCAQMD, please remove the stricken text in mitigation measure Air-9 and add the text that is in bold italicized font:

~~All diesel engines used during Tier I for construction activities for the project that are not registered under California Air Resources Board's Statewide Portable Equipment Registration Program and have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any diesel engine larger than 50 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxide and particulate matter emissions that are equivalent to a Tier 2 engine.~~ All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized ***and/or limited to no more than five minutes in accordance with state law***. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the ~~lead agency~~ ***County of Los Angeles*** shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria. ***All on-site construction equipment shall be required to meet U.S. EPA Tier 2 or higher emissions standards according to the following:***

- ***April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction***

equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- ***January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.***

- ***Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.***

Page ES-6 To further elaborate on and clarify the existing air quality mitigation measures, and in response to recommendations received in a letter of comment from SCAQMD, please add mitigation measures Air-10 and Air-11 after mitigation measure Air-9. These additional mitigation measures will have the same effect of the existing mitigation measures but they offer specific detail as to how the recommended measures can be met:

Measure Air-10

Wherever possible, contractors shall use materials that do not require painting or use pre-painted materials. In order to minimize emissions of volatile organic compounds, contractors shall use high-pressure, low-volume paint applicators with a minimum transfer efficiency of at least 50 percent and coatings and solvents with a volatile organic compound content lower than required under South Coast Air Quality Management District Rule 1113, Architectural Coatings:

- Clear wood finishes: 275 grams/liter
- Floor coatings: 50 grams/liter
- Sealers: waterproofing sealers 100 grams/liter; sanding sealers 275 grams/liter; all other sealers 100 grams/liter
- Shellacs: clear 730 grams/liter; pigmented 550 grams/liter
- Stains: 100 grams/liter

Measure Air-11

The following measures shall be implemented, wherever feasible, to reduce operational air quality impacts:

- Improve traffic flow by signal synchronization;
- Ensure County-owned campus vehicles use clean fuels such as compressed natural gas and that shuttle buses for the campus are "clean" buses, such as 2010 compliant vehicles;
- Require all County of Los Angeles and County of Los Angeles contractor vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications;
- Provide services that promote ridesharing and vanpools;
- Provide charging stations or preferred parking for alternative technology vehicles;
- Provide preferred parking for carpools and vanpools; and
- Reduce energy consumption by providing alternative energy sources on site and installing energy-efficient appliances.

Tier II

Page ES-6 In order to incorporate recommendations received in a letter from the SCAQMD, please add the text that is in bold italicized font in mitigation measure Air-1:

Water or a stabilizing agent shall be applied during Tier II to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the ~~lead agency~~ ***County of Los Angeles*** to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour ***as instantaneous gusts***), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the ~~lead agency~~ ***County of Los Angeles***. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. ***The County of Los Angeles shall also ensure that the plans and specifications for each element of the project include a requirement for ground cover to be replaced in disturbed areas as quickly as practicable and that the County of Los Angeles appoints a construction relations officer to act as a community liaison concerning on-site construction activity including addressing issues related to fugitive dust generation.***

Page ES-7	In order to incorporate the minor clarifications received in a letter of comment from SCAQMD, please add the text that is in bold italicized font in mitigation measure Air-3:

Discontinuing Tier II construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour ***as instantaneous gusts***) shall be ~~required~~ ***discontinued*** to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the ~~lead agency~~ ***County of Los Angeles*** shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour ***as instantaneous gusts***.

Page ES-7 In order to incorporate the minor clarifications received in a letter of comment from SCAQMD, please add the following sentence to the end of mitigation measure Air-4:

Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available.

Pages ES-7 In order to provide additional detail regarding mitigation measure Air-9, and in response to recommendations received in a letter of comment from SCAQMD, please remove the stricken text in mitigation measure Air-9 and add the text that is in bold italicized font:

~~All diesel engines used during Tier II for construction activities for the project that are not registered under California Air Resources Board's Statewide Portable Equipment Registration Program and have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any diesel engine larger than 50 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxide and particulate matter emissions that are equivalent to a Tier 2 engine.~~ All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized ***and/or limited to no more than five minutes in accordance with state law***. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the ~~lead agency~~ ***County of Los Angeles*** shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria. ***All on-site construction equipment shall be required to meet U.S. EPA Tier 2 or higher emissions standards according to the following:***

- ***April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction***

equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- ***January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.***

- ***Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.***

Page ES-8 To further elaborate on and clarify the existing air quality mitigation measures, and in response to recommendations received in a letter of comment from SCAQMD, please add mitigation measures Air-10 and Air-11 after mitigation measure Air-9. These additional mitigation measures will have the same effect of the existing mitigation measures but they offer specific detail as to how the recommended measures can be met:

Measure Air-10

Wherever possible, contractors shall use materials that do not require painting or use pre-painted materials. In order to minimize emissions of volatile organic compounds, contractors shall use high-pressure, low-volume paint applicators with a minimum transfer efficiency of at least 50 percent and coatings and solvents with a volatile organic compound content lower than required under South Coast Air Quality Management District Rule 1113, Architectural Coatings:

- Clear wood finishes: 275 grams/liter
- Floor coatings: 50 grams/liter
- Sealers: waterproofing sealers 100 grams/liter; sanding sealers 275 grams/liter; all other sealers 100 grams/liter
- Shellacs: Clear 730 grams/liter; pigmented 550 grams/liter
- Stains: 100 grams/liter

Measure Air-11

The following measures shall be implemented, wherever feasible, to reduce operational air quality impacts:

- Improve traffic flow by signal synchronization;
- Ensure County-owned campus vehicles use clean fuels such as compressed natural gas and that shuttle buses for the campus are "clean" buses, such as 2010 compliant vehicles;
- Require all County of Los Angeles and County of Los Angeles contractor vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications;
- Provide services that promote ridesharing and vanpools;
- Provide charging stations or preferred parking for alternative technology vehicles;
- Provide preferred parking for carpools and vanpools; and
- Reduce energy consumption by providing alternative energy sources on site and installing energy-efficient appliances.

Page ES-22 In order to clarify the existing mitigation measure, please remove the stricken text in mitigation measure Traffic-2 and replace it with the text that is in bold italicized font:

Wilmington Avenue / I-105 Eastbound Ramps, County of Los Angeles / California Department of Transportation: Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach ~~would~~ ***shall*** have a left-turn lane, shared left-right turn lane, and a separate right-turn lane. The sidewalks on ~~either~~ ***both*** sides of Wilmington Avenue (as noted above) ~~would~~ ***shall*** be reduced by 2 feet and the Wilmington Avenue roadway ~~would~~ ***shall*** be widened by 2 feet on ~~either~~ ***both*** sides (a total of 4 feet) from the south leg of this intersection. Provide an additional northbound left-turn lane by widening (reducing the medians). The northbound approach ~~would~~ ***shall*** have dual left-turn lanes and three through lanes.

Page ES-22 In order to clarify the existing mitigation measure, please remove the stricken text in mitigation measure Traffic-2 and replace it with the text that is in bold italicized font:

Wilmington Avenue / 118th Street, County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on ~~either~~ ***both*** sides and re-stripe to provide two through lanes, a shared through right-turn lane and dual left-turn lanes along the southbound approach. Re-stripe the westbound approach to provide a separate right-turn ~~land~~ ***lane*** and a ~~share~~ ***shared*** left-through lane. Northbound approach ~~would~~ ***shall*** have the same lane geometry as existing conditions. Under cumulative conditions, widen 118th Street roadway by 4 feet and re-stripe to provide a separate right-turn lane and shared left-through lane along the eastbound approach.

Wilmington Avenue / 120th Street–119th Street, County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on ~~either~~ ***both*** sides and re-stripe the southbound approach to provide a separate right-turn lane, three through lanes, and a left-turn lane.

Page ES-23 In order to clarify and to further refine the intent of this mitigation measure, please remove the stricken text in mitigation measure Traffic-3 and replace it with the text that is in bold italicized font:

Alameda Street / El Segundo Boulevard, County of Los Angeles / Compton: Re-stripe northbound/southbound approaches and provide a southbound right-turn lane. The lanes along the north leg ~~would~~ ***shall*** be re-striped to provide 13-foot and 11-foot receiving lanes; 10-foot, 11-foot, 10-foot, and 12-foot approach lanes for southbound ~~right~~ ***left-turn lane***, ~~both~~ southbound ~~turns~~ ***through lanes***, and southbound right***-turn*** lanes, respectively. The lanes along the south leg would have a 13-foot shared right through-way, 11-foot through lane, 10-foot left-turn lane, 12-foot receiving lane, and a 20-foot receiving lane. Remove two on-street parking spaces along the southbound approach during peak hours.

Page ES-23 To further elaborate on and clarify the existing transportation and traffic mitigation measures, please add mitigation measure Traffic-4 after mitigation measure Traffic-3. This additional mitigation measures will have the same effect of the existing mitigation measures but it offers supplemental detail as to how the recommended measures can be met:

Measure Traffic-4

Along the southbound approach of Alameda Street, the County of Los Angeles shall provide two left-turn lanes, two through lanes and one right-turn lane instead of one left-turn lane, two through lanes and a separate right-turn lane (i.e., add a second left turn lane). In addition, the County of Los Angeles shall provide the required signal hardware and supporting software to facilitate a right-turn arrow signal indication for southbound right-turn overlap with eastbound-westbound left-turns at the intersection.

SECTION 2.0
PROJECT DESCRIPTION

The following revisions were made to Section 2.0, Project Description, as clarifications and in response to letters of comment received by the County. The revisions are considered minor and do not change the finding or conclusions discussed in the EIR.

2.2.2 Existing Structures

Page 2-4 In order to incorporate minor clarifications to the this section, please add the superscript “a” to numbers 7, 15, and 16; remove the stricken text, and add the bold italicized text to the note section of Table 2.2.2-1, *Existing Buildings and Structures*:

TABLE 2.2.2-1
EXISTING BUILDINGS AND STRUCTURES

	Building / Structure Name	Floor Area (square feet)	Would Buildings/ Structures Remain Following the Tier II Development of the Proposed Project? (Y/N)	Floors	Currently Operational	Footprint of Campus Buildings / Structures (square feet)
1	Genesis Clinic	2,100	Y	1	N	2,100
2	Oasis Clinic (old)	2,580	Y	1	N	2,580
3	Oasis Clinic (new)	1,850	Y	1	Y	1,850
4	Registration Building	10,950	Y	2	Y	5,475
5	Augustus F. Hawkins Comprehensive Mental Health Center	226,818	Y	3 (and a basement)	Y	75,606
6	Inpatient Tower	187,676	Y	5 (and a basement)	Y	37,535
7	MACC[a]	495,335	N	5 (and a basement)	Y (only partially operational)	99,067
8	Pediatric Acute Care	7,878	Y	1	Y	7,878
9	Medical Records and Laundry	26,355	Y	1	Y	26,355
10	Central Plant (I and II)	24,103	Y	1	Y	24,103
11	Plant Management Building	15,648	Y	1	Y	15,648
12	North Support Building	52,276	Y	2	Y	26,138
13	South Support Building	34,762	Y	2	Y	17,381
14	Interns and Physicians Building	124,391	Y	6	Y (only partially operational)	20,731
15	Emergency Room[a]	3,300	N	1	Y	3,300
16	Storage Building[a]	1,060	N	1	Y	1,060
17	MRI Building	1,100	Y	1	Y	1,100
18	Claude Hudson Auditorium	3,922	Y	1	Y	3,922
19	Cooling Towers[a]	6,790	N	1	Y	6,790
20	Hub Clinic	12,265	Y	1	Y	12,265
21	Storage Building[b]	2,533	Y	1	Y	2,533
	EXISTING CAMPUS TOTAL	**1,243,692**				**393,417**

NOTE:

a. These structures ***will be*** ~~ould likely be reused, replaced, or~~ removed following the reuse, replacement, or removal of the existing MACC Building.

b. This building is in the footprint of the Central Plant expansion~~, but may just be incorporated during design and remain.~~ ***and will be removed under the ongoing CEQA-exempt project.***

2.4 PROPOSED PROJECT

Page 2-18 In order to clarify the discussion provided in this section, please add the following clarification that is in bold italicized font to the second paragraph:

To establish a proposed program of development level for the mixed-use portion of Tier II that is described in Table 2.4-1 as the potential build-out, the currently undeveloped areas of the campus (undeveloped in this case includes parking lots and structures***, such as parking structures and certain storage or loading areas,*** but not buildings) were calculated and adjustments were made for buildings to be reused, replaced, or removed and developed, to obtain a surface area from which to calculate allowable build-out (Table 2.4-2, *Proposed Tier II Campus Development Calculations*).

2.2.2.7 Multi-Service Ambulatory Care Center Building

Page 2-6 In order to refine the description of the estimates that are provided, please replace the text "2008-2009" in the second sentence of this paragraph with the phrase "operational campus," as shown below.

The existing patient volume on the campus is largely determined by the MACC patient volume and services. The patient volume capacity for the MACC, based on the ~~2008–2009~~ ***operational campus*** workload and estimates, is as follows: 160,000 annual outpatient services visits (including 11,000 walk-in clinic visits); 10,000 inpatient visits; 30,000 annual emergency services visits; 2,700 inpatient surgery procedures; and 3,500 outpatient surgery procedures.

2.2.3.1 Patient Volume

Page 2-6 In response to the extension that the County received for compliance with the OSHPD requirements at the campus, please remove the stricken text and add the bold italicized text to the sentence below:

However, in order to provide inpatient services, the existing MACC would require significant seismic improvements ~~in January 2013~~ ***by January 2020*** for compliance with OSHPD requirements.

Page 2-19 In order to incorporate minor revisions to the EIR, please remove the stricken text from Note 'b', under Table 2.4-1, *Proposed Campus Development Matrix*:

These buildings also have basements, or a partial floor. ~~in the case of the Augustus F. Hawkins Comprehensive Mental Health Center~~.

Page 2-19 In order to incorporate minor clarifications to the EIR, please remove the stricken text from Note 'e', under Table 2.4-1, *Proposed Campus Development Matrix*, and add the bold italicized text:

This building is in the footprint of the Central Plant (Phase III) expansion ~~but may just be incorporated during design and remain~~ ***and will be removed under the CEQA-exempt ongoing project***.

2.4.4.1 Tier I Construction Scenario

Page 2-26 In order to provide further clarification of the construction scenario, please add the bold italicized text to the first paragraph under this heading:

Tier I of the proposed project—which consists of the construction of the new MACC Building, the Ancillary Building, tenant improvements, site improvements, and potential relocation of the MRI Building—would require approximately 37 months to complete (March 2011 to April 2014). ***It is anticipated that Tier I construction would be completed before Tier II construction is initiated.*** Construction at the proposed project site is anticipated to be in accordance with all federal, state, regional, and County regulations, including the National Pollution Discharge Elimination System[1] and the County General Plan.[2]

SECTION 3.1
AESTHETICS

The following revisions were made to Section 3.1, Aesthetics, as points of clarification. The revisions are considered minor and do not change the findings or conclusions discussed in the EIR.

3.1.5 Mitigation Measures

Tier I

Page 3.1-19 ***Measure Aesthetics-1***

All exterior lighting ~~proposed~~ for building and on-site security lighting shall be shielded and directed downward***s*** to minimize the impacts on the surrounding land uses. ~~No~~ ***New development shall not include*** large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) ~~would be included within the building components or materials.~~ ***on three facade. In addition, any glazed north-facing facade shall be set over 200 feet from the street in order to ensure that it would not be subject to direct sunlight except very early and late in the day for a few winter days.***

Tier II

Page 3.1-19 ***Measure Aesthetics-1***

All exterior lighting ~~proposed~~ for building and on-site security lighting shall be shielded and directed downward***s*** to minimize the impacts on the surrounding land uses. ~~No~~ ***New development shall not include*** large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) ~~would be included within the building components or materials.~~ ***on three facade. In addition, any glazed north-facing facade shall be set over 200 feet from the street in order to ensure that it would not be subject to direct sunlight except very early and late in the day for a few winter days.***

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[1] U.S. Environmental Protection Agency. 2009. *National Pollution Discharge Elimination System*. Available at: http://cfpub.epa.gov/npdes/

[2] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

Page 3.1-20 ***Measure Aesthetics-3***

All development shall be limited to three stories in height if the proposed structure would be located along the western or eastern edge of the property. The existing setback include the pediatric modular building/ oasis clinic located approximately 14 feet from the property line along the eastern boundary at Wilmington Avenue, Interns and Physicians Building at approximately 20 feet from property line along the western boundary at Compton Avenue, the Hawkins Building located at approximately 30 feet from property line along the northern boundary at 120th Street, and the Cooling Tower located at 44 feet from the property line along the south. Alternatively, if a structure would exceed three stories in height along the perimeter of the property (western or eastern perimeter only), at a minimum, ***the County of Los Angeles shall ensure that*** the building would be required stay within the approximately 20-foot and for 14-foot existing campus respective western and eastern boundary setbacks to reduce shade and shadow impacts to adjacent land uses along Compton Avenue and Wilmington Avenue.

SECTION 3.2
AIR QUALITY

The following revisions were made to Section 3.2, Air Quality, as clarifications and in response to letters of comment received by the SCAQMD. The revisions are considered minor and do not change the finding or conclusions discussed in the EIR.

Page 3.2-16 In order to clarify the discussion provided in this statement, please add the bold italicized text to the last sentence on this page:

In addition, should any contamination be found to be present in the soils in the area exposed after demolition, ***excavation, or other soil disturbance and that has the potential to be classified as a hazardous waste (e.g., petroleum hydrocarbons, etc.),*** construction shall stop and appropriate health and safety procedures and agency coordination shall be undertaken prior to continuing work on site. ***This would include compliance with SCAQMD Rule 1166 - Volatile Organic Compound Emissions from Decontamination of Soil, as applicable.***

Page 3.2-17 In order to incorporate minor revisions in Table 3.2.4.2-1, please change the PM_{10} emissions during mass site grading to 51 pounds per day and the $PM_{2.5}$ emissions to 13 pounds per day. Please also change the maximum regional total for PM_{10} to 52 pounds per day and the maximum regional total for $PM_{2.5}$ to 13 pounds per day.

Page 3.2-18 In order to provide a reference to the supporting analysis provided for the air quality analysis, please add the bold text after the first sentence in the second paragraph on this page:

. . . for each phase of construction **(Table 3.2.4.2-1-a, *Peak SCAQMD Emissions from Sample LST Spreadsheets*).**

Page 3.2-18 In order to provide a summary of the supporting air quality analysis is table format, please add the following table after the first sentence in the second paragraph on this page:

TABLE 3.2.4.2-1-a
PEAK SCAQMD EMISSIONS FROM SAMPLE LST SPREADSHEETS

Construction Phase	Construction Emissions (Pounds/Day)			
	NO_x	CO	$PM_{2.5}$	PM_{10}
Demolition	**29.6**	**16.7**	**1.9**	**3.8**
Grading and Trenching	**29.4**	**16.0**	**2.0**	**4.8**
Building	**84.7**	**36.6**	**2.9**	**3.3**
Architectural Coating and Paving	**22.3**	**14.1**	**1.4**	**1.5**

Page 3.2-18 In order to reference the supporting analysis provided in the EIR, please add the bold text after the second sentence in the second paragraph on this page:

. . . implementation of mitigation measures **(Table 3.2.4.2-1-b, *Tier I Peak Emissions at Nearest Sensitive Receptors*)**.

Page 3.2-18 In order to reference the supporting analysis provided in the EIR, please add the following table after the second paragraph on this page:

TABLE 3.2.4.2-1-b
TIER I PEAK EMISSIONS AT NEAREST SENSITIVE RECEPTORS

Receptor Name	1-hour NO_2 (ppm)	1-hour CO (ppm)	8-hour CO (ppm)	24-hour $PM_{2.5}$ ($\mu g/m^3$)	24-hour PM_{10} ($\mu g/m^3$)
Nearest Residences	0.12	0.09	0.03	1.17	2.68
King Drew Magnet High School	0.10	0.08	0.03	2.29	5.58
Background	**0.12**	**6**	**4.3**	N/A	N/A
CAAQS	**0.18**	**20**	**9.0**	N/A	N/A
NAAQS		**35**	**9**	**35**	**35**
SCAQMD				**10.4**	**10.4**

Page 3.2-19 In order to refine the existing table provided in the EIR, please replace Table 3.2.4.2-2 with the following:

TABLE 3.2.4.2-2
TIER II: UNMITIGATED
ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

	Maximum Construction Emissions (Pounds/Day)					
Year	**VOCs**	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
2010	7	79	34	<1	13	51
2011	16	156	75	<1	16	55
2012	25	217	111	<1	18	57
2013	94	207	116	<1	18	56
2014	94	185	112	<1	17	55
2015	93	166	108	<1	16	54
2016	90	148	105	<1	15	54
2017	88	131	102	<1	15	53
2018	85	118	99	<1	4	5
2019	80	70	65	<1	3	3
2020	76	31	32	<1	1	1
150 worker trips	1	1	7	<1	<1	2
Maximum Regional Total	95	218	123	<1	14	36
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Page 3.2-20 In order to reference the supporting analysis provided in the EIR, please add the bold text after the second paragraph on this page:

. . . nearest sensitive receptors **(Table 3.2.4.2-3, *Tier II Peak Emissions at Nearest Sensitive Receptors*)**.

Page 3.2-20 In order to reference the supporting analysis provided in the EIR, please delete the third paragraph on this page and add the following table in its place:

TABLE 3.2.4.2-3
TIER II PEAK EMISSIONS AT NEAREST SENSITIVE RECEPTORS

Receptor Name	**1-hour NO_2 (ppm)**	**1-hour CO (ppm)**	**8-hour CO (ppm)**	**24-hour $PM_{2.5}$ ($\mu g/m^3$)**	**24-hour PM_{10} ($\mu g/m^3$)**
Nearest Residences	0.71	0.56	0.22	49.83	93.71
King Drew Magnet High School	0.62	0.49	0.20	20.90	43.68
Background	**0.12**	**6**	**4.3**	N/A	N/A
CAAQS	**0.18**	**20**	**9.0**	N/A	N/A
NAAQS		**35**	**9**	**35**	**35**
SCAQMD				**10.4**	**10.4**

Page 3.2-24 In order to clarify the analysis provided in the EIR, please delete the second sentence under Section 3.2.5 (stricken below) and replace with the bold italicized text:

Air quality mitigation measures are provided to reduce construction-phase criteria pollutant emissions to the maximum extent feasible and to ensure compliance with SCAQMD Rule 403 Fugitive Dust in order to reduce, prevent, or mitigate particulate matter emissions from the proposed project's construction phase. ~~There are no feasible mitigation measures that can be implemented to reduce the mobile source-related operational impacts of Tier II of the proposed project.~~

Mitigation measures are provided to reduce mobile source–related operational impacts of Tier II of the proposed project to the maximum extent feasible.

Page 3.2-24 In order to incorporate recommendations received in a letter from the SCAQMD, please add the text that is in bold italicized font in mitigation measure Air-1:

Water or a stabilizing agent shall be applied during Tier I to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the ~~lead agency~~ ***County of Los Angeles*** to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour ***as instantaneous gusts***), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the ~~lead agency~~ ***County of Los Angeles***. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. ***The County of Los Angeles shall also ensure that the plans and specifications for each element of the project include a requirement for ground cover to be replaced in disturbed areas as quickly as practicable and that the County of Los Angeles appoints a construction relations officer to act as a community liaison concerning on-site construction activity including addressing issues related to fugitive dust generation.***

Page 3.2-24 In order to incorporate the minor clarifications received in a letter of comment from SCAQMD, please add the text that is in bold italicized font in mitigation measure Air-3:

Discontinuing Tier I construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour ***as instantaneous gusts***) shall be ~~required~~ ***discontinued*** to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the ~~lead agency~~ ***County of Los Angeles*** shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour ***as instantaneous gusts***.

Page 3.2-25 In order to incorporate the minor recommendations received in a letter of comment from SCAQMD, please add the following sentence to the end of mitigation measure Air-4:

Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available.

Page 3.2-26 In order to provide additional detail regarding mitigation measure Air-9, and in response to recommendations received in a letter of comment from SCAQMD, please remove the stricken text in mitigation measure Air-9 and add the text that is in bold italicized font:

~~All diesel engines used during Tier I for construction activities for the project that are not registered under California Air Resources Board's Statewide Portable Equipment Registration Program and have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any diesel engine larger than 50 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxide and particulate matter emissions that are equivalent to a Tier 2 engine.~~ All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized ***and/or limited to no more than five minutes in accordance with state law***. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the ~~lead agency~~ ***County of Los Angeles*** shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria. ***All on-site construction equipment shall be required to meet U.S. EPA Tier 2 or higher emissions standards according to the following:***

- ***April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.***

- ***January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.***

- ***Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.***

Page 3.2-26 To further elaborate on and clarify the existing air quality mitigation measures, and in response to recommendations received in a letter of comment from SCAQMD, please add mitigation measures Air-10 and Air-11 after mitigation measure Air-9. These additional mitigation measures will have the same effect of the existing mitigation measures but they offer specific detail as to how the recommended measures can be met:

Please add mitigation measures Air-10 and Air-11 after mitigation measure Air-9:

Measure Air-10

Wherever possible, contractors shall use materials that do not require painting or use pre-painted materials. In order to minimize emissions of volatile organic compounds, contractors shall use high-pressure, low-volume paint applicators with a minimum transfer efficiency of at least 50 percent and coatings and solvents with a volatile organic compound content lower than required under South Coast Air Quality Management District Rule 1113, Architectural Coatings:

- Clear wood finishes: 275 grams/liter
- Floor coatings: 50 grams/liter
- Sealers: waterproofing sealers 100 grams/liter; sanding sealers 275 grams/liter; all other sealers 100 grams/liter
- Shellacs: clear 730 grams/liter; pigmented 550 grams/liter
- Stains: 100 grams/liter

Measure Air-11

The following measures shall be implemented, wherever feasible, to reduce operational air quality impacts:

- Improve traffic flow by signal synchronization;
- Ensure County-owned campus vehicles use clean fuels such as compressed natural gas and that shuttle buses for the campus are "clean" buses, such as 2010 compliant vehicles;
- Require all County of Los Angeles and County of Los Angeles contractor vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications;
- Provide services that promote ridesharing and vanpools;
- Provide charging stations or preferred parking for alternative technology vehicles;
- Provide preferred parking for carpools and vanpools; and
- Reduce energy consumption by providing alternative energy sources on site and installing energy-efficient appliances.

Page 3.2-26 In order to incorporate recommendations received in a letter from the SCAQMD, please add the text that is in bold italicized font in mitigation measure Air-1:

Water or a stabilizing agent shall be applied during Tier I to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the ~~lead agency~~ ***County of Los Angeles*** to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour ***as instantaneous gusts***), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the ~~lead agency~~ ***County of Los Angeles***. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. ***The County of Los Angeles shall also ensure that the plans and specifications for each element of the project include a requirement for ground cover to be replaced in disturbed areas as quickly as practicable and that the County of Los Angeles appoints a construction relations officer to act as a community liaison concerning on-site construction activity including addressing issues related to fugitive dust generation.***

Page 3.2-27 In order to incorporate the minor clarifications received in a letter of comment from SCAQMD, please add the text that is in bold italicized font in mitigation measure Air-3:

Discontinuing Tier I construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour ***as instantaneous gusts***) shall be ~~required~~ ***discontinued*** to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the ~~lead agency~~ ***County of Los Angeles*** shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour ***as instantaneous gusts***.

Page 3.2-27 In order to incorporate the minor recommendations received in a letter of comment from SCAQMD, please add the following sentence to the end of Measure Air-4:

Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available.

Page 3.2-28 In order to provide additional detail regarding mitigation measure Air-9, and in response to recommendations received in a letter of comment from SCAQMD, please remove the stricken text in mitigation measure Air-9 and add the text that is in bold italicized font:

~~All diesel engines used during Tier I for construction activities for the project that are not registered under California Air Resources Board's Statewide Portable Equipment Registration Program and have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any diesel engine larger than 50 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxide and particulate matter emissions that are equivalent to a Tier 2 engine.~~ All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized ***and/or limited to no more than five minutes in accordance with state law***. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the ~~lead agency~~ ***County of Los Angeles*** shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria. ***All on-site construction equipment shall be required to meet U.S. EPA Tier 2 or higher emissions standards according to the following:***

- ***April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve***

emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- ***January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.***

- ***Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.***

Page 3.2-28 To further elaborate on and clarify the existing air quality mitigation measures, and in response to recommendations received in a letter of comment from SCAQMD, please add mitigation measures Air-10 and Air-11 after mitigation measure Air-9. These additional mitigation measures will have the same effect of the existing mitigation measures but they offer specific detail as to how the recommended measures can be met:

Please add mitigation measures Air-10 and Air-11 after mitigation measure Air-9:

Measure Air-10

Wherever possible, contractors shall use materials that do not require painting or use pre-painted materials. In order to minimize emissions of volatile organic compounds, contractors shall use high-pressure, low-volume paint applicators with a minimum transfer efficiency of at least 50 percent and coatings and solvents with a volatile organic compound content lower than required under South Coast Air Quality Management District Rule 1113, Architectural Coatings:

- Clear wood finishes: 275 grams/liter
- Floor coatings: 50 grams/liter
- Sealers: waterproofing sealers 100 grams/liter; sanding sealers 275 grams/liter; all other sealers 100 grams/liter
- Shellacs: clear 730 grams/liter; pigmented 550 grams/liter
- Stains: 100 grams/liter

Measure Air-11

The following measures shall be implemented, wherever feasible, to reduce operational air quality impacts:

- Improve traffic flow by signal synchronization;
- Ensure County-owned campus vehicles use clean fuels such as compressed natural gas and that shuttle buses for the campus are "clean" buses, such as 2010 compliant vehicles;
- Require all County of Los Angeles and County of Los Angeles contractor vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications;
- Provide services that promote ridesharing and vanpools;
- Provide charging stations or preferred parking for alternative technology vehicles;
- Provide preferred parking for carpools and vanpools; and
- Reduce energy consumption by providing alternative energy sources on site and installing energy-efficient appliances.

Page 3.2-29 In order to refine the existing table provided in the EIR to support the analysis, please replace 3.2.6-1 with the following:

TABLE 3.2.6-1
TIER I: MITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

Construction Phase	Construction Emissions (Pounds/Day)					
	VOCs	NO_x	CO	SO_x	$PM_{2.5}$	PM_{10}
Demolition	3	20	12	0	1	1
Mass Site Grading	7	72	32	<1	6	16
Trenching	4	31	20	0	2	2
Building Construction[1]	10	81	42	<1	3	3
Paving	2	13	11	0	1	1
Architectural Coating	67	<1	<1	0	0	<1
90 worker trips	<1	1	6	<1	<1	1
Maximum Regional Total	**67**	**82**	**48**	<1	**6**	**17**
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Page 3.2-29 In order to incorporate minor clarifications to the existing analysis, please add the text that is in bold italicized font below to the first sentence under Table 3.2.6-1:

Implementation of mitigation measure***s*** Air-9 ***and Air-10*** would ensure that criteria pollutant emissions associated with the use of construction equipment ***and the application of paints and coatings*** would be reduced to the maximum extent feasible.

Page 3.2-29 In order to clarify the analysis provided, please add the following sentence after the second paragraph under Table 3.2.6-1:

Mitigation measure Air-11 would reduce mobile source emissions during operation, and there would continue to be no significant impacts due to operation of Tier I of the proposed project.

Page 3.2-30 In order to refine the existing table provided in the EIR to support the analysis please replace Table 3.2.6-2 with the following:

TABLE 3.2.6-2
TIER II: MITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

Year	Maximum Construction Emissions (Pounds/Day)					
	VOCs	NO_x	CO	SO_x	$PM_{2.5}$	PM_{10}
2010	7	79	34	<1	6	16
2011	16	156	75	<1	9	19
2012	25	217	111	<1	11	22
2013	86	207	116	<1	10	21
2014	87	185	112	<1	9	20
2015	86	166	108	<1	9	19
2016	83	148	105	<1	8	18
2017	81	131	102	<1	7	18
2018	78	118	99	<1	4	5
2019	73	70	65	<1	3	3
2020	68	31	32	<1	1	1
150 worker trips	1	1	7	<1	<1	2
Maximum Regional Total	88	218	123	<1	11	24
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Page 3.2-30 In order to incorporate minor revisions into the existing analysis, please add the text that is in bold italicized font below to the first sentence under Table 3.2.6-2:

Implementation of mitigation measure***s*** Air-9 ***and Air-10*** would ensure that criteria pollutant emissions associated with the use of construction equipment ***and the application of paints and coatings*** would be reduced to the maximum extent feasible.

Page 3.2-30 In order to incorporate the clarifications to the mitigation measures, please remove the stricken text in the first sentence in the third paragraph under Table 3.2.6-2 and replace it with the text that is in bold italicized font:

Mitigation measures Air-1 through ~~Air-9~~ ***Air-10*** would also ensure . . .

Page 3.2-30 In order to clarify the statement below and to incorporate the supporting mitigation measures, please remove the stricken text in the first sentence in the fourth paragraph under Table 3.2.6-2 and replace it with the text that is in bold italicized font:

~~As there are no feasible mitigation measures for operation of Tier II~~ ***Mitigation measure Air-11 would reduce mobile source emissions during operation to the maximum extent feasible***; ~~therefore~~ ***however***, criteria pollutant emissions from mobile sources during operation of Tier II would remain at above the level of significance.

SECTION 3.5

GREENHOUSE GAS EMISSIONS

The following revisions were made to Section 3.5, Greenhouse Gas Emissions, as clarifications and in response to letters of comment received by the County. The revisions are considered minor and do not change the finding or conclusions discussed in the EIR.

3.5.5 Mitigation Measures

Page 3.5-24 In order to incorporate the clarifications and mitigation recommendations provided in a letter of comment received from the SCAQMD, please add the following sentence after the end of the first paragraph in this section

The incorporation of air quality mitigation measure AQ-11, as described in Section 3.2, would also serve to reduce GHG emissions from mobile sources and energy consumption.

SECTION 3.6

HAZARDS AND HAZARDOUS MATERIALS

3.6.4.2 Release of Hazardous Materials into the Environment

Page 3.6-9 In order to further describe the intended compliance of the proposed project with the existing County guidelines and to incorporate recommendations provided by the County Fire Department, please add the following bold italicized text as a second paragraph to Tier II analysis.

The proposed project would be expected to result in less than significant impacts from hazards and hazardous materials in relation to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials with the incorporation of mitigation measures. The proposed project site is the location of documented past releases of gasoline and oil from a LUST, which occurred prior to existing underground storage tank LUST regulations. Cleanup of the site has been completed for the release of oil and gasoline, and no further action is warranted.[3] Because the proposed project site is both a small- and a large-quantity generator of hazardous materials, the potential exists for a hazardous materials release to occur. The proposed project tiers do not directly address hospital operations that require

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[3] Environmental Data Resources, Inc. 23 December 2008. *The EDR Radius Map Report with GeoCheck, Martin Luther King Medical Center, 12021 South Wilmington Avenue, Los Angeles, CA 90059*. Inquiry Number: 2388899.2s.

the use or transport of hazardous materials and the proposed project would not entail use of such materials beyond regulated parameters. However, as part of the proposed project, it is anticipated that some emergency generators and USTs may have to be relocated. To prevent impacts, tank relocation would be conducted according to the following applicable federal and state regulations related to tank management: Code of Federal Regulations (CFR) 40, Part 112; 40 CFR, Part 280; CFR 281; 40 CFR, Part 282; and the California Code of Regulations (CCR) Title 22 and Title 23 Regulations. It is unlikely that the proposed project would result in accidental leaks and spills that would affect the public or the environment. ***In addition, the proposed project would comply with all applicable County Guidelines and the specifications of the Department of Toxic Substances Control and any other relevant standards.*** However, mitigation has been proposed to ensure that the impact remains less than significant during construction-related activities. Therefore, the proposed project would be expected to result in less than significant impacts from hazards and hazardous materials related to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials with the incorporation of mitigation measures.

SECTION 3.10
PUBLIC SERVICES

The following revisions were made to Section 3.10, Public Services, as clarifications and in response to letters of comment received by the County. The revisions are considered minor and do not change the finding or conclusions discussed in the EIR.

3.10.2.1 Fire Protection

Page 3.10-3 In order to incorporate a modification provided by the County Fire Department, please delete the stricken italicized text and replace it with the bold text in the following sentence in this subsection. Please also replace the reference as shown:

The response time to the proposed project site from a vehicle leaving directly from Fire Station No. 41 is ~~*less than 1 minute*~~ **, which is located immediately north of 120th Street (the northern boarder of the proposed project site) between approximately 1 to 7 minutes.**[4]

Page 3.10–3 In order to incorporate additional information provided by the County Fire Department, please add the following bold italicized text to Table 3.10.2.1-1, *Existing Fire Stations Serving the Proposed Project Site*. Please replace the reference as shown:

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[4] *Bagwell, Loretta, Planning Analyst, Planning Division, County of Los Angeles Fire Department, CA. 21 April 2010. Telephone and e-mail correspondence with Leanna Guillermo, Sapphos Environmental, Inc., Pasadena, CA.* and-County of Los Angeles Fire Department. 16 September 2010. Letter correspondence from John R. Todd, Chief, Forestry Division, Prevention Services Bureau. Subject: Draft Environmental Impact Report (EIR), Martin Luther King, Jr. Medical Center Campus Redevelopment Project, Willowbrook (FFER 201000171). Los Angeles, CA.

TABLE 3.10.2.1-1
EXISTING FIRE STATIONS SERVING THE PROPOSED PROJECT SITE

Station	Location	Personnel/Equipment	Distance to Site
41	1815 East 120th Street, Los Angeles 90059	4-person assessment engine[a] with limited paramedic capabilities and a 2-Person paramedic squad. A total of six personnel.	Less than 0.1 mile north
147	3161 East Imperial Highway, Lynwood 90262	4-person quint[b] ***that provides a pump, water tank, fire hose, aerial device, and ground ladders, as well as*** a 2-person paramedic squad (combination engine/ladder truck apparatus). A total of six personnel.	1.5 mile northeast

SOURCE: County of Los Angeles Fire Department, 2010.[5,6]

SECTION 3.12
TRANSPORTATION AND TRAFFIC

The following revisions were made to Section 3.12, Transportation and Traffic, as clarifications and in response to letters of comment received by the County. The revisions are considered minor and do not change the finding or conclusions discussed in the EIR.

3.12.3 Significance Thresholds

Page 3.12-17 In order to make a minor revision to the text, please remove the stricken text from the sentence that immediately follows the bulleted list:

As previously noted, the traffic impact analysis was also completed according to four impact ~~four~~ analysis methodologies: . . .

3.12.4 Impact Analysis

Page 3.12-21 In order to clarify the description of the tables in this section, please remove the stricken text from the paragraph that immediately precedes Table 3.12.4-1 and replace it with the bold italicized text:

The Existing Baseline with Ambient Growth (2014) without ~~Tier I project and the Existing Baseline with Ambient Growth (2014) plus Tier I peak hour traffic volumes were analyzed at each of the County of Los Angeles study intersections (Table 3.12.4-1, *Tier I Summary of Intersection LOS: Existing Baseline with Ambient Growth (2014) Traffic Conditions*).~~ ***and with Tier I Project as well as with the Cumulative Related Projects peak hour traffic volumes were analyzed at each of the County of Los Angeles study intersections (Table 3.12.4-1, Tier I Summary of Intersection LOS: Existing Baseline with Ambient Growth and Related Projects Growth (2014) Traffic Conditions).***

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[5] County of Los Angeles Fire Department. 16 September 2010. Letter correspondence from John R. Todd, Chief, Forestry Division, Prevention Services Bureau. Subject: Draft Environmental Impact Report (EIR), Martin Luther King, Jr. Medical Center Campus Redevelopment Project, Willowbrook (FFER 201000171). Los Angeles, CA.

[6] County of Los Angeles Fire Department. 21 April 2010. Telephone and e-mail correspondence from Loretta Bagwell, Planning Analyst, Planning Division, with Leanna Guillermo, Sapphos Environmental, Inc., Pasadena, CA.

Page 3.12-21 In order to refine the provided table to match the text provided in this section, please replace the title and text of Table 3.12.4-1, *Tier I Summary of Intersection LOS: Existing Baseline with Ambient Growth (2014) Traffic Conditions* with Table 13, *Traffic Impact Analysis – Future 2014 Conditions Los Angeles County Locations* from Appendix H, *Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project*.

Page 3.12-23 In order to modify the title in this section to describe the text, please add the following title to the second full paragraph on the page that begins, "Following implementation of the proposed project . . .":

Tier I Impacts: County Jurisdictions.

Page 3.12-28 In order to incorporate minor revisions to the table, please replace the values in Table 3.12.4-4, *Proposed Project and Ambient Growth*, with the updates in bold italicized font.

TABLE 3.12.4-4
PROPOSED PROJECT AND AMBIENT GROWTH

#	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
County of Los Angeles					
1	Alameda Street/103rd Street [1]	0.820	D	0.890	D
2	Alameda Street/El Segundo Boulevard [2]	0.672	B	0.788	C
3	Alameda Street/Imperial Highway [1]*	0.803	D	0.877	D
4	Avalon Boulevard/El Segundo Boulevard	0.647	B	0.795	C
5	Avalon Boulevard/Rosecrans Avenue	0.638	B	0.755	C
6	Broadway/El Segundo Boulevard	0.523	A	0.573	A
7	Central Avenue/El Segundo Boulevard [2]	0.822	D	0.888	D
8	Central Avenue/Rosecrans Avenue [2]	0.830	D	0.964	E
9	Compton Avenue/118th Street	0.400	A	0.356	A
10	Compton Avenue/120th Street	***0.677***	B	***0.679***	B
11	Compton Avenue/124th Street	0.335	A	0.285	A
12	Compton Avenue/Imperial Highway [3]**	0.887	D	0.752	C
13	I-105 Westbound Ramps/Imperial Highway [3,4]**	0.830	D	0.795	C
14	Main Street/El Segundo Boulevard	0.564	A	0.632	B
15	Mona Boulevard/El Segundo Boulevard	0.588	A	0.611	B
16	Mona Boulevard/Imperial Highway [1,3]**	0.686	B	0.751	C
17	San Pedro Street/El Segundo Boulevard	0.556	A	0.566	A
18	Success Avenue - Slater Avenue/120th Street	0.491	A	0.442	A
19	Willowbrook Avenue/119th Street	0.543	A	0.718	C
20	Willowbrook Avenue/El Segundo Boulevard	0.580	A	0.654	B
21	Wilmington Avenue/118th Street	0.848	D	0.826	D
22	Wilmington Avenue/120th Street-119th Street	***0.933***	E	***0.978***	E
23	Wilmington Avenue/124th Street	0.653	B	0.601	B
24	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.917	E	0.990	E
25	Wilmington Avenue/MLK Hospital Driveway – 120th Street	***0.835***	D	***0.918***	E
26	Wilmington Avenue/El Segundo Boulevard [2]	0.840	D	0.923	E
27	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.564	A	0.563	A

SOURCE: Raju Associates, Inc., 2010.
* Los Angeles County Congestion Management Program (CMP) monitoring location.
** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.
KEY:
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

Page 3.12-3-31 In order to incorporate minor refinements to the table, please replace the vales in Table 3.12.4-5, *Future 2020 with Project*, with the updates in bold italicized font.

TABLE 3.12.4-5
FUTURE 2020 WITH PROJECT

#	Intersection	Peak Hour	Existing (Baseline) + Ambient (2020)		Existing (Baseline) + Ambient (2020) with Tier I & II Project		Project Increase in V/C	Significant Impact
			V/C	LOS	V/C	LOS		
County of Los Angeles								
52	Alameda Street/103rd Street [1]	AM	0.812	D	0.820	D	0.008	No
		PM	0.880	D	0.890	D	0.010	No
55	Alameda Street/El Segundo Boulevard [2]	AM	0.661	B	0.672	B	0.011	No
		PM	0.781	C	0.788	C	0.007	No
54	Alameda Street/Imperial Highway [1]*	AM	0.785	C	0.803	D	0.018	No
		PM	0.872	D	0.877	D	0.005	No
11	Avalon Boulevard/El Segundo Boulevard	AM	0.642	B	0.647	B	0.005	No
		PM	0.788	C	0.795	C	0.007	No
12	Avalon Boulevard/Rosecrans Avenue	AM	0.634	B	0.638	B	0.004	No
		PM	0.753	C	0.755	C	0.002	No
4	Broadway/El Segundo Boulevard	AM	0.520	A	0.523	A	0.003	No
		PM	0.569	A	0.573	A	0.004	No
19	Central Avenue/El Segundo Boulevard [2]	AM	0.803	D	0.822	D	0.019	No
		PM	0.879	D	0.888	D	0.009	No
20	Central Avenue/Rosecrans Avenue [2]	AM	0.824	D	0.83	D	0.006	No
		PM	0.956	E	0.964	E	0.008	No
26	Compton Avenue/118th Street	AM	0.391	A	0.400	A	0.009	No
		PM	0.336	A	0.356	A	0.020	No
27	Compton Avenue/120th Street	AM	0.610	B	***0.677***	B	***0.067***	No
		PM	0.527	A	***0.678***	B	***0.152***	No
28	Compton Avenue/124th Street	AM	0.330	A	0.335	A	0.005	No
		PM	0.274	A	0.285	A	0.011	No
25	Compton Avenue/Imperial Highway [3]**	AM	0.860	D	0.887	D	0.027	Yes
		PM	0.731	C	0.752	C	0.021	No
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	AM	0.779	C	0.830	D	0.051	Yes
		PM	0.759	C	0.795	C	0.036	No
5	Main Street/El Segundo Boulevard	AM	0.561	A	0.564	A	0.003	No
		PM	0.628	B	0.632	B	0.004	No
51	Mona Boulevard/El Segundo Boulevard	AM	0.574	A	0.588	A	0.014	No
		PM	0.599	A	0.611	B	0.012	No
50	Mona Boulevard/Imperial Highway [1,3]**	AM	0.673	B	0.686	B	0.013	No
		PM	0.734	C	0.751	C	0.017	No
7	San Pedro Street/El Segundo Boulevard	AM	0.554	A	0.556	A	0.002	No
		PM	0.563	A	0.566	A	0.003	No
23	Success Avenue - Slater Avenue/120th Street	AM	0.452	A	0.491	A	0.039	No
		PM	0.367	A	0.442	A	0.075	No
46	Willowbrook Avenue/119th Street	AM	0.519	A	0.543	A	0.024	No
		PM	0.699	B	0.718	C	0.019	No
47	Willowbrook Avenue/El Segundo Boulevard	AM	0.567	A	0.580	A	0.013	No
		PM	0.641	B	0.654	B	0.013	No
35	Wilmington Avenue/118th Street	AM	0.746	C	0.848	D	0.102	Yes
		PM	0.735	C	0.826	D	0.091	Yes

TABLE 3.12.4-5
FUTURE 2020 WITH PROJECT, *Continued*

#	Intersection	Peak Hour	Existing (Baseline) + Ambient (2020)		Existing (Baseline) + Ambient (2020) with Tier I & II Project		Project Increase in V/C	Significant Impact
			V/C	LOS	V/C	LOS		
36	Wilmington Avenue/120th Street-119th Street	AM	0.800	C	***0.933***	E	***0.133***	Yes
		PM	0.792	C	***0.978***	E	***0.186***	Yes
38	Wilmington Avenue/124th Street	AM	0.581	A	0.653	B	0.072	No
		PM	0.533	A	0.601	B	0.068	No
4	Wilmington Avenue/I-105 Eastbound Ramps [4]	AM	0.812	D	0.917	E	0.105	Yes
		PM	0.830	D	0.990	E	0.160	Yes
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	AM	0.585	A	***0.835***	D	***0.250***	Yes
		PM	0.583	A	***0.918***	E	***0.335***	Yes
39	Wilmington Avenue/El Segundo Boulevard [2]	AM	0.819	D	0.840	D	0.021	Yes
		PM	0.879	D	0.923	E	0.044	Yes
33	Wilmington Avenue/Imperial Highway-Willowbrook Ave [3]**	AM	0.492	A	0.564	A	0.072	No
		PM	0.506	A	0.563	A	0.057	No

KEY:
* Los Angeles County Congestion Management Program (CMP) monitoring location.
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

Page 3.12-37 In order to incorporate clarifications into the table that better describe the existing analysis, please replace the title and text of Table 3.12.4-6, *Cumulative LOS Summary with Ambient Growth, Related Projects, Tier I, and Tier II*, with Table 22, *Traffic Impact Analysis – Future 2020 Cumulative Conditions Los Angeles County Locations* from Appendix H, *Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project*.

Page 3.12-39 In order to clarify the text provided below, please remove the stricken text and add the bold italicized text to the paragraph below.

Tier II

Using the specified significant impact criteria, Tier II of the proposed project ***was analyzed*** ~~would be expected to result in the traffic impacts~~ at the 37 analysis locations in the Cities of Los Angeles, Compton, and Lynwood***, and traffic impacts*** were determined ~~for Tier II proposed project conditions~~. The Tier II proposed project resulted in significant impacts at 1 of the 37 analyzed intersections. The intersection of Central Avenue / 120th Street would be significantly impacted by the proposed project in the AM and PM peak hours.[7]

Page 3.12-39 In order to refine the existing analysis, please delete the last paragraph under the heading of Tier II.

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[7] Raju Associates, Inc. July 2010. Draft Traffic Study for the Martin Luther King Jr. Medical Campus. Pasadena, CA.

3.12.5 Mitigation Measures

Page 3.12-41 In order to clarify the mitigation and to incorporate recommendations provided by the County Department of Public Works, please remove the stricken text in mitigation measure Traffic-2 (for Tier I) and replace it with the text that is in bold italicized font in the sentence below.

Wilmington Avenue / I-105 Eastbound Ramps, County of Los Angeles / California Department of Transportation: Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach ***shall*** have a left-turn lane, shared left-right turn lane, and a separate right-turn lane. The sidewalks on ~~either~~ ***both*** sides of Wilmington Avenue (as noted above) ***shall*** be reduced by 2 feet and the Wilmington Avenue roadway ***shall*** be widened by 2 feet on ~~either~~ ***both*** sides (a total of 4 feet) from the south leg of this intersection. Provide an additional northbound left-turn lane by widening (reducing the medians). The northbound approach ***shall*** have dual left-turn lanes and three through lanes.

Wilmington Avenue / 120th Street–119th Street, County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on ~~either~~ ***both*** sides and re-stripe the southbound approach to provide a separate right-turn lane, three through lanes, and a left-turn lane.

Page 3.12-41 In order to clarify the mitigation and to incorporate recommendations provided by the County Department of Public Works, please remove the stricken text in mitigation measure Traffic-2 (for Tier II) and replace it with the text that is in bold italicized font:

Wilmington Avenue / 118th Street, County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on ~~either~~ ***both*** sides and re-stripe to provide two through lanes, a shared through right-turn lane and dual left-turn lanes along the southbound approach. Re-stripe the westbound approach to provide a separate right-turn ~~land~~ ***lane*** and a ~~share~~ ***shared*** left-through lane. Northbound approach ***shall*** have the same lane geometry as existing conditions. Under cumulative conditions, widen 118th Street roadway by 4 feet and re-stripe to provide a separate right-turn lane and shared left-through lane along the eastbound approach.

Wilmington Avenue / 120th Street–119th Street, County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on ~~either~~ ***both*** sides and re-stripe the southbound approach to provide a separate right-turn lane, three through lanes, and a left-turn lane.

Page 3.12-42 In order to clarify the existing mitigation, please remove the stricken text in mitigation measure Traffic-3 and replace it with the text that is in bold italicized font in the sentence below.

Alameda Street / El Segundo Boulevard, County of Los Angeles / Compton: Re-stripe northbound/southbound approaches and provide a southbound right-turn lane. The lanes along the north leg ***shall*** be re-striped to provide 13-foot and 11-foot receiving lanes; 10-foot, 11-foot, 10-foot, and 12-foot approach lanes for southbound ~~right~~

left-turn lane, ~~both~~ southbound ~~turns~~ ***through lanes***, and southbound right***-turn*** lanes, respectively.

Page 3.12-42 To further elaborate on and clarify the existing transportation and traffic mitigation measures, please add mitigation measure Traffic-4 after mitigation measure Traffic-3. This additional mitigation measures will have the same effect of the existing mitigation measures but it offers supplemental detail as to how the recommended measures can be met:

Measure Traffic-4

Along the southbound approach of Alameda Street, the County of Los Angeles shall provide two left-turn lanes, two through lanes and one right-turn lane instead of one left-turn lane, two through lanes and a separate right-turn lane (i.e., add a second left turn lane). In addition, the County of Los Angeles shall provide the required signal hardware and supporting software to facilitate a right-turn arrow signal indication for southbound right-turn overlap with eastbound-westbound left-turns at the intersection.

3.12.6 Level of Significance after Mitigation

Page 3.12-43 In order to refine a description of the table provided in the EIR, please remove the stricken text and add the following bold italicized text to the second to last paragraph. Please insert the text of Table 23 from Appendix H, *Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project*, into Table 3.12.6-1, *Traffic Impact Analysis – Future 2020 Cumulative Conditions*.

Implementation of the mitigation measures Traffic-1 ***through Traffic-4***~~, Traffic-2, and Traffic-3 and~~ would reduce construction-related Tier II and construction and operational Tier II project impacts and cumulative project impacts to below the level of significance.

As indicated in the Table 3.12.6-1, *Traffic Impact Analysis – Future 2020 Cumulative Conditions*~~*Los Angeles County Locations*~~, the recommended improvements would fully mitigate the cumulative project related impacts at all the impacted intersections ***for both County and non-County impacts to below the level of significance.***

SECTION 4.0
ALTERNATIVES TO THE PROPOSED PROJECT

The following revisions were made to Section 4.0, Alternative to the Proposed Project, as clarifications and in response to letters of comment received by the County. The revisions are considered minor and do not change the finding or conclusions discussed in the EIR.

4.3 ALTERNATIVE 2: RE-OPENING THE EXISTING MACC ALTERNATIVE

4.3.1 Alternative Components

Page 4-29 In response to the extension that the County received for compliance with the OSHPD requirements at the campus, please remove the stricken text and add the bold italicized text to the last sentence of the first paragraph of the subsection:

However, in order to provide inpatient services, the existing MACC would require significant seismic improvements ~~in January 2013~~ ***by January 2020*** for compliance with OSHPD requirements.

4.5 ALTERNATIVE 4: 500 BEDS (IN TIER I) ALTERNATIVE

4.5.1 Alternative Components

Page 4-49 In response to the extension that the County received for compliance with the OSHPD requirements at the campus, please remove the stricken text and add the bold italicized text to the last sentence of the first paragraph of the subsection:

However, in order to provide inpatient services, the existing MACC would require significant seismic improvements ~~in January 2013~~ ***by January 2020*** for compliance with OSHPD requirements.

SECTION 5.0
UNAVOIDABLE IMPACTS

TIER I

Page 5-2 In order to revise an entry in Table 5-1, *Summary of Tier I Environmental Impacts Identified in the EIR*, second row (referencing air quality), and third column (referencing mitigation measures), please change the entry from "Air-1 to Air -9" to "Air-1 and Air -11."

Page 5-2 In order to revise an entry in Table 5-1, *Summary of Tier I Environmental Impacts Identified in the EIR*, third row (referencing cultural resources), and third column (referencing mitigation measures), please change the entry from "Cultural-1 to Cultural -5" to "Cultural-1 and Cultural -2."

Page 5-3 In order to revise an entry in Table 5-1, *Summary of Tier II Environmental Impacts Identified in the EIR*, second row (referencing air quality), and third column (referencing mitigation measures), please change the entry from "Air-1 to Air -9" to "Air-1 and Air -11."

Page 5-3 In order to revise an entry in Table 5-1, *Summary of Tier II Environmental Impacts Identified in the EIR*, second row (referencing transportation and traffic), and third column (referencing mitigation measures), please change the entry from "Traffic-1 to Traffic -3" to "Traffic-1 and Traffic -4."

APPENDIX B
AESTHETICS TECHNICAL ANALYSIS

The following revisions were made to Appendix B, Aesthetics Technical Analysis as clarifications. The revisions are considered minor and do not change the findings or conclusions discussed in the EIR.

Page 4-2 In order to incorporate minor revisions into the existing mitigation, please add the text that is in bold italicized font and remove the stricken text:

4.3 LIGHT AND GLARE

Tier I

4.3.1.1 Mitigation Measure Aesthetics-1

All exterior lighting ~~proposed~~ for building and on-site security lighting shall be shielded and directed downward***s*** to minimize the impacts on the surrounding land uses. ~~No~~ ***New development shall not include*** large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) ~~would be included within the building components or materials.~~ ***on three facade. In addition, any glazed north-facing facade shall be set over 200 feet from the street in order to ensure that it would not be subject to direct sunlight except very early and late in the day for a few winter days.***

Tier II

4.3.2.1 Mitigation Measure Aesthetics-1

All exterior lighting ~~proposed~~ for building and on-site security lighting shall be shielded and directed downward***s*** to minimize the impacts on the surrounding land uses. ~~No~~ ***New development shall not include*** large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) ~~would be included within the building components or materials.~~ ***on three facade. In addition, any glazed north-facing facade shall be set over 200 feet from the street in order to ensure that it would not be subject to direct sunlight except very early and late in the day for a few winter days.***

APPENDIX C
AIR QUALITY AND GREENHOUSE GAS EMISSIONS TECHNICAL IMPACT REPORT

The following revisions were made to Appendix C, Air Quality and Greenhouse Gas Emissions Technical Impact Report as clarifications and in response to letters of comment received by the County. The revisions are considered minor and do not change the findings or conclusions discussed in the EIR.

Page ES-2 In order to incorporate minor revisions into the existing analysis, please add the text that is in bold italicized font to the first sentence after the eighth bullet point:

Implementation of mitigation measure***s*** Air-9 ***and Air-10*** would ensure that criteria pollutant emissions associated with the use of construction equipment ***and the***

application of paints and coatings would be reduced to the maximum extent feasible.

Page ES-2

In order to incorporate minor modifications to the mitigation measures, please add the text that is in bold italicized font to the sentence after the tenth bullet point:

Mitigation measures GHG-1 ***and Air-11*** would ensure ***that criteria pollutant and*** GHG emissions associated with operation of the proposed project are reduced to the maximum extent feasible and would remain at below the level of significance.

Page ES-4

In order to incorporate minor revisions into the existing analysis, please add the text that is in bold italicized font to the first sentence after the eighth bullet point:

Implementation of mitigation measure***s*** Air-9 ***and Air-10*** would ensure that criteria pollutant emissions associated with the use of construction equipment ***and the application of paints and coatings*** would be reduced to the maximum extent feasible.

Page ES-4

In order to help clarify the revisions to the section, please add the following bullet point after the third bullet point on this page:

- Mitigation measures GHG-1 and Air-11 would ensure that criteria pollutant and GHG emissions associated with operation of the proposed project are reduced to the maximum extent feasible; however, criteria pollutant emissions from mobile sources during operation of Tier II would remain significant.

Page 2-33

In order to incorporate minor refinements to Table 2.5.2-3, please change the PM_{10} emissions during mass site grading to 51 pounds per day and the $PM_{2.5}$ emissions to 13 pounds per day. Please also change the maximum regional total for PM_{10} to 52 pounds per day and the maximum regional total for $PM_{2.5}$ to 13 pounds per day.

Page 2-34

In order to refine the existing table provided in the EIR to support the analysis, please replace Table 2.5.2-4 with the following:

TABLE 2.5.2-4
TIER II: UNMITIGATED
ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

	Maximum Construction Emissions (Pounds/Day)					
Year	**VOCs**	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
2010	7	79	34	<1	13	51
2011	16	156	75	<1	16	55
2012	25	217	111	<1	18	57
2013	94	207	116	<1	18	56
2014	94	185	112	<1	17	55
2015	93	166	108	<1	16	54
2016	90	148	105	<1	15	54
2017	88	131	102	<1	15	53
2018	85	118	99	<1	4	5
2019	80	70	65	<1	3	3
2020	76	31	32	<1	1	1
150 worker trips	1	1	7	<1	<1	2
Maximum Regional Total	95	218	123	<1	14	36
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Page 2-44 In order to incorporate clarifications and recommendations provided by the SCAQMD, please add the text that is in bold italicized font to mitigation measure Air-1:

Water or a stabilizing agent shall be applied during Tier I to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the ~~lead agency~~ ***County*** to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour ***as instantaneous gusts***), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the ~~lead agency~~ ***County***. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. ***The County shall also ensure that the plans and specifications for each element of the project include a requirement for ground cover to be***

replaced in disturbed areas as quickly as practicable and that the County appoints a construction relations officer to act as a community liaison concerning on-site construction activity including addressing issues related to fugitive dust generation.

Page 2-44 In order to clarify the measure, please add the text that is in bold italicized font to mitigation measure Air-3:

Discontinuing Tier I construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour ***as instantaneous gusts***) shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the ~~lead agency~~ ***County*** shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour ***as instantaneous gusts***.

Page 2-45 In order to incorporate the minor recommendations received in a letter of comment from SCAQMD, please add the following sentence to the end of mitigation measure Air-4:

Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available.

Page 2-46 In order to provide additional detail regarding mitigation measure Air-9, and in response to recommendations received in a letter of comment from SCAQMD, please remove the stricken text in mitigation measure Air-9 and replace it with the text that is in bold italicized font:

~~All diesel engines used during Tier I for construction activities for the project that are not registered under California Air Resources Board's Statewide Portable Equipment Registration Program and have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any diesel engine larger than 50 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxide and particulate matter emissions that are equivalent to a Tier 2 engine.~~ All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized ***and/or limited to no more than five minutes in accordance with state law***. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the ~~lead agency~~ ***County*** shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria. ***All on-site construction equipment shall be required to meet EPA Tier 2 or higher emissions standards according to the following:***

- ***April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.***

- ***January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.***

- ***Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.***

Page 2-46 To further elaborate on and clarify the existing air quality mitigation measures, and in response to recommendations received in a letter of comment from SCAQMD, please add mitigation measures Air-10 and Air-11 after mitigation measure Air-9. These additional mitigation measures will have the same effect of the existing mitigation measures but they offer specific detail as to how the recommended measures can be met:

Measure Air-10

Wherever possible, contractors shall use materials that do not require painting or use pre-painted materials. In order to minimize emissions of volatile organic compounds, contractors shall use high-pressure, low-volume paint applicators with a minimum transfer efficiency of at least 50 percent and coatings and solvents with a volatile organic compound content lower than required under South Coast Air Quality Management District Rule 1113, Architectural Coatings:

- Clear wood finishes: 275 grams/liter
- Floor coatings: 50 grams/liter

- Sealers: waterproofing sealers 100 grams/liter; sanding sealers 275 grams/liter; all other sealers 100 grams/liter
- Shellacs: clear 730 grams/liter; pigmented 550 grams/liter
- Stains: 100 grams/liter

Measure Air-11

The following measures shall be implemented, wherever feasible, to reduce operational air quality impacts:

- Improve traffic flow by signal synchronization;
- Ensure County-owned campus vehicles use clean fuels such as compressed natural gas and that shuttle buses for the campus are "clean" buses, such as 2010 compliant vehicles;
- Require all County and County contractor vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications;
- Provide services that promote ridesharing and vanpools;
- Provide charging stations or preferred parking for alternative technology vehicles;
- Provide preferred parking for carpools and vanpools; and
- Reduce energy consumption by providing alternative energy sources on site and installing energy-efficient appliances.

Page 2-47 In order to refine the existing table provided in the EIR to support the analysis, please replace Table 2.8-1 with the following:

TABLE 2.8-1
TIER I: MITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

	Construction Emissions (Pounds/Day)					
Construction Phase	**VOCs**	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
Demolition	3	20	12	0	1	1
Mass Site Grading	7	72	32	<1	6	16
Trenching	4	31	20	0	2	2
Building Construction[1]	10	81	42	<1	3	3
Paving	2	13	11	0	1	1
Architectural Coating	67	<1	<1	0	0	<1
90 worker trips	<1	1	6	<1	<1	1
Maximum Regional Total	**67**	**82**	**48**	<1	**6**	**17**
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Page 2-47 In order to incorporate minor revisions into the existing analysis, please add the text that is in bold italicized font to the first sentence after Table 2.8-1, *Tier I: Mitigated Estimated Daily Regional Construction Emissions*:

Implementation of mitigation measure***s*** Air-9 ***and Air-10*** would ensure that criteria pollutant emissions associated with the use of construction equipment ***and the application of paints and coatings*** would be reduced to the maximum extent feasible.

Page 2-47 In order to clarify minor modifications to the analysis, please add the following as the third paragraph after Table 2.8-1, *Tier I: Mitigated Estimated Daily Regional Construction Emissions*:

Mitigation measure Air-11 would reduce mobile source emissions during operation, and there would continue to be no significant air quality impacts due to operation of Tier I of the proposed project.

Page 2-48 In order to refine the existing table provided in the EIR to support the analysis, please replace Table 2.8-2 with the following:

TABLE 2.8-2
TIER II: MITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

	Maximum Construction Emissions (Pounds/Day)					
Year	**VOCs**	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
2010	7	79	34	<1	6	16
2011	16	156	75	<1	9	19
2012	25	217	111	<1	11	22
2013	86	207	116	<1	10	21
2014	87	185	112	<1	9	20
2015	86	166	108	<1	9	19
2016	83	148	105	<1	8	18
2017	81	131	102	<1	7	18
2018	78	118	99	<1	4	5
2019	73	70	65	<1	3	3
2020	68	31	32	<1	1	1
150 worker trips	1	1	7	<1	<1	2
Maximum Regional Total	88	218	123	<1	11	24
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Page 2-48 In order to incorporate minor modifications to the description of the table, please add the text that is in bold italicized font to the first sentence after Table 2.8-2, *Tier II: Mitigated Estimated Daily Regional Construction Emissions*:

Implementation of mitigation measure***s*** Air-9 ***and Air-10*** would ensure that criteria pollutant emissions associated with the use of construction equipment ***and the application of paints and coatings*** would be reduced to the maximum extent feasible.

Page 2-48 In order to incorporate the supporting measure into the analysis, please remove the stricken text in the first sentence of the third paragraph after Table 2.8-2, *Tier II: Mitigated Estimated Daily Regional Construction Emissions*, and replace it with the text that is in bold italicized font:

Mitigation measures Air-1 through ~~Air-9~~ ***Air-10*** would also ensure . . .

Page 2-48 In order to clarify the statement provided in analysis, please remove the stricken text in the first sentence of the fourth paragraph after Table 2.8-2, *Tier II: Mitigated Estimated Daily Regional Construction Emissions*, and replace it with the text that is in bold italicized font:

~~As there are no feasible mitigation measures for operation of Tier II~~ ***Mitigation measure Air-11 would reduce mobile source emissions during operation to the maximum extent feasible***; ~~therefore~~ ***however***, criteria pollutant emissions from mobile sources during operation of Tier II would remain at above the level of significance.

Appendix B, *URBEMIS Output for the Proposed Project*, of the Air Quality and Greenhouse Gas Emissions Technical Impact Report

In order to provide supplemental discussion that is consistent with and supports the existing analysis and conclusion related to air quality and greenhouse gas emissions, please replace pages 80–83 and pages 142–146 with the updated URBEMIS output provided in the following pages.

APPENDIX B
URBEMIS OUTPUT FOR THE PROPOSED PROJECT

REPLACEMENT PAGES 80–83

11/12/2010 5:25:32 PM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: W:\PROJECTS\1217\1217-071\Data\Air Quality\Tier I.urb924

Project Name: MLK Tier I

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 3/16/2011-4/14/2011 Active Days: 22	0.01	1.07	1.08	0.00	0.98	0.99
Demolition 03/16/2011-04/14/2011	0.01	1.07	1.08	0.00	0.98	0.99
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.00	1.07	1.07	0.00	0.98	0.98
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 4/15/2011-5/17/2011 Active Days: 23	48.00	3.13	51.13	10.05	2.88	12.94
Mass Grading 04/15/2011-05/17/2011	48.00	3.13	51.13	10.05	2.88	12.94
Mass Grading Dust	47.75	0.00	47.75	9.97	0.00	9.97
Mass Grading Off Road Diesel	0.00	1.17	1.17	0.00	1.08	1.08
Mass Grading On Road Diesel	0.25	1.96	2.20	0.08	1.80	1.88
Mass Grading Worker Trips	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 5/18/2011-8/15/2011 Active Days: 64	0.01	1.81	1.82	0.00	1.67	1.67
Trenching 05/18/2011-08/15/2011	0.01	1.81	1.82	0.00	1.67	1.67
Trenching Off Road Diesel	0.00	1.81	1.81	0.00	1.66	1.66
Trenching Worker Trips	0.01	0.00	0.01	0.00	0.00	0.01

Time Slice 8/16/2011-12/30/2011 Active Days: 99	0.07	**3.39**	3.46	0.02	**3.12**	3.14
Building 08/16/2011-12/15/2013	0.07	3.39	3.46	0.02	3.12	3.14
Building Off Road Diesel	0.00	3.30	3.30	0.00	3.03	3.03
Building Vendor Trips	0.01	0.06	0.07	0.00	0.06	0.06
Building Worker Trips	0.06	0.03	0.09	0.02	0.03	0.05
Time Slice 1/2/2012-12/31/2012 Active Days: 261	0.07	3.03	3.10	0.02	2.79	2.81
Building 08/16/2011-12/15/2013	0.07	3.03	3.10	0.02	2.79	2.81
Building Off Road Diesel	0.00	2.95	2.95	0.00	2.71	2.71
Building Vendor Trips	0.01	0.05	0.07	0.00	0.05	0.05
Building Worker Trips	0.06	0.03	0.09	0.02	0.03	0.05
Time Slice 1/1/2013-12/13/2013 Active Days: 249	0.07	2.86	2.93	0.02	2.63	2.65
Building 08/16/2011-12/15/2013	0.07	2.86	2.93	0.02	2.63	2.65
Building Off Road Diesel	0.00	2.78	2.78	0.00	2.56	2.56
Building Vendor Trips	0.01	0.05	0.06	0.00	0.04	0.05
Building Worker Trips	0.06	0.03	0.09	0.02	0.03	0.05
Time Slice 12/16/2013-12/31/2013 Active Days: 12	0.01	1.16	1.17	0.00	1.07	1.07
Asphalt 12/16/2013-02/12/2014	0.01	1.16	1.17	0.00	1.07	1.07
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.00	1.15	1.15	0.00	1.05	1.05
Paving On Road Diesel	0.00	0.01	0.01	0.00	0.01	0.01
Paving Worker Trips	0.01	0.01	0.02	0.00	0.01	0.01

Time Slice 1/1/2014-2/12/2014 Active Days: 31	0.01	1.08	1.09	0.00	0.99	0.99
Asphalt 12/16/2013-02/12/2014	0.01	1.08	1.09	0.00	0.99	0.99
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.00	1.06	1.06	0.00	0.98	0.98
Paving On Road Diesel	0.00	0.01	0.01	0.00	0.01	0.01
Paving Worker Trips	0.01	0.01	0.02	0.00	0.01	0.01
Time Slice 2/13/2014-4/15/2014 Active Days: 44	0.01	0.00	0.01	0.00	0.00	0.00
Coating 02/13/2014-04/15/2014	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.00	0.01	0.00	0.00	0.00

Phase Assumptions

Phase: Demolition 3/16/2011 - 4/14/2011 - Default Mass Site Grading/Excavation Description

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Mass Grading 4/15/2011 - 5/17/2011 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 5

Maximum Daily Acreage Disturbed: 1.25

Fugitive Dust Level of Detail: Default

38.2 lbs per acre-day

On Road Truck Travel (VMT): 1739.13

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 5/18/2011 - 8/15/2011 - Default Trenching Description
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Paving 12/16/2013 - 2/12/2014 - Default Paving Description
Acres to be Paved: 1.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 8/16/2011 - 12/15/2013 - Default Building Construction Description
Off-Road Equipment:
2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day
1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day
16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 2/13/2014 - 4/15/2014 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

REPLACEMENT PAGES 142–146

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: W:\PROJECTS\1217\1217-071\Data\Air Quality\Tier I.urb924

Project Name: MLK Tier I

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 3/16/2011-4/14/2011 Active Days: 22	2.51	19.78	12.25	0.00	0.01	1.07	1.08	0.00	0.98	0.99	1,914.56
Demolition 03/16/2011-04/14/2011	2.51	19.78	12.25	0.00	0.01	1.07	1.08	0.00	0.98	0.99	1,914.56
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.48	19.72	11.27	0.00	0.00	1.07	1.07	0.00	0.98	0.98	1,790.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37
Time Slice 4/15/2011-5/17/2011 Active Days: 23	6.68	72.23	31.68	**0.07**	12.63	3.13	15.77	2.67	2.88	5.55	9,742.82
Mass Grading 04/15/2011-05/17/2011	6.68	72.23	31.68	0.07	12.63	3.13	15.77	2.67	2.88	5.55	9,742.82
Mass Grading Dust	0.00	0.00	0.00	0.00	12.38	0.00	12.38	2.59	0.00	2.59	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	3.83	48.74	18.75	0.07	0.25	1.96	2.20	0.08	1.80	1.88	7,371.13
Mass Grading Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37
Time Slice 5/18/2011-8/15/2011 Active Days: 64	4.07	31.15	19.92	0.00	0.01	1.81	1.82	0.00	1.67	1.67	3,150.15
Trenching 05/18/2011-08/15/2011	4.07	31.15	19.92	0.00	0.01	1.81	1.82	0.00	1.67	1.67	3,150.15
Trenching Off Road Diesel	4.03	31.08	18.70	0.00	0.00	1.81	1.81	0.00	1.66	1.66	2,994.69
Trenching Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.46

Time Slice 8/16/2011-12/30/2011 Active Days: 99	9.50	**81.41**	**42.32**	0.02	0.07	**3.39**	3.46	0.02	**3.12**	3.14	**11,889.71**
Building 08/16/2011-12/15/2013	9.50	81.41	42.32	0.02	0.07	3.39	3.46	0.02	3.12	3.14	11,889.71
Building Off Road Diesel	9.08	79.38	31.58	0.00	0.00	3.30	3.30	0.00	3.03	3.03	10,368.45
Building Vendor Trips	0.13	1.47	1.25	0.00	0.01	0.06	0.07	0.00	0.06	0.06	311.42
Building Worker Trips	0.29	0.55	9.49	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.85
Time Slice 1/2/2012-12/31/2012 Active Days: 261	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building 08/16/2011-12/15/2013	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building Off Road Diesel	8.73	72.97	30.31	0.00	0.00	2.95	2.95	0.00	2.71	2.71	10,368.45
Building Vendor Trips	0.12	1.32	1.15	0.00	0.01	0.05	0.07	0.00	0.05	0.05	311.42
Building Worker Trips	0.27	0.50	8.83	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.64
Time Slice 1/1/2013-12/13/2013 Active Days: 249	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building 08/16/2011-12/15/2013	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Time Slice 12/16/2013-12/31/2013 Active Days: 12	2.34	13.92	10.69	0.00	0.01	1.16	1.17	0.00	1.07	1.07	1,564.93
Asphalt 12/16/2013-02/12/2014	2.34	13.92	10.69	0.00	0.01	1.16	1.17	0.00	1.07	1.07	1,564.93
Paving Off-Gas	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.19	13.60	8.91	0.00	0.00	1.15	1.15	0.00	1.05	1.05	1,272.04
Paving On Road Diesel	0.02	0.23	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	44.23
Paving Worker Trips	0.05	0.09	1.69	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.66

Time Slice 1/1/2014-2/12/2014 Active Days: 31	2.20	13.18	10.50	0.00	0.01	1.08	1.09	0.00	0.99	0.99	1,564.90
Asphalt 12/16/2013-02/12/2014	2.20	13.18	10.50	0.00	0.01	1.08	1.09	0.00	0.99	0.99	1,564.90
Paving Off-Gas	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.06	12.89	8.85	0.00	0.00	1.06	1.06	0.00	0.98	0.98	1,272.04
Paving On Road Diesel	0.02	0.20	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	44.23
Paving Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.64
Time Slice 2/13/2014-4/15/2014 Active Days: 44	66.62	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.37
Coating 02/13/2014-04/15/2014	66.62	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.37
Architectural Coating	66.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.37

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 4/15/2011 - 5/17/2011 - Default Fine Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Architectural Coating 2/13/2014 - 4/15/2014 - Default Architectural Coating Description

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Phase Assumptions

Phase: Demolition 3/16/2011 - 4/14/2011 - Default Mass Site Grading/Excavation Description

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Mass Grading 4/15/2011 - 5/17/2011 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 5

Maximum Daily Acreage Disturbed: 1.25

Fugitive Dust Level of Detail: Default

38.2 lbs per acre-day

On Road Truck Travel (VMT): 1739.13

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 5/18/2011 - 8/15/2011 - Default Trenching Description

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Paving 12/16/2013 - 2/12/2014 - Default Paving Description

Acres to be Paved: 1.25

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 8/16/2011 - 12/15/2013 - Default Building Construction Description

Off-Road Equipment:

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day

16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 2/13/2014 - 4/15/2014 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

SECTION 14.0
RESPONSE TO COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT

The Draft Environmental Impact Report (EIR) was completed and forwarded to the Governor's Office of Planning and Research (OPR), and a Notice of Completion (NOC) was posted at both OPR and the Office of Los Angeles County Clerk on August 31, 2010. Copies of the Draft EIR and Notice of Availability (NOA) were mailed to thirty-eight (38) representatives. The Draft EIR was made available for public review at the County of Los Angeles (County) Chief Executive Office, the Martin Luther King, Jr. Medical Center campus, the Willowbrook Library, and on the County of Los Angeles Second Supervisorial District Web site until October 14, 2010, for a period of 45 days (August 31–October 14, 2010). An NOA of the Draft EIR for public review was advertised in the *LA Watts Times* and *La Opinion* newspapers, as well as sent via regular mail to thirty-eight (38) public agency representatives and 1,555 interested parties, including private organizations and individuals. Although the 45-day public comment period closed on October 14, 2010, at 5 p.m., the County received and accepted the submittal of three (3) anticipated late letters of comment from the City of Los Angeles, Department of Transportation, California Department of Transportation District 7, and the South Coast Air Quality Management District. A total of nine (9) letters of comment were received on the Draft EIR.

This section of the EIR contains a summary of the distribution list for the Draft EIR and a listing of the parties that provided comments during the public review period. The distribution list/respondents have been divided into the following categories:

1. Federal Agencies
2. State Agencies
3. Regional and Local Agencies
4. County Agencies
5. Individuals

14.1 SUMMARY DISTRIBUTION LIST/RESPONDENTS

14.1.1 Federal Agencies

One federal agency received an electronic copy of the Draft EIR.

- U.S. Fish and Wildlife Service

The County did not receive a letter of comment from this agency or any federal agency.

14.1.2 State Agencies

Twelve (12) state agencies received an electronic copy of the Draft EIR, a hard copy of the Draft EIR, the NOA, or a combination of the three.

- California Air Resources Board
- California Department of Fish and Game
- California Department of Parks and Recreation Office of Historic Preservation (OHP)

- California Department of Transportation (Caltrans) District 7
- California Environmental Protection Agency
- California Integrated Waste Management Board
- California Native American Heritage Commission (NAHC)
- California Water Quality Control Board, Region 4
- Central Basin Municipal Water District
- Office of Planning and Research State Clearinghouse
- Office of Statewide Health Planning and Development
- State Water Resources Control Board

The County received three (3) letters of comment; these were from the OPR State Clearinghouse, Caltrans District 7, and California NAHC.

14.1.3 Regional and Local Agencies

Ten (10) regional agencies received an electronic copy of the Draft EIR or the NOA.

- City of Compton
- Compton Unified School District
- City of Los Angeles
- City of Los Angeles Department of Transportation
- Los Angeles Unified School District Office of Environmental Health and Safety
- City of Lynwood
- Lynwood Unified School District
- Park Water Company
- South Coast Air Quality Management District
- Southern California Association of Governments

The County received three (3) letters of comment; these were from the City of Los Angeles Department of Transportation, Park Water Company, and South Coast Air Quality Management District.

14.1.4 County Agencies and Related Entities

Fifteen (15) county agencies, departments, and other related entities received an electronic copy of the Draft EIR, a hard copy of the Draft EIR, the NOA, or a combination of the three.

- Chief Executive Office
- Department of Health Services
- Department of Public Health
- Department of Public Works
- Department of Regional Planning
- Fire Department
- Los Angeles County Arts Commission
- Office of the Los Angeles County Clerk
- Public Library
- Sheriff's Department

Other Related Entities

- Community Development Commission of the County of Los Angeles
- Martin Luther King, Jr. Multi-Service Ambulatory Care Center
- Metropolitan Transit Authority
- Sanitation Districts of Los Angeles County
- Second Supervisorial District

The County received two (2) letters of comment; these were from the Fire Department and Department of Public Works, Traffic and Lighting Division.

14.1.5 Individuals

An NOA of the Draft EIR for public review was sent to more than 279 interested parties and 1,276 property owners within a 0.25-mile radius of the proposed project.[1]

The County received one (1) letter of comment from an individual.

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[1] These addresses are on file at Sapphos Environmental, Inc., Pasadena, California.

14.2 LETTERS OF COMMENT AND RESPONSES

The letters of comment received on the Draft EIR are presented in this subsection with the comments numbered and annotated in the right margin. Responses to the comments follow each comment letter.

14.2.1 Federal Agencies

No letters of comment were received from federal agencies.

14.2.2 State Agencies

State of California Governor's Office of Planning and Research
State Clearinghouse and Planning Unit
Scott Morgan
Director
1400 Tenth Street P.O. Box 3044
Sacramento, California 95812
(916) 445-0613

California Department of Transportation District 7
Diana Watson
IGR/CEQA Program Manager
100 South Main Street
Los Angeles, California 90012
(213) 897-3656

Native American Heritage Commission
Dave Singleton
Program Analyst
915 Capitol Mall, Room 364
Sacramento, CA 95814
(916) 653-6251

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Cathleen Cox
Acting Director

October 18, 2010

Ms. Sabra White
Los Angeles County Chief Executive Office
500 West Temple Street, Room 754
Los Angeles, CA 90012

Subject: Martin Luther King, Jr. Medical Center Campus Redevelopment
SCH#: 2010031040

Dear Ms. Sabra White:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on October 14, 2010, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH#	**2010031040**
Project Title	Martin Luther King, Jr. Medical Center Campus Redevelopment
Lead Agency	Los Angeles County

Type	**EIR** Draft EIR
Description	The proposed project would be implemented in two phases, or tiers. Tier 1 of the proposed project would entail the development of two new buildings: the new Multi-service Ambulatory Care Center (MACC) and the Ancillary Building, tenant improvements, and potential relocation of the Magnetic Resonance Imaging (MRI) Building. Tier II of the proposed project would entail the reuse or replacement of the existing MACC Building (which will be vacant following construction of the new MACC Building in Tier I), and demolition of the following Emergency Room; Storage Building; and Cooling Towers. Tier II construction would entail additional master-planned mixed-use development, which may include the potential for medical offices, general offices, commercial and retail space, residential units, recreational areas, and other development in support of the campus. The maximum programmed development for Tier II is currently estimated at approximately 1,814,696sf. The proposed project will include the reuse, replacement, or removal of approximately 509,018sf and net new development of approximately 1,476,010sf, providing an opportunity to develop up to 1,814,696sf for a mix of uses, including space for medical offices, commercial, retail, residential recreation, and general offices, in addition to any other development that will improve the community-based health program facility.

Lead Agency Contact

Name	Ms. Sabra White		
Agency	Los Angeles County Chief Executive Office		
Phone	(213) 974-2620	***Fax***	
email			
Address	500 West Temple Street, Room 754		
City	Los Angeles	***State*** CA	***Zip*** 90012

Project Location

County	Los Angeles
City	
Region	
Lat / Long	33° 55' 23" N / 118° 14' 33" W
Cross Streets	N. Willmington Ave (east), E 120th st(north), Compton Avenue (west)
Parcel No.	6140-028-902, 6140-028-900, 6140-028-907, 6140-028-903

Township	***Range***	***Section***	***Base***

Proximity to:

Highways	I-110, I-105
Airports	Compton/Woodley
Railways	Southern Pacific
Waterways	
Schools	Lincoln Drew Elementary, Harriet Tubnam Elem, Willowbrook Middle
Land Use	SP 88-1

Project Issues	Air Quality; Archaeologic-Historic; Geologic/Seismic; Other Issues; Toxic/Hazardous; Water Quality; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Traffic/Circulation; Schools/Universities; Aesthetic/Visual; Economics/Jobs; Growth Inducing; Sewer Capacity; Solid Waste; Water Supply

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Reviewing Agencies	Resources Agency; Department of Fish and Game, Region 5; Department of Parks and Recreation; Department of Water Resources; Resources, Recycling and Recovery; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 7; Regional Water Quality Control Board, Region 4; Department of Toxic Substances Control; Native American Heritage Commission; Statewide

Note: Blanks in data fields result from insufficient information provided by lead agency.

Health Planning

Date Received 08/31/2010 ***Start of Review*** 08/31/2010 ***End of Review*** 10/14/2010

State of California Governor's Office of Planning and Research
State Clearinghouse and Planning Unit
Scott Morgan
Director
1400 Tenth Street P.O. Box 3044
Sacramento, California 95812
(916) 445-0613

Response to Comment No. 1:

This letter acknowledges that the County has complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act (CEQA), and the State Clearinghouse distribution of the NOC and Draft EIR to state agencies. As noted on page 3 of the letter in the Document Details Report (and also listed in Section 12, *Distribution List*, of the Draft EIR), the Draft EIR was distributed to twelve (12) state agencies for the statutory review period of 45 days.

The State Clearinghouse letter attaches the NAHC comment letter, also received by the County under separate cover and responded to in this Final EIR following this response.

The County has made note of the contents of this letter and acknowledges the distribution to state agencies that reviewed the Draft EIR.

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, OFFICE OF PUBLIC
TRANSPORTATION AND REGIONAL PLANNING
IGR/CEQA BRANCH
100 SOUTH MAIN STREET
LOS ANGELES, CA 90012
PHONE (213) 897-1726
FAX (213) 897-1337

Flex your power!
Be energy efficient!

October 18, 2010

IGR/CEQA DEIR CS/100914
Martin Luther King Jr. Medical Center
Campus Redevelopment Project
Vic. LA-105-9.91, SCH# 2010031040

Ms. Sabra White
County of Los Angeles
Chief Executive Office
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 754
Los Angeles, CA 90012

Dear Ms. White:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Draft Environmental Impact Report (DEIR) for the Martin Luther King Jr. Medical Center Campus Redevelopment Project. As the Responsible Agency for State highway facilities and operations, and based on the information received, we have the following comments:

The DEIR mentioned necessary traffic mitigation measures in order to address Tier II Project Impacts where the County of Los Angeles shall complete the following improvements for the I-105 Glenn Anderson Freeway: 1

> **I-105/Imperial Highway:** Provide a third northbound, left-turn lane by widening off-ramp by 10 feet for approximately 150 to 200 feet

> **Wilmington Avenue/I-105 Eastbound Ramps - County of Los Angeles/Caltrans:** Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach would have a left-turn lane, shared left-turn lane, and a separate right-turn lane. The sidewalks on either side of Wilmington Avenue would be reduced by 2 feet and the Wilmington Avenue roadway would be widened by 2 feet on either side (a total of 4 feet) from the south leg of 2

this intersection. Provide an additional northbound and left-turn lane by widening (reducing the median). The northbound approach would have dual left-turn lanes and three through lanes. 2 cont.

It appears that the proposed 150 to 200 foot widening at the I-105/Imperial Highway to provide for a 10 foot lane does not meet Caltrans design standards. Caltrans design standards call for 12 foot wide lanes for both mainline facilities and ramps. 3

Any proposed improvements to freeway ramps and ramp intersections will require Caltrans Encroachment Permits along with review and approvals from Caltrans Office of Permits, Freeway Operations and Traffic Investigations, as well as other responsible Caltrans units. 4

If you have any questions regarding our comments, contact Carl Shiigi, Project Coordinator, at (213) 897-1726 and please refer to record number 100914/CS.

Sincerely,

Dianna Watson

DIANNA WATSON
IGR/CEQA Program Manager
Office of Regional Planning

cc: Scott Morgan, State Clearinghouse

California Department of Transportation District 7
Diana Watson
IGR/CEQA Program Manager
100 South Main Street
Los Angeles, California 90012
(213) 897-3656

Response to Comment No. 1:

Thank you for the comment that reiterates Mitigation Measure Traffic-2 as it relates to I-105 / Imperial Highway. Please also reference Response to Comment No. 3 below.

Response to Comment No. 2:

Thank you for the comment that reiterates Mitigation Measure Traffic-2 as it relates to Wilmington Avenue / I-105 Eastbound Ramps–County of Los Angeles / Caltrans. Please also reference Response to Comment No. 4 below.

Response to Comment No. 3:

The County has noted the comment regarding the Caltrans design standards. It is understood that the County will continue to coordinate with the Caltrans design team and the County Department of Public Works–Traffic and Lighting Division throughout the planning and permitting process for the project. As shown in the conceptual mitigation measure drawings included in Appendix H, *Traffic Study*, of the Draft EIR, standard Caltrans 12-foot lanes are being proposed on the I-105 Eastbound Ramps, and no additional updates to the described mitigation measures are necessary. As described in the Traffic Study, it is understood that the proposed widening combined with a restriping of the existing lanes will successfully accomplish this standard.

Response to Comment No. 4:

The County understands that any proposed improvements to freeway ramps and ramp intersections will require Caltrans Encroachment Permits along with review and approvals from the Caltrans Office of Permits, Freeway Operations, and Traffic Investigations as well as other responsible Caltrans units.

STATE OF CALIFORNIA Arnold Schwarzenegger, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
e-mail: ds_nahc@pacbell.net

September 13, 2010

Ms. Sabra White
County of Los Angeles Chief Executive Office
500 West Temple Street, Room 754
Los Angeles, CA 90012

Re: SCH#2010031040 CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the **Martin Luther King, Jr. Medical Center Campus Redevelopment Project** located in the Willowbrook Community; Los Angeles County, California.

Dear Ms. White:

The Native American Heritage Commission (NAHC) is the state 'trustee agency' pursuant to Public Resources Code §21070 for the protection and preservation of California's Native American Cultural Resources. (Also see *Environmental Protection Information Center v. Johnson (1985) 170 Cal App. 3rd 604).* The California Environmental Quality Act (CEQA - CA Public Resources Code §21000-21177, amendment effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(c)(f) CEQA guidelines). Section 15382 of the CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance. The lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect. State law also addresses Native American Religious Expression in Public Resources Code §5097.9. 1

The Native American Heritage Commission did perform a Sacred Lands File (SLF) search in the NAHC SLF Inventory, established by the Legislature pursuant to Public Resources Code §5097.94(a) and Native American Cultural Resources **were not identified** within one-half mile radius of the 'area of potential effect (APE).' However there are Native American cultural resources in close proximity to the APE. Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the names of the culturally affiliated tribes and interested Native American individuals that the NAHC recommends as 'consulting parties,' for this purpose, that may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We recommend that you contact persons on the attached list of Native American contacts. A Native American Tribe or Tribal Elder may be the only source of information about a cultural resource.. Also, the NAHC recommends that a Native American Monitor or Native American culturally knowledgeable person be employed whenever a professional archaeologist is employed during the 'Initial Study' and in other phases of the environmental planning processes. 2

Furthermore the NAHC recommends that you contact the California Historic Resources Information System (CHRIS) of the Office of Historic Preservation (OHP), for archaeological data. (916) 653-7278. 3

Consultation with tribes and interested Native American tribes and interested Native American individuals, as consulting parties, on the NAHC list ,should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 [f)]*et se),* 36 CFR Part 800.3, the President's Council on Environmental Quality (CSQ; 42 U.S.C. 4371 *et seq.*) and NAGPRA (25 U.S.C. 3001-3013), as appropriate. The 1992 *Secretary of the Interior's Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including *cultural landscapes.* Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). 4

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate. 5

The authority for the SLF record search of the NAHC Sacred Lands Inventory, established by the California Legislature, is California Public Resources Code §5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code §6254.10). The results of the SLF search are confidential. However, Native Americans on the attached contact list are not prohibited from and may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of "historic properties of religious and cultural significance' may also be protected the under Section 304 of the NHPA or at the Secretary of the Interior' discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C, 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity. 6

CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens. Although tribal consultation under the California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177) is 'advisory' rather than mandated, the NAHC does request 'lead agencies' to work with tribes and interested Native American individuals as 'consulting parties,' on the list provided by the NAHC in order that cultural resources will be protected. However, the 2006 SB 1059 the state enabling legislation to the Federal Energy Policy Act of 2005, does <u>mandate tribal consultation</u> for the 'electric transmission corridors. This is codified in the California Public Resources Code, Chapter 4.3, and §25330 to Division 15, requires consultation with California Native American tribes, and identifies both federally recognized and non-federally recognized on a list maintained by the NAHC 7

Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the California Code of Regulations (CEQA Guidelines) mandate procedures to be followed, including that construction or excavation be stopped in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery until the county coroner or medical examiner can determine whether the remains are those of a Native American. . Note that §7052 of the Health & Safety Code states that disturbance of Native American cemeteries is a felony. 8

Again, Lead agencies should consider avoidance, as defined in §15370 of the California Code of Regulations (CEQA Guidelines), when significant cultural resources are discovered during the course of project planning and implementation. 9

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

Dave Singleton
Program Analyst

Attachment: List of Culturally Affiliated Native American Contacts

Cc: State Clearinghouse

Native American Contacts
Los Angeles County
September 13, 2010

LA City/County Native American Indian Comm
Ron Andrade, Director
3175 West 6th Street, Rm.
Los Angeles , CA 90020
randrade@css.lacounty.gov
(213) 351-5324
(213) 386-3995 FAX

Gabrielino Tongva Nation
Sam Dunlap, Chairperson
P.O. Box 86908 Gabrielino Tongva
Los Angeles , CA 90086
samdunlap@earthlink.net

(909) 262-9351 - cell

Ti'At Society
Cindi Alvitre
6515 E. Seaside Walk, #C Gabrielino
Long Beach , CA 90803
calvitre@yahoo.com
(714) 504-2468 Cell

Gabrielino Tongva Indians of California Tribal Council
Robert F. Doramae, Tribal Chair/Cultural
P.O. Box 490 Gabrielino Tongva
Bellflower , CA 90707
gtongva@verizon.net
562-761-6417 - voice
562-925-7989 - fax

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.
, Gabrielino Tongva
tattnlaw@gmail.com
310-570-6567

Gabrielino-Tongva Tribe
Bernie Acuna
1875 Century Pk East #1500 Gabrielino
Los Angeles , CA 90067
(310) 428-7720 - cell
(310) 587-2281

Gabrieleno/Tongva San Gabriel Band of Mission
Anthony Morales, Chairperson
PO Box 693 Gabrielino Tongva
San Gabriel , CA 91778
GTTribalcouncil@aol.com
(626) 286-1632
(626) 286-1758 - Home
(626) 286-1262 -FAX

Shoshoneon Gabrieleno Band of Mission Indians
Andy Salas, Chairperson
PO Box 393 Gabrieleno
Covina , CA 91723
(626)926-41``31
gabirelenoindians@yahoo.
com
213) 688-0181 - FAX

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.

This list is only applicable for contacting local Native Americans for consultation purposes with regard to cultural resources impact by the proposed SCH#2010031040; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the Martin Luther King, Jr. Medical Center Campus Redevelopment Project; located in the Willowbrook Community south of downtown Los Angeles; Los Angeles County, California.

Native American Contacts
Los Angeles County
September 13, 2010

Gabrielino-Tongva Tribe
Linda Candelaria, Chairwoman
1875 Century Park East, Suite 1500
Los Angeles, CA 90067
lcandelaria1@gabrielinoTribe.org
310-428-5767- cell
(310) 587-2281

Gabrielino

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.

This list is only applicable for contacting local Native Americans for consultation purposes with regard to cultural resources impact by the proposed SCH#2010031040; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the Martin Luther King, Jr. Medical Center Campus Redevelopment Project; located in the Willowbrook Community south of downtown Los Angeles; Los Angeles County, California.

Native American Heritage Commission
Dave Singleton
Program Analyst
915 Capitol Mall, Room 364
Sacramento, California 95814
(916) 653-6251

Response to Comment No. 1:

Thank you for the comment identifying the role of the NAHC as the state "trustee agency" pursuant to Section 21070 for the protection and preservation of California's Native American cultural resources. As described in Section 3.3.1 of the Draft EIR and Section 3.2.6 of Appendix E, *Cultural Resources Technical Report*, of the Draft EIR, the County notes that Section 5097.91 of the Public Resources Code establishes the NAHC, whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. In recognition of this role, the NAHC was notified of the proposed project on October 23, 2009, in conjunction with a Sacred Lands File record search request.[2] The County understands that impacts on historical and archaeological resources may constitute significant effects on the environment, as noted in Section 3.3.3 of the Draft EIR.

Response to Comment No. 2:

The County has noted the comment that Native American cultural resources were not identified within the 0.5-mile radius of the "area of potential effect" (APE) and that, given the presence of Native American cultural resources in proximity to the APE, consultation with Native American tribes in the area is the best way to avoid unanticipated discoveries of Native American cultural resources while the project is underway. On October 13, 2010, the County sent letters of correspondence to the nine Native American tribal contacts identified by the NAHC as consulting parties. No information from the tribal contacts regarding the presence or absence of Native American cultural resources within the 0.5-mile radius of the project has been received to date.

Thank you for the comment that a Native American monitor or a Native American culturally knowledgeable person be employed whenever a professional archaeologist is employed during the environmental planning process. As explained in Section 5.2.3.2 of Appendix E, *Cultural Resources Technical Report*, of the Draft EIR, a comparison of historical and contemporary topographic maps (from 1893, 1923, and 2010) depict the ground surface within the APE as highly disturbed from early agricultural uses and the subsequent construction and landscaping of the existing buildings within the proposed project that involved excavation of native soils and the underlying geologic units to an estimated depth that exceeded 15 feet below the ground surface. Due to the high level of disturbance that has already occurred within the proposed project area, it is not anticipated that the services of a professional archaeologist will be utilized.[3]

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[2] Purtell, Chris, Sapphos Environmental, Inc., Pasadena, California. 23 October 2009. Native American Sacred Sites Records Check. Letter to Dave Singleton, Native American Heritage Commission, Sacramento, California.

[3] Sapphos Environmental, Inc., 31 August 2010. Martin Luther King, Jr. Medical Center Campus Redevelopment Project, Cultural Resources Technical Report. Prepared for: County of Los Angeles, Chief Executive Office, Los Angeles, California.

Response to Comment No. 3:

This comment recommends that the California Historical Resources Information System (CHRIS) of the OHP be contacted for archaeological data. As described in Section 3.3.2.2 of the Draft EIR and in Section 4.2.1 of Appendix E, *Cultural Resources Technical Report*, of the Draft EIR, on October 20, 2009, the County conducted a records search for archaeological data on file at the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton. The SCCIC is one of the 11 independent centers operated under contract to the State OHP for the purposes of maintaining the federally and state-mandated California Historic Resources Inventory (HRI) database, which is made available by the CHRIS.

Response to Comment No. 4:

Thank you for the comment that consultation with tribes and interested Native American individuals, as consulting parties, should be conducted in compliance with the requirements of the National Environmental Policy Act (NEPA), Section 106 and 4(f) of the National Historic Preservation Act (NHPA), and the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, as well as the Secretary of the Interior's Standards for the Treatment of Historic Properties. Section 3.3.1 of the Draft EIR and Section 3.1 of Appendix E, *Cultural Resources Technical Report*, of the Draft EIR discusses how the project is in compliance with these federal requirements, as appropriate. The County, as the lead agency for the project, must consider the federal regulatory framework when rendering decisions on projects that have the potential to affect cultural resources. However, the project is not federally funded, assisted, or licensed and, therefore, does not meet the definition of a federal undertaking that would require compliance with NEPA, NHPA, or NAGPRA. Regarding the specific requirements cited above, the project, and therefore tribal consultation associated with the project, is not subject to NEPA, Section 106 and 4(f) of the NHPA, or NAGPRA requirements. However, while not defined as a federal undertaking, the project has incorporated consultation with tribes, interested Native American tribes, and interested Native American individuals, as specified under CEQA guidelines. Please refer to Comment No. 1, which discusses how the NAHC was notified of the proposed project on October 23, 2009, in conjunction with a Sacred Lands File record search request,[4] and Comment No. 2, which discusses how the County contacted the nine Native American tribal contacts identified by the NAHC as consulting parties on October 13, 2010.

Response to Comment No. 5:

This comment recommended that the County consider avoidance, as defined in Section 15370 of the California Code of Regulations (CEQA Guidelines), where significant cultural resources could be affected by a project. As described in Section 1.2 of Appendix E, *Cultural Resources Technical Report*, of the Draft EIR, environmental documentation was prepared as an aid to support project-planning efforts to minimize impacts to cultural resources and to provide the Los Angeles County Board of Supervisors with data regarding the potential effects of the proposed project on cultural resources, as well as feasible avoidance and minimization measures to reduce impacts to the maximum extent practicable. Avoidance to reduce impacts on cultural resources includes the incorporation of procedures for the accidental discovery of significant cultural resources. While the discovery of human remains is not anticipated during ground-disturbing activities for the proposed project, Section 3.3.5 of the Draft EIR and Section 5.4.4.1 of Appendix E, *Cultural Resources*

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[4] Purtell, Chris, Sapphos Environmental, Inc., Pasadena, California. 23 October 2009. Native American Sacred Sites Records Check. Letter to Dave Singleton, Native American Heritage Commission, Sacramento, California.

Technical Report, of the Draft EIR include mitigation measure Cultural-5, which discusses the accidental discovery of human remains during project implementation. Mitigation measure Cultural-5 specifies compliance with the provisions of Public Resources Code Section 5097.98 and Health and Safety Code 7050.5 that specifies the protocol to be followed when human remains are discovered. Section 5097.98 of the Public Resources Code specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner. Public Resources Code, Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

Response to Comment No. 6:

Thank you for the comment that the nine Native American tribal contacts identified by the NAHC may wish to reveal the confidential results Sacred Lands File Inventory search conducted by the NAHC. The Sacred Lands File record search of the NAHC Sacred Lands Inventory is exempt from the California Public Records Act (California Government Code Section 6254.10). Therefore, the results of the Sacred Lands File search are confidential. However, the nine Native American tribal contacts identified by the NAHC are not prohibited from revealing the nature of any identified cultural resources and may wish to disclose items of religious and/or cultural significance at their own discretion. The Sacred Lands File Inventory search conducted by the NAHC did not identify Native American cultural resources within the 0.5-mile radius of the project APE; however, the County would consider any additional information provided by Native American tribal contacts regarding the presence of Native American cultural resources in the APE or surrounding area.

Response to Comment No. 7:

The County has noted the comment regarding the fact that the County is required under CEQA Guidelines to consult with tribal contacts identified by the NAHC if the presence or likely presence of human remains is identified. The Sacred Lands File Inventory search conducted by the NAHC did not identify Native American cultural resources within the 0.5-mile radius of the project APE. Please refer to Comment No. 5, which discusses accidentally discovered human remains during project implementation.

Response to Comment No. 8:

Thank you for the comment that Health and Safety Code 7050.5, Public Resources Code Section 5097.98 and Section 15064.5(d) of the CEQA Guidelines mandate procedures regarding the accidental discovery of human remains during construction or excavation activities until the county coroner or medical examiner can determine whether the remains are those of a Native American. Please refer to Comment No. 5, which discusses accidentally discovered human remains during project implementation.

Response to Comment No. 9:

Thank you for the comment regarding the consideration of avoidance when significant cultural resources are discovered during the course of project planning and implementation. Please refer to Comment No. 5, which discusses avoidance as a strategy to reduce impacts in the event of discovery of significant cultural resources.

14.2.3 Regional and Local Agencies

City of Los Angeles
Department of Transportation
Edward Guerrero, Jr.
Transportation Engineer
100 South Main Street, 10th Floor
Los Angeles, California 90012
(213) 972-8410

Park Water Company
James P. Elliott, PE
Central Basin Division
9750 Washburn Road
Downey, California 90241
(562) 923-0711

South Coast Air Quality Management District
Ian MacMillan
Program Supervisor
21865 Copley Drive
Diamond Bar, California 91765

CITY OF LOS ANGELES
CALIFORNIA

RITA L. ROBINSON
GENERAL MANAGER

DEPARTMENT OF
TRANSPORTATION
100 S. Main Street, 10th Floor
LOS ANGELES, CA 90012
(213) 972-8470
FAX (213) 972-8410

ANTONIO R. VILLARAIGOSA
MAYOR

Martin Luther King Jr. Medical Center
Campus Redevelopment Project - DEIR
LADOT case no. OUT 10-003

October 15, 2010

County of Los Angeles
Chief Executive Office
Attention: Ms. Sabra White
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 574
Los Angeles, CA 90012

MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT, DEIR [SCH#2010031040] - LADOT REVIEW

The City of Los Angeles Department of Transportation (LADOT) has completed it's review of the traffic impact analysis that is referenced as Appendix H of the Draft Environmental Impact Report (DEIR) prepared for the Martin Luther King Jr. Medical Center Redevelopment Project, dated August 31, 2010. After careful review of the pertinent data, LADOT has determined that the traffic study adequately describes the project related impacts of the proposed development and is in general agreement with the study findings. 1

DISCUSSION AND FINDINGS

Under the TIER II development phase of the project, the findings of the traffic impact analysis include the identification of potential significant impacts at three locations within the City of Los Angeles' jurisdiction (one entirely and two partially). In conjunction with these findings, the report has suggested the implementation of various physical street improvements as a means to fully mitigate these impacts. Inasmuch as the described improvements are technically feasible, LADOT is willing to acknowledge these recommendations as reasonable mitigation, with the understanding that a final determination regarding the feasibility of the recommended mitigation will be determined at the time of reconciliation, as discussed below. 2

RECOMMENDATION

In concurrence with the study findings, it is LADOT's recommendation that the following physical street improvements, as suggested in the project study report, be identified as conditional project requirements:

1. <u>120th Street & Central Avenue</u>
   a: Re-stripe the northbound intersection approach to provide a separate right-turn lane.
   b: Widen the 120th Street roadway width, east of the intersection, by 6 feet through the reduction of the adjacent sidewalk widths (by 3 feet on each side for approximately 120feet) and re-stripe the westbound approach to provided a left-turn lane, two through lanes and one right-turn lane. 3

2. I-105 Westbound Ramps / Croesus Avenue @ Imperial Highway
   a: Provide a third northbound left-turn lane by widening the off-ramp by 10 feet for approximately 150 to 200 feet. 4

   [It should be noted that the context of this improvement is primarily within the jurisdiction of Caltrans and will therefore require Caltrans final approval.]

3. Compton Avenue / Imperial Highway
   a: Re-stripe the intersection westbound approach to provide a separate right-turn lane. 5

Should any of the improvements identified above be deemed infeasible at the time of reconciliation, the project shall be responsible for providing an alternative mitigation measure of equivalent effectiveness. 6

The improvements listed above must be guaranteed through the City of Los Angeles B-Permit process, with construction of the improvements completed and approved prior to the issuance of any certificate of occupancy of the development. In addition, prior to setting the bond amount for the B-Permit, the developer's engineer shall be required to contact LADOT's B-Permit coordinator at (213) 928-9691 to arrange a pre-design meeting and finalize the design for the improvements. 7

Please also note that a construction work site traffic control plan should be submitted to LADOT's Southern District Office for review and approval prior to the start of any construction work that will require the use of City of Los Angles streets. If applicable, tThe plan should show the location of any roadway or sidewalk closures, traffic detours, haul routes, hours of operation, protective devices, warning signs and access to abutting properties. LADOT also recommends that construction related traffic be restricted to off-peak hours. 8

If any of the above discussion has raised questions or concern, please feel free to call me at (213) 485-1062 to discuss further.

Sincerely,

EDWARD GUERRERO JR., Transportation Engineer
LADOT - West L.A. / Coastal Planning & Development Review

cc: Council District 15
Jay Kim, Sean Haeri, Tim Conger, Crystal Killian, LADOT
Grant Su, L.A. Bureau of Engineering
Srinath Raju, Raju Associates, Inc.

City of Los Angeles
Department of Transportation
Edward Guerrero, Jr.
Transportation Engineer
100 South Main Street, 10th Floor
Los Angeles, California 90012
(213) 972-8410

Response to Comment No. 1:

Thank you for the review of the Draft EIR and for the comment confirming that the traffic study adequately describes the project-related impacts of the proposed development. The City of Los Angeles' general agreement with the study findings has been noted.

Response to Comment No. 2:

It is understood that the City of Los Angeles has recommendations related to the transportation and traffic-related mitigation measures for Tier II that would impact the City of Los Angeles streets.

Response to Comment No. 3:

Thank you for the confirmation of the traffic related mitigation measure that is relevant to the City of Los Angeles Department of Transportation. All mitigation measures as presented in the Final EIR are project requirements designed to avoid, reduce, or otherwise mitigate potential impacts identified for the project.

Response to Comment No. 4:

Thank you for the confirmation of the traffic related mitigation measure that is relevant to the City of Los Angeles Department of Transportation. It has been noted that this improvement is primarily within the jurisdiction of the Caltrans and therefore, will, require Caltrans final approval.

Response to Comment No. 5:

Thank you for the confirmation of the traffic related mitigation measure that is relevant to the City of Los Angeles Department of Transportation.

Response to Comment No. 6:

The City's comment is noted. The mitigation measures identified for the project are designed to avoid, reduce, or otherwise mitigate potential impacts identified for the project. In the event that the identified mitigation measures are deemed infeasible by the County at the time of implementation of the respective tiers of the project, the County will identify alternative mitigation measures that will avoid, reduce, or otherwise mitigate the specific impacts identified for the project.

Response to Comment No. 7:

The County has noted the comment regarding proposed improvements being subject to the City of Los Angeles B-Permit process. As noted in Section 2.0, *Project Description*, of the Draft EIR, the

County would seek to ensure compatibility of the project with the surrounding land uses. Similarly, the County would seek to ensure compatibility of the project with the surrounding requirements and guidelines, including the County and City of Los Angeles permitting process; however, as the decision-making agency, the County reserves the right to exempt elements of the project from the permitting requirements of subordinate government agencies.

Response to Comment No. 8:

In concurrence with this comment, it has been noted that a construction work site traffic control plan should be submitted to Los Angeles Department of Transportation's Southern District Office for review and approval prior to the start of any construction work that will require the use of City of Los Angeles streets. It has been further noted that if possible, the plan should show the location of any roadways or sidewalk closures, traffic detours, haul routes, hours of operation, protective devices, warning signs, and access to abutting properties, and that construction-related traffic should be restricted to off-peak hours.

Park Water Company

August 31, 2010

Ms. Esther Diaz, PE
County of Los Angeles
Department of Public Works
900 S. Fremont Avenue, 5th Floor
Alhambra, CA 91803

Re: Martin Luther King, Jr. Medical Center Campus – Redevelopment Project
12021 Wilmington Avenue, Willowbrook

Dear Ms. Diaz,

As you are aware, the above named project is within the certificated service area of Park Water Company (Park). We have reviewed the "draft" Water Supply Assessment that was prepared for this project by your consultant. As discussed in the assessment, the Tier 1 improvements would not substantially change water usage at the project site. However, the Tier 2 improvements are expected to increase the water usage at the project site by 473.4 acre-feet per year (AFY) in a projected single dry year or the first dry year of multiple dry year conditions. 1

Park analyzed its water system demands and sources of water supply in its 2005 Urban Water Management Plan. This plan looks not only at present day conditions, but also forecasts these through the year 2030. Park's available sources of water supply exceed its water system's demand throughout the entire 25-year planning window. Thus, it appears that we have adequate resources to meet the demands of the Tier 1 improvements. 2

By the year 2030, Park estimates that 1,400 acre-feet of water would be available over demand during a multiple dry year period. Due to the long planning period and the multiple variables that could occur when a water supply is needed, it is important to note that Park cannot guarantee specific water flow quantities or pressures. However, under normal operating conditions, it appears that even with a projected increase in overall water system demand, Park still has adequate water resources to meet the demands of the Tier 2 improvements. 3

If you have any questions or require further information, please contact me by phone at 562.299.5124 or by email at jelliott@parkwater.com.

Sincerely,

Park Water Company

James P. Elliott, PE
Division Chief Engineer

P.O. Box 7002 • 9750 Washburn Road • Downey, California 90241 • Phone 562.923.0711 • Fax 562.861.5902

Park Water Company
James P. Elliott, PE
Central Basin Division
9750 Washburn Road
Downey, California 90241
(562) 923-0711

Response to Comment No. 1:

As required by CEQA, the County has outreached to Park Water to receive concurrence with the Water Supply Assessment (WSA) findings and to verify the availability of the County's water entitlements. Thank you for the comment confirming that you reviewed the WSA that was prepared for the project and for confirming that as discussed in the WSA, Tier I would not be expected to result in a substantial change to water usage at the project site; however, Tier II would be expected to increase water usage.

Response to Comment No. 2:

This comment confirms that Park Water Company anticipates having adequate resources to meet the demands of the Tier I improvements. As analyzed in Section 3.13, *Utilities and Service Systems,* of the Draft EIR the Tier I improvements would not result in an increase in water usage over existing conditions.

Response to Comment No. 3:

This comment confirms that Park Water Company anticipates having adequate resources to meet the demands of the Tier II improvements. Specific water quantities and water pressure will be confirmed with Park Water Company as projects within the programmatic Tier II portion of the project are built; however, it is anticipated that Park Water Company will have an adequate water supply to provide for the anticipated Tier II uses at the campus.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

E-MAILED: October 27 ,2010 October 27, 2010

Ms. Sabra White, mlkmasterplan@gmail.com
County of Los Angeles, Chief Executive Office
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 754
Los Angeles, CA 90012

Draft Environmental Impact Report (Draft EIR) for the Proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (SCH #2010031040)

The South Coast Air Quality Management District (AQMD) appreciates the opportunity to comment on the above-mentioned document. The AQMD would also like to thank the lead agency for the additional time to submit comments. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final Environmental Impact Report.

The AQMD staff is concerned that construction air quality impacts may be underestimated. Specifically, onsite emissions from excavation activity are not included for Tier I and the emissions from Tier I and Tier II construction activities that could overlap between 2011 and 2014 were not presented as combined impacts. AQMD staff has recommended additional mitigation measures to address these and other air quality impacts. Details regarding these comments are included in the attachment.

Pursuant to Public Resources Code Section 21092.5, please provide the AQMD with written responses to all comments contained herein prior to the adoption of the Final Environmental Impact Report. The AQMD staff is available to work with the Lead Agency to address these issues and any other questions that may arise. Please contact Gordon Mize, Air Quality Specialist – CEQA Section, at (909) 396-3302, if you have any questions regarding these comments.

Sincerely,

Ian MacMillan
Program Supervisor

Planning, Rule Development & Area Sources

IM:GM

LAC100831-03
Control Number

Air Quality Analysis - Construction

1. On page 2-29 in the project description, the lead agency describes a potential construction scenario that would cause Tier I and Tier II construction activities to overlap between 2011 and 2014. The AQMD staff recommends that the Final EIR include these combined Tier I and Tier II emission estimates that overlap and then compare those emission estimates with the applicable thresholds of significance. Otherwise, the separate Tier I and Tier II construction emission estimate tables shown in the Draft EIR will not reflect the total air quality impacts that will occur during the overlapping construction activity period. 1

2. On page 2-28 of the project description, the lead agency describes grading activities during Tier I of the proposed project that include excavation and export of approximately 40,000 cubic yards of soil but uses the default level in the URBEMIS 2007 computer modeling to estimate onsite diesel and fugitive dust emissions. Since the default level in the URBEMIS2007 program does not account for the fugitive dust from off-road emissions from the specified soil excavation activities, it appears that the lead agency did not account for these emission sources in the Draft EIR. These emission impacts should be quantified and included in the Final EIR along with the methodologies, equations and emission factors used to estimate these emissions. 2

3. In the Air Quality Section starting on page 3.2-14 in the Draft EIR, the lead agency discusses its localized significance thresholds (LST) analysis and determines in the narration on pages 3.2-18 and 3.2-20 that construction localized impacts have the potential to exceed LST levels for NOx during Tier I and for NOx, PM10 and PM2.5 during Tier II. The estimated numerical concentrations based on dispersion modeling, however, are only found in tables in the Air Quality and Greenhouse Gas Emissions Technical Impact Report and in Appendix C (SCAQMD Sample List Spreadsheets). The AQMD staff recommends these emission results be brought forward into Section 3.2, added in the narration or placed in tables in the Final EIR, similar to the numerical estimates shown for regional construction and operational air quality impacts. This should be done to provide to the public a clear disclosure of the severity of air quality impacts. 3

4. On page 3.2-16, the AQMD staff recommends the following wording in the Final EIR, "…In addition, should any contamination be found to be present in the soils in the area exposed after demolition, excavation or other soil disturbance that has the potential to be classified as a hazardous waste, (e.g., petroleum hydrocarbons, etc.), construction shall stop and appropriate health and safety procedures and agency coordination shall be undertaken prior to continuing work on site. This would include compliance with AQMD Rule 1166 - Volatile Organic Compound Emissions from Decontamination of Soil. 4

Mitigation Measures – Construction

5. Because the lead agency has determined that construction air quality impacts from the proposed project are estimated to exceed established daily significance thresholds for particulate matter (PM10 and PM2.5), oxides of nitrogen (NOx) and for volatile organic compounds (VOC), the AQMD staff recommends that the lead agency consider the following changes (in underline and ~~strikeout~~) and additional mitigation measures. These edits should be considered in addition to those measures listed in the Air Quality Section of the Draft EIR starting on pages 3.2-24 to further reduce project construction air quality impacts, if applicable and feasible.

   Recommended Changes:

   Measure Air-1 (Tier I and Tier II)

   "…Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the lead agency to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when wind exceeds 25 miles per hour as instantaneous gusts), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and materials method D-2216, or other equivalent method approved by the U.S. Environmental Protection Agency…" 5

   Measure Air-3 (Tier I)

   Discontinuing Tier I construction activities that occur on unpaved surfaces during windy conditions (when wind exceed 25 miles per hour as instantaneous gusts) shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the lead agency to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceeds 25 miles per hour as instantaneous gusts.

   Measure Air-4

   "…Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday. Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available."

Measure Air-9 (Tier I and Tier II)

- ~~All diesel engines used during Tier I for construction activities for the project that are not registered under California Air Resources Board's Statewide Portable Equipment Registration Program and have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any diesel engine larger than 50 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxide and particulate matter emissions that are equivalent to a Tier 2 engine.~~ All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized and/or limited to no more than five minutes in accordance with state law. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria. Require all on-site construction equipment to meet EPA Tier 2 or higher emissions standards according to the following: 5 cont.

    - April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

    - January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

    - Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

A copy of each unit's certified tier specification, BACT documentation, and CARB or AQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

Recommended Additions for Tier I and Tier II:

- Replace ground cover in disturbed areas as quickly as possible;
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM10 generation; 5 cont.
- Contractors shall use high-pressure-low-volume (HPLV) paint applicators with a minimum transfer efficiency of at least 50%;
- Use required coatings and solvents with a VOC content lower than required under Rule 1113;
- Construct/build with materials that do not require painting; and
- Use pre-painted construction materials.

For additional measures to reduce emissions from off-road construction equipment, refer to the mitigation measure tables located at the following website: www.aqmd.gov/ceqa/handbook/mitigation/MM_intro.html.

Mitigation Measures - Operations

6. Because the operational regional air quality impacts from the proposed project are estimated to exceed established daily significance thresholds for volatile organic compounds (VOC), nitrogen oxide (NOx), carbon dioxide (CO) and particulate matter (PM10), the AQMD staff recommends that the lead agency consider adding the following mitigation measures to further reduce operational air quality impacts from the project, if applicable and feasible:

Recommended Additions: 6

- Improve traffic flow by signal synchronization;
- Restrict operation to alternative fueled shuttle buses, if part of the lead agency's own fleet, using fuels such as compressed natural gas or restrict the operation to "clean" buses, such as 2010 compliant vehicles;
- Require all vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications;
- Provide services that promote ridesharing for car and vanpools;
- Provide charging stations for alternate technology vehicles;

- Provide preferred parking for carpools, vanpools or alternative technology vehicles;
- Provide alternative energy sources onsite; and
- Electrify service equipment at services facilities.

6 cont.

South Coast Air Quality Management District
Ian MacMillan
Program Supervisor
21865 Copley Drive
Diamond Bar, California 91765

Response to Comment No. 1

Thank you for the comment regarding the overlap of the Tier I and Tier II construction activities between 2011 and 2014. The Tier I and Tier II emissions were presented separately due to the fact that Tier I and Tier II construction is expected to occur independently. Tier II construction will not commence until after completion of Tier I. A sentence has been added to the Section 2, *Project Description*, of the Draft EIR to clarify that there would be no expected overlap between the Tier I and Tier II construction activities. Please see Section 13.0, *Clarifications and Revisions*, of the Draft EIR for the updates to Section 2.

Response to Comment No. 2

The County has noted the comment regarding excavation and export of soil. As noted in the comment, the Draft EIR evaluated grading impacts using the default emission values in URBEMIS 2007. The default factors in URBEMIS should be used unless project-specific details are available. In this case, default emission factors were used because specific construction details for the project are estimates that reflect the County's anticipated construction scenario for development. To ensure that fugitive dust emissions are evaluated under a worst-case scenario, the URBEMIS model has been rerun with the worst-case default emission rates for grading (38.2 lbs/acre-day), instead of the standard default emission rate (20 lbs/acre-day). Updated URBEMIS output files have been added to Appendix C, *Air Quality and Greenhouse Gas Emissions Technical Impact Report*, of the Draft EIR, and the results tables for construction emissions have been revised in Section 3.2, *Air Quality*, and Appendix C. Please see Section 13.0, *Clarifications and Revisions*, of the Draft EIR for the updates to Section 3.2 and Appendix C.

Response to Comment No. 3

The comment regarding the location of the results tables for the dispersion modeling has been noted. To add clarity to the document, the table documenting the dispersion modeling results from Appendix C, *Air Quality and Greenhouse Gas Emissions Technical Impact Report*, of the Draft EIR has been added to Section 3.2 and Appendix C of the Draft EIR as suggested. Please see Section 13.0, *Clarifications and Revisions*, of the Draft EIR for the updates to Section 3.2.

Response to Comment No. 4

The suggestion to modify the wording on page 3.2-16 of the Draft EIR to clarify a requirement for compliance with SCAQMD Rule 1166–Volatile Organic Compound (VOC) Emissions from Decontamination of Soil has been noted. The recommended changes have been made in Section 3.2 of the Draft EIR. Please see Section 13.0, *Clarifications and Revisions*, of the Draft EIR for the updates to Section 3.2.

Response to Comment No. 5

The County has noted suggestions to modify the wording of the mitigation measures and add additional mitigation measures for construction of Tier I and Tier II. The recommended revisions and additions have been made in the *Executive Summary* and Section 3.2 and Appendix C of the Draft EIR. Please see Section 13.0, *Clarifications and Revisions*, of the Draft EIR for the updates to the *Executive Summary* and Section 3.2.

Response to Comment No. 6

The suggestions to modify the wording of the mitigation measures and add additional mitigation measures for operation of Tier I and Tier II have been noted. The recommended revisions and additions have been made in the *Executive Summary* and Section 3.2 and Appendix C of the Draft EIR. Please see Section 13.0, *Clarifications and Revisions*, of the Draft EIR for the updates to the *Executive Summary* and Section 3.2.

14.2.4 County Agencies

County of Los Angeles Fire Department
Forestry Division
Prevention Services Bureau
Mr. John R. Todd
1320 North Eastern Avenue
Los Angeles, California 90063
(323) 881-2404

Department of Public Works
Traffic and Lighting Division
Mr. Bill Winter
900 South Fremont Avenue, 5th Floor
Alhambra, California 91803
(626) 300-4820

COUNTY OF LOS ANGELES
FIRE DEPARTMENT
1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

(323) 890-4330

P. MICHAEL FREEMAN
FIRE CHIEF
FORESTER & FIRE WARDEN

September 16, 2010

Ms. Eimon Raoof
Sapphos Environmental Inc.
Regional Office
1351 4th Street, Suite 227
Santa Monica, CA 90401

Dear Ms. Raoof:

DRAFT ENVIRONMENTAL IMPACT REPORT (EIR), MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT, WILLOWBROOK (FFER 201000171)

The Draft Environmental Impact Report has been reviewed by the Planning Division, Land Development Unit, Forestry Division, and Health Hazardous Materials Division of the County of Los Angeles Fire Department. The following are their comments:

PLANNING DIVISION:

1. We have the following corrections: On page 3.10-3, under Fire Protection, the response time to the proposed project site from Fire Station No. 147 is approximately seven minutes. Fire Station No. 147 contains a four-person quint, which provides a pump, water tank, fire hose, aerial device, and ground ladders, as well as a two-person paramedic squad. 1

LAND DEVELOPMENT UNIT:

1. The Fire Prevention Division Land Development Unit has no additional comments regarding this project. The conditions that were addressed in EIR FFER #201000069 have not been changed at this time. 2
2. Should any questions arise regarding subdivision, water systems, or access, please contact the County of Los Angeles Fire Department, Land Development Unit, Inspector Scott Jaeggi at (323) 890-4243. 3

SERVING THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY AND THE CITIES OF:

AGOURA HILLS
ARTESIA
AZUSA
BALDWIN PARK
BELL
BELL GARDENS
BELLFLOWER
BRADBURY
CALABASAS
CARSON
CERRITOS
CLAREMONT
COMMERCE
COVINA
CUDAHY
DIAMOND BAR
DUARTE
EL MONTE
GARDENA
GLENDORA
HAWAIIAN GARDENS
HAWTHORNE
HIDDEN HILLS
HUNTINGTON PARK
INDUSTRY
INGLEWOOD
IRWINDALE
LA CANADA-FLINTRIDGE
LA HABRA
LA MIRADA
LA PUENTE
LAKEWOOD
LANCASTER
LAWNDALE
LOMITA
LYNWOOD
MALIBU
MAYWOOD
NORWALK
PALMDALE
PALOS VERDES ESTATES
PARAMOUNT
PICO RIVERA
POMONA
RANCHO PALOS VERDES
ROLLING HILLS
ROLLING HILLS ESTATES
ROSEMEAD
SAN DIMAS
SANTA CLARITA
SIGNAL HILL
SOUTH EL MONTE
SOUTH GATE
TEMPLE CITY
WALNUT
WEST HOLLYWOOD
WESTLAKE VILLAGE
WHITTIER

FORESTRY DIVISION – OTHER ENVIRONMENTAL CONCERNS:

1. The statutory responsibilities of the County of Los Angeles Fire Department, Forestry Division includes erosion control, watershed management, rare and endangered species, vegetation, fuel modification for Very High Fire Hazard Severity Zones or Fire Zone 4, archeological and cultural resources, and the County Oak Tree Ordinance. Potential impacts in these areas should be addressed. 4

2. The areas germane to the statutory responsibilities of the County of Los Angeles Fire Department, Forestry Division have been addressed. 5

HEALTH HAZARDOUS MATERIALS DIVISION:

1. The County zoning designation for all project parcels is Neighborhood Commercial. The hazardous materials mitigation measures proposed in the draft EIR seem to be adequate for the proposed Tier I project developments; however, they may be inadequate for the Tier II project development of the proposed 100 onsite residential units. Residential contaminant screening levels are much lower than commercial/industrial screening levels, and residential properties are typically occupied by children who are more susceptible to contaminant exposures. In addition to soil management plan and HHMD notification requirements outlined in the mitigation measures, soil screening samples should be collected at proposed onsite residential areas and analyzed for Chemicals of Potential Concerns (COPCs) based on past site commercial use activities. In addition, if Volatile Organic Compounds (VOCs) are among the COPCs, then soil vapor samples may need to be collected to address potential soil vapor intrusion concerns. If significant soil or soil vapor contamination is identified, the onsite contamination should be mitigated or managed under the oversight of a local or state agency. 6

If you have any additional questions, please contact this office at (323) 890-4330.

Very truly yours,

JOHN R. TODD, CHIEF, FORESTRY DIVISION
PREVENTION SERVICES BUREAU

JRT:ss

County of Los Angeles Fire Department
Forestry Division
Prevention Services Bureau
Mr. John R. Todd
1320 North Eastern Avenue
Los Angeles, California 90063
(323) 881-2404

Response to Comment No. 1:

Thank you for the comment providing clarifications to Draft EIR Section 3.10, *Public Services*, related to Fire Protection. Section 3.10.2.1, *Fire Protection*, has been updated to reflect a seven-minute response time for Station No. 147. In addition, the additional information provided regarding Station No. 147 has been added to Table 3.10.2.1-1, *Existing Fire Stations Serving the Proposed Project Site*. Please see Section 13.0, *Clarifications and Revisions*, of the Draft EIR for the updates to Section 3.10, *Public Services*.

Response to Comment No. 2:

This comment on the EIR acknowledges that the EIR accurately reflects the information provided by the County of Los Angeles Fire Department, Land Development Unit.

Response to Comment No. 3:

This comment providing contact information should any additional information from the County of Los Angeles Fire Department, Land Development Unit be required is appreciated and noted for the record. Thank you for providing project-related information and for the Unit's review of the Draft EIR.

Response to Comment No. 4:

This comment requests that the areas of statutory responsibility of the County of Los Angles Fire Department, Forestry Unit be addressed in the EIR. These are identified in the comment as erosion control, watershed management, rare and endangered species, vegetation, fuel modification for very high fire hazard severity zones, archaeological and cultural resources, and the County Oak Tree Ordinance. The issues that are relevant to the Forestry Unit for the project have been addressed in the following Draft EIR sections: 3.3, *Cultural Resources*; 3.6, *Hazardous Resources*; and 3.7, *Hydrology and Water Quality*; and the following technical appendices: Appendix D, *Biological Resources Technical Report*; Appendix E, *Cultural Resources Technical Report*; and Appendix G, *Stormwater Analysis*.

Response to Comment No. 5:

This comment confirms that the EIR adequately addresses the statutory responsibilities of the County of Los Angles Fire Department, Forestry Unit.

Response to Comment No. 6:

This comment is regarding hazardous materials concerns for the residential component of Tier II of the proposed project and states that residential screening levels are much lower than commercial and industrial screening levels. The Hazards and Hazardous Materials section of the EIR has been revised to state that the proposed project will comply with the applicable County guidelines. The comment has been incorporated into the proposed project as a project component. It is now noted that the Soil Management Plan prepared for the Office of Statewide Health Planning and Development review will include a soil screening sampling program for the Tier II residential component. Soil screening samples will be analyzed for Chemicals of Potential Concerns (COPCs). If VOCs are among the COPCs, the soil management plan will include protocols for conducting a soil vapor sampling program to investigate the potential for soil vapor intrusion in the area of concern. In the event that significant levels of soil or soil vapor contamination are identified, the County of Los Angeles Department of Public Works shall be notified and the area of concern shall be remediated to a level adequate to meet or exceed County guidelines and the specifications of the Department of Toxic Substances Control and any other relevant standards. Please see Section 13.0, *Clarifications and Revisions*, of the Draft EIR for the updates to Section 3.16, *Hazards and Hazardous Materials*.

October 7, 2010

TO: David P. Howard
Project Management Division I

Attention Esther Diaz

FROM: Bill Winter
Traffic and Lighting Division

MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT DRAFT ENVIRONMENTAL IMPACT REPORT (AUGUST 31, 2010) WILLOWBROOK AREA

As requested, we have reviewed the Draft Environmental Impact Report for the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment project located at 12021 Wilmington Avenue in the unincorporated area of Willowbrook. 1

The Draft Environmental Impact Report shall be revised to address the comments below. Based on these revisions, additional comments may be forthcoming after subsequent review.

- Pages ES-22 and 3.12-41, Measure Traffic-2 – Revise language to indicate that Wilmington Avenue will be widened by 2 feet on both sides instead of by 2 feet on either side for the following intersections: 2
    - Wilmington Avenue at Interstate 105 Eastbound Ramps
    - Wilmington Avenue at 118th Street
    - Wilmington Avenue at 120th Street/119th Street
- Pages ES-23 and 3.12-42, Measure Traffic-3, Alameda Street at El Segundo Boulevard – Revise language to indicate that the lanes along the north leg would be restriped to provide 13-foot and 11-foot receiving lanes; 10-foot, 11-foot, 10-foot, and 12-foot approach lanes for southbound left-turn lane, southbound through lanes, and southbound right-turn lane, respectively. 3
- Pages ES-23 and 3.12-43, Measure Traffic-3, Alameda Street at Imperial Highway. We recommend implementing the following measure to mitigate the project's cumulative impact at the intersection: 4
    - Southbound approach: Two left-turn lanes, two through lanes, and one right-turn lane instead of one left-turn lane, two through lanes, and one right-turn lane (add second left-turn lane).

If you have any questions regarding the review of this document, please contact Isaac Wong of our Traffic Studies Section at Extension 4796.

IW:sd
T-4 P:\tlpub\WPFILES\FILES\STU\Isaac\EIR\MLK Jr. Medical Center Campus Rdvlpt Project\EIR 100130 MLK JR MEDICAL CENTER CAMPUS REDEV PROJECT DEIR 08312010.doc

Department of Public Works
Traffic and Lighting Division
Mr. Bill Winter
900 South Fremont Avenue, 5th Floor
Alhambra, California 91803
(626) 300-4820

Response to Comment No. 1:

Thank you for the review of the Draft EIR.

Response to Comment No. 2:

Pages ES-22 and 3.12-41, *Measure Traffic-2*, of the Draft EIR have been updated to reflect to replace the word "either" with the word "both". Please see Section 13.0, *Clarifications and Revisions*, of the Draft EIR for the updates to Sections *ES* and 3.12, *Transportation and Traffic*.

Response to Comment No. 3:

Pages ES-23 and 3.12-42, *Measure Traffic-3*, of the Draft EIR have been updated to remove the stricken text and to include the text that is in bold italic font in the following sentence:

Alameda Street/El Segundo Boulevard – County of Los Angeles/Compton: Re-stripe northbound/ southbound approaches and provide a southbound right-turn lane. The lanes along the north leg would be re-striped to provide 13-foot and 11-foot receiving lanes; 10-foot, 11-foot, 10-foot, and 12-foot approach lanes for southbound ~~right~~ ***left-turn lane***, ~~both~~ southbound ~~turns~~ ***through lanes***, and southbound right***-turn*** lanes, respectively.

Please see Section 13.0, *Clarifications and Revisions*, of the Draft EIR for the updates to Sections *ES* and 3.12, *Transportation and Traffic*.

Response to Comment No. 4:

The comment regarding the addition of a second left-turn lane to Mitigation Measure Traffic-3 has been noted. The mitigation measures provided in Section 3.12, *Transportation and Traffic*, of the Draft EIR include the addition of a second left-turn lane and a shared-through right turn lane to provide dual left-turn lanes, a shared through-right turn lane, a through lane, and a separate right-turn lane along the southbound approach. These improvements were designed to address the specific traffic-related impacts that are expected to result from the project. The proposed revisions to the mitigation measure provided by the comment would not address or reduce the impact identified in this section of the Draft EIR.

14.2.5 Individuals

L. Wilkerson
411910 Success Avenue
Los Angeles, California 90059

9-15-10

County of Los Angeles,
Chief Executive Office

Att: Ms. Sabra White: Office

Thank you for the Willowbrook Library. We also needed And Emergency Healthcare in Our Area, so Many are dying With out care. 1

Thank
Jo L. Wilkerson
11910 Success ave
L.A. Ca 90059

L. Wilkerson
411910 Success Avenue
Los Angeles, California 90059

Response to Comment No. 1:

Thank you for the comment regarding the Willowbrook Library and the need for an emergency healthcare facility in the area. The County appreciates the support of the local community for the proposed project and for recently completed projects such as the Willowbrook Library. This comment is further noted for the record and, as all comments, will be taken under consideration by the County Board of Supervisors during the decision-making process for the proposed project. Section 2.2.1, *Background*, of the Draft EIR notes that part of the ongoing CEQA-exempt project on the campus will include the placement of the Emergency Department (ED) on the first floor of the Inpatient Tower. In addition, the County has acknowledged a need for quality health care in the community. As noted in Section 2.3.1, *Goal*, of the Draft EIR, the goal of the project is to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care.

MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

DRAFT ENVIRONMENTAL IMPACT REPORT
(SCH#2010031040)

PREPARED FOR:

COUNTY OF LOS ANGELES
KENNETH HAHN HALL OF ADMINISTRATION
500 WEST TEMPLE STREET, ROOM 754
LOS ANGELES, CALIFORNIA 90012

PREPARED BY:

SAPPHOS ENVIRONMENTAL, INC.
430 NORTH HALSTEAD STREET
PASADENA, CALIFORNIA 91107

AUGUST 31, 2010

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VOLUME II

TECHNICAL APPENDICES

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Appendix B Aesthetics Analysis Technical Report
Appendix C Air Quality and Greenhouse Gas Emissions Technical Impact Report
Appendix D Biological Resources Technical Report
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SECTION ES
EXECUTIVE SUMMARY

This Environmental Impact Report (EIR) analyzes the potential for significant environmental impacts in association with the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project). The proposed project would occur within the community of Willowbrook, County of Los Angeles, California.

The proposed project consists of project- and program-level improvements to the proposed project campus.

ES.1 EXISTING FACILITIES

The proposed project site consists of 15 buildings: Genesis Clinic, Oasis Clinic (old), Oasis Clinic (new), Registration Building, Augustus F. Hawkins Comprehensive Mental Health Center, Inpatient Tower, Multi-Service Ambulatory Care Center (MACC), Pediatric Acute Care Building, Medical Records and Laundry Building, Central Plant, Plant Management Building, North Support Building, South Support Building, Interns and Physicians Building, and Hub Clinic. There is also a multi-level parking structure available for parking and six support and ancillary buildings and facilities including: an Emergency Room, Magnetic Resonance Imaging (MRI) Building, Claude Hudson Auditorium, Cooling Towers, and two storage buildings on the proposed project site. The developed floor area (not including the parking structure) is approximately 1.2 million square feet.

ES.2 PROPOSED PROJECT

The proposed project consists of two distinct tiers: Tier I, project-level development, and Tier II, program-level development.

ES.2.1 Tier I

Tier I of the proposed project would entail vacation of the emergency room, storage buildings, cooling towers, and existing MACC, and the development of two new environmentally sustainable buildings: the 132,000-square-foot new MACC and the 24,700-square-foot Ancillary Building. Tier I development would consist of approximately 170,332 square feet of new development and the vacation of approximately 509,018 square feet. In addition, tenant improvements in existing buildings, site improvements, and potential relocation of the MRI Building would occur in Tier I.

ES.2.2 Tier II

Tier II of the proposed project would entail the development of a campus-wide Master Plan. It is anticipated that the development described in the Master Plan would seek to prepare the proposed project site for future mixed-use campus-related development that would provide the health services necessary to respond to and address the needs of the community. Tier II would have the potential to build out approximately 1,814,696 square feet of development on the proposed project site with mixed uses including medical office, commercial, retail, office space, recreation, and other development in support of the campus. The net new development of the proposed project would be approximately 1,476,010 square feet. Tier II would also entail the construction of up to 100 residential units, to be developed at a multi-family density consistent with surrounding residential area multi-family development densities. In addition, the Tier II components would entail the reuse or replacement of the existing MACC building, emergency room, storage building, and cooling towers.

ES.3 ISSUES TO BE RESOLVED

The Initial Study analysis (Appendix A) undertaken in support of this EIR determined that there are several environmental issue areas related to the California Environmental Quality Act (CEQA) that are not expected to have significant impacts resulting from implementation of the proposed project. These issue areas are agriculture and forest resources, biological resources, land use and planning, and mineral resources. These issue areas, therefore, were not carried forward for detailed analysis in the EIR. The environmental issues identified in the Initial Study that were resolved in this EIR are aesthetics, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards, hydrology and water quality, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems.

ES.4 SUMMARY OF IMPACTS

Tier I

The analysis undertaken in support of Tier I of this EIR has determined that population and housing, public services, recreation, and utilities and service systems would result in less than significant or no impacts during Tier I of the proposed project. Impacts related to aesthetics (light and glare), air quality (air quality standards, cumulative impacts, and sensitive receptors during construction only), cultural resources (paleontological resource and human remains), geology and soils (soil erosion or loss of top soil, geologic unit or unstable soil, and expansive soil), greenhouse gas emissions (operation), hazards and hazardous materials (accidental release, within 0.25 mile of an existing or proposed school, and Government Code Section 65962.5), hydrology and water quality (water quality standards, waste discharge, runoff water, and water quality during construction and limited operation), noise (mechanical noise during construction only), and transportation and traffic (circulation system and congestion during construction only) can be mitigated to below the level of significance. Construction-related impacts to greenhouse gases (construction) and noise (construction) may remain significant following the implementation of mitigation measures. Table ES.4-1, *Summary of Significant Impacts*, presents potentially significant impacts related to each issue area analyzed that might result, or can be reasonably expected to result, from implementation of the proposed project. Table ES.4-1 also presents the significant impacts, mitigation measures, and the level of significance after mitigation for each issue area analyzed in the EIR.

Tier II

The analysis undertaken in support of Tier II of this EIR has determined that population and housing, public services, and recreation would result in less than significant or no impacts during Tier II of the proposed project. Impacts related to aesthetics (light and glare, shade and shadow, and visual character), cultural resources (paleontological resource and human remains), geology and soils (soil erosion or loss of top soil, geologic unit or unstable soil, and expansive soil), hazards and hazardous materials (accidental release, within 0.25 mile of an existing or proposed school, and Government Code Section 65962.5), hydrology and water quality (water quality standards, waste discharge, runoff water, and degrade water quality during construction and operation), noise (mechanical noise), transportation and traffic (circulation system and congestion during construction, operation, and cumulative impacts), utilities and service systems (wastewater treatment requirements and solid waste compliance) can be mitigated to below the level of significance. Impacts to air quality (air quality standards, cumulative impacts, sensitive receptors during construction and limited operation), cultural resources (historical resource), greenhouse gas emissions (construction), and noise (construction and vibration) may remain significant following the implementation of mitigation measures. Table ES.4-1 presents potentially significant impacts related to each issue area analyzed that might result, or can be reasonably expected to result, from implementation of the proposed project. Table ES.4-1 also presents the significant impacts, mitigation measures, and the level of significance after mitigation for each issue area analyzed in the EIR.

The Tier II components are conceptual at this time, and therefore will only be discussed in a programmatic level in the EIR, as permitted under CEQA. Once the detailed future development plans for Tier II components are prepared, consistent with the guidelines for programmatic EIRs under CEQA, the projects will be examined in light of the program EIR analysis, to assess project level impacts and to determine whether additional environmental document(s) must be prepared.

Unless it is noted otherwise, the County is responsible for ensuring compliance with all mitigation measures for Tier I and Tier II of the proposed project.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS

Impact	Mitigation Measure	Level of Significance After Mitigation
Aesthetics		
Implementation of Tier I of the proposed project would be expected to result in significant impacts to aesthetics in relation to light and glare.	**Tier I** ***Measure Aesthetics-1*** All exterior lighting proposed for building and on-site security lighting shall be shielded and directed downwards to minimize the impacts on the surrounding land uses. No large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) would be included within the building components or materials.	The recommended mitigation measure Aesthetics-1 would be able to reduce project impacts related to light and glare to less than significant.
Implementation of Tier II of the proposed project would be expected to result in significant impacts to aesthetics in relation to visual character, shade and shadow, and light and glare.	**Tier II** ***Measure Aesthetics-1*** All exterior lighting for building and on-site security lighting shall be shielded and directed downwards to minimize the impacts on the surrounding land uses. No large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) would be included within the building components or materials. ***Measure Aesthetics-2*** The County of Los Angeles shall review all plans for the proposed Tier II development and ensure that all contractors conform with all design features as described in the intended to incorporate materials to ensure visual consistency and continuity at the proposed project site and within the surrounding area. ***Measure Aesthetics-3*** All development shall be limited to three stories in height if the proposed structure would be located along the western or eastern edge of the property. The existing setback include the pediatric modular building/ oasis clinic located approximately 14 feet from the property line along the eastern boundary at Wilmington Avenue, Interns and Physicians Building at approximately 20 feet from property line along the western boundary at Compton Avenue, the Hawkin's Building located at approximately 30 feet from property line along the northern boundary at 120th Street, and the Cooling Tower located at 44 feet from the property line along the south. Alternatively, if a structure would exceed three stories in height along the perimeter of the property (western or eastern perimeter only), at a minimum, the building would be required stay within the approximately 20-foot and for 14-foot existing campus respective western and eastern boundary setbacks to reduce shade and shadow impacts to adjacent land uses along Compton Avenue and Wilmington Avenue. ***Measure Aesthetics-4*** Where parking lots or structures are adjacent to residential areas or near other sensitive light receptors along the southern portion of the campus, Compton Avenue, and Wilmington Avenue, retaining walls and/or landscaping of sufficient height shall be incorporated into the design of the proposed project to shield vehicle headlights (which typically sit at a minimum of 3 feet in height above ground). These project features shall be included in the landscape plans and final project design plans (to avoid and reduce potential light and glare obstructions that could impact residential areas).	Implementation of mitigation measure Aesthetics-1 and Aesthetics-4 would be expected to prevent security lighting and building lighting from causing significant levels of light spillover or light trespass. Implementation of mitigation measure Aesthetics-4 would be expected to prevent vehicle highlights from causing significant levels of light intrusion. Finally, implementation of mitigation measure Aesthetics-3 and Aesthetics-4 would be expected to reduce impacts related to a new source of light and glare to below the level of significance. Implementation of mitigation measures Aesthetics-2 and Aesthetics-3 would be expected to prevent potential building shadows from Tier II from causing significant levels of shade to spill over onto adjacent land uses including residences. Therefore, implementation of mitigation measures Aesthetics-2 and Aesthetics-3 would be expected to reduce impacts related to a new source of shadow to below the level of significance for the proposed Tier II project components. Implementation of mitigation measure Aesthetics-2 would be expected to ensure consistency within the medical campus and with the surrounding area. As supported by project design guidelines listed in mitigation measure Aesthetics-1, the materials used to construct Tier II of proposed project would be consistent with existing visual quality conditions at the proposed project site and within the surrounding area, and would reduce potential impacts to visual character to below the level of significance.
Air Quality		
Implementation of Tier I of the proposed project would be expected to result in significant impacts to air quality	**Tier I** ***Measure Air-1*** Water or a stabilizing agent shall be applied during Tier I to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for	Implementation of air quality mitigation measures Air-1 through Air-8 would reduce fugitive dust emissions associated with construction activities, which would cause daily PM2.5 and PM$_{10}$ emissions to remain at below the SCAQMD thresholds of significance.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
related to air quality standards, cumulative impacts, and sensitive receptors during construction only.	construction bids for each element, the plans and specifications shall be reviewed by the lead agency to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the lead agency. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. ***Measure Air-2*** Moistening or covering of excavated soil piles shall be required during Tier I to treat grading areas during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings. ***Measure Air-3*** Discontinuing Tier I construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour) shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour. ***Measure Air-4*** Track-out during Tier I shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Track-out is defined by the South Coast Air Quality Management District as any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday. ***Measure Air-5*** A wheel washing system shall be installed during Tier I, and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site. Washing of wheels leaving the construction site during construction of each element shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities. ***Measure Air-6*** All haul trucks hauling soil, sand, and other loose materials during Tier I shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). All transport of soils to and from the project site for each element shall be conducted in a manner that avoids fugitive dust emissions and ensures compliance with current air quality standards. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site.	Implementation of mitigation measure Air-9 would ensure that criteria pollutant emissions associated with the use of construction equipment would be reduced to the maximum extent feasible. As such, criteria pollutant emissions during construction would remain at below the level of significance and would therefore not be significant. Mitigation measures Air-1 through Air-9 would also ensure that cumulative air quality impacts during construction would remain at below the level of significance and that construction-related impacts to sensitive receptors would be reduced to below the level of significance.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	Measure Air-7 Traffic speeds on unpaved roads during Tier I shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour. ***Measure Air-8*** Heavy-equipment Tier I operations shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure heavy-equipment operations be suspended during first- and second-stage smog alerts. ***Measure Air-9*** All diesel engines used during Tier I for construction activities for the project that are not registered under California Air Resources Board's Statewide Portable Equipment Registration Program and have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any diesel engine larger than 50 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxide and particulate matter emissions that are equivalent to a Tier 2 engine. All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria.	
	Tier II	
Implementation of Tier II of the proposed project would be expected to result in significant impacts to air quality related to air quality standards, cumulative impacts, sensitive receptors during construction, and limited operation.	***Measure Air-1*** Water or a stabilizing agent shall be applied during Tier II to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the lead agency to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the lead agency. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. ***Measure Air-2*** Moistening or covering of excavated soil piles shall be required during Tier II to treat grading areas during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.	Implementation of air quality mitigation measures Air-1 through Air-8 would reduce fugitive dust emissions associated with construction activities, which would cause daily PM2.5 and PM_{10} emissions to remain at below the SCAQMD thresholds of significance. Implementation of mitigation measure Air-9 would ensure that criteria pollutants emissions associated with the use of construction equipment would be reduced to the maximum extent feasible. However, VOCs and NO_x emissions during construction would still result in temporary significant and unavoidable impacts. Mitigation measures Air-1 through Air-9 would also ensure that air quality impacts on sensitive receptors during construction would be reduced to the maximum extent feasible. However, implementation of Tier II of the proposed project would still have the potential to result in significant impacts to sensitive receptors related to emissions of NO_x, $PM_{2.5}$, and PM_{10}. Mitigation measures Air-1 through Air-9 would also ensure that cumulative air quality impacts during construction would be reduced to the maximum extent feasible. However, implementation of Tier II of the proposed project would still be expected to result in cumulative construction-related impacts when considered with construction and

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	Measure Air-3 Discontinuing Tier II construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour) shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour. ***Measure Air-4*** Track-out during Tier II shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Track-out is defined by the South Coast Air Quality Management District as any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday. ***Measure Air-5*** A wheel washing system shall be installed during Tier II, and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site. Washing of wheels leaving the construction site during construction of each element shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities. ***Measure Air-6*** All haul trucks hauling soil, sand, and other loose materials during Tier II shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). All transport of soils to and from the project site for each element shall be conducted in a manner that avoids fugitive dust emissions and ensures compliance with current air quality standards. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site. ***Measure Air-7*** Traffic speeds on unpaved roads during Tier II shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour. ***Measure Air-8*** Heavy-equipment Tier II operations shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure heavy-equipment operations be suspended during first- and second-stage smog alerts. ***Measure Air-9*** All diesel engines used during Tier II for construction activities for the project that are not registered under California Air Resources Board's Statewide Portable Equipment Registration Program and have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 2 California	operation of the related past, present, or reasonably foreseeable, probable future projects. As there are no feasible mitigation measures for operation of Tier II; therefore, criteria pollutant emissions from mobile sources during operation of Tier II would remain at above the level of significance.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any diesel engine larger than 50 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxide and particulate matter emissions that are equivalent to a Tier 2 engine. All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria.	
Cultural Resources		
Implementation of Tier I of the proposed project would be expected to result in significant impacts to cultural resources related to paleontological resource and human remains.	**Tier I** Paleontological Resources ***Measure Cultural-1*** The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the proposed project shall be reduced to below the level of significance by monitoring, salvage, and curation of unanticipated paleontological resources discovered during ground-disturbing activities in previously undisturbed native soils located 15 or more feet below the ground surface that would have the potential to contact extant older Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology: • Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found. • Prior to any ground-disturbing activities, the County of Los Angeles shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. • A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources. • Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find. • If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing. • Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored, the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered, fossil specimens recovered, and associated specimen data. • All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository, regarding the final disposition, permanent storage, and maintenance of any significant fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written	Implementation of mitigation measure Cultural-1 would reduce any potential significant impacts to cultural resources related to an adverse change in the significance of a unique paleontological resource discovered under Tier I to below the level of significance. Implementation of mitigation measure Cultural-2 would reduce any potential significant impacts to human remains discovered under Tier I to below the level of significance.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	agreement shall specify the level of treatment (i.e., preparation, identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed. • Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended, itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, signify the completion of the program to mitigate impacts to paleontological resources. Human Remains ***Measure Cultural-2*** Although the discovery of human remains is not anticipated during ground-disturbing activities for the proposed project, a process has been delineated for addressing the unanticipated discovery of human remains: • Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met: • The Los Angeles County Coroner has determined that no investigation of the cause of death is required, and • Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences in writing to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98. **Tier II**	
Implementation of Tier II of the proposed project would be expected to result in significant impacts to cultural resources related to paleontological resource, human remains, and historical resource.	Paleontological Resources ***Measure Cultural-1*** The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the proposed project shall be reduced to below the level of significance by monitoring, salvage, and curation of unanticipated paleontological resources discovered during ground-disturbing activities in previously undisturbed native soils located 15 or more feet below the ground surface that would have the potential to contact extant older Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology: • Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found. • Prior to any ground-disturbing activities, the County of Los Angeles shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium.	Implementation of mitigation measure Cultural-1 would reduce any potential significant impacts to cultural resources related to an adverse change in the significance of a unique paleontological resource discovered under Tier II to below the level of significance. Implementation of mitigation measure Cultural-2 would reduce any potential significant impacts to human remains discovered under Tier II to below the level of significance. Implementation of mitigation measure Cultural-3 would reduce Tier II impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium as a result of Tier II of the proposed project to below the level of significance. Implementation of mitigation measures Cultural-4 and Cultural-5 would reduce Tier II impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium as a result of Tier II of the proposed project

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	• A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources. • Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find. • If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing. • Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored, the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered, fossil specimens recovered, and associated specimen data. • All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository, regarding the final disposition, permanent storage, and maintenance of any significant fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written agreement shall specify the level of treatment (i.e., preparation, identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed. • Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended, itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, signify the completion of the program to mitigate impacts to paleontological resources. Human Remains ***Measure Cultural-2*** Although the discovery of human remains is not anticipated during ground-disturbing activities for the proposed project, a process has been delineated for addressing the unanticipated discovery of human remains: • Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met: • The Los Angeles County Coroner has determined that no investigation of the cause of death is required, and • Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences in writing to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98. Historical Resources Potentially significant adverse impacts to historical resources have been identified in relation to five historical resources as a result of implementation of the Tier II project:, the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins	to the maximum extent feasible. However, the demolition of a historical resource still would remain a significant adverse impact.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium. Three mitigation measures have been identified in association with Tier II to reduce impacts to the maximum extent practicable. In the event that the five historical resources are not removed or otherwise impacted through significant modifications or alterations to the character-defining features of these resources, this impact would be less than significant and would not require mitigation. ***Measure Cultural-3*** Tier II impacts to four significant historical resources (Multi-Service Ambulatory Care Center [MACC], Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium) and the integrity of the Martin Luther King, Jr. Medical Center Campus Historic District (a fifth historic resource) shall be reduced to below the level of significance through utilization of the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines of Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* for any proposed alterations, including all site work, structural upgrades, architectural, and mechanical systems improvements and repairs. The work shall conform to the standards and guidelines for "rehabilitation." Conformance with the Secretary of the Interior's Standards shall be monitored by an architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualification Standards. Completion of this mitigation measure shall be monitored and enforced by the County of Los Angeles. ***Measure Cultural-4*** Tier II impacts resulting from demolition or substantial alteration of significant historical resources not in conformance with the Secretary of the Interior's Standards shall be reduced to the maximum extent feasible through archival documentation of as-found condition. Prior to the initiation of construction activities, the County of Los Angeles shall ensure that documentation of the Martin Luther King, Jr. Medical Center Campus Historic District, Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and/or Dr. H. Claude Hudson Auditorium is completed in accordance with Historic American Buildings Survey (HABS) requirements for donated material. The documentation shall be in the form of a Historic American Building Survey and shall comply with the *Secretary of the Interior's Standards for Architectural and Engineering Documentation*. The documentation shall include large-format photographic recordation, detailed historic narrative report, measured architectural drawings, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be offered as donated material to Historic American Building Survey for inclusion in the Library of Congress. Archival copies of the documentation also would be available at the Martin Luther King, Jr. Medical Center campus and maintained by the County of Los Angeles. ***Measure Cultural-5*** Impacts resulting from the loss of integrity of the Martin Luther King, Jr. Medical Center Campus Historic District such that its significance is materially impaired will be reduced to the maximum extent feasible through the development of a retrospective exhibit detailing the history of the Martin Luther King, Jr. Medical Center Campus Historic District, its significance, and its important details and features. The retrospective exhibit shall be in the form of a physical exhibit installed on the Martin Luther King, Jr. Medical Center Campus, which is located either within a building or on a freestanding kiosk or comparable structure or installation on the property. The exhibit should commemorate the historic appearance of the district and provide the public with sufficient information to understand its historic significance. The exhibit shall be prepared by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The exhibit should be completed within a period of no more than two years from the date of completion of Tier II of the proposed project.	

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
Geology and Soils		
Implementation of Tier I of the proposed project would be expected to result in significant impacts to geology and soils in relation to substantial soil erosion and loss of topsoil, being located on a geologic unit or soil that is unstable, or that would become unstable, and being located on expansive soil, creating substantial risks to life or property.	**Tier I** ***Measure Geology-1*** The construction contractor shall incorporate best management practices consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[1] As discussed in the Geotechnical Investigation that was prepared for the project site, earthwork at the project site should be performed in conformance with the Los Angeles County Building Code and other guidelines provided in the geotechnical study, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. ***Measure Geology-2*** Due to seismic compliance standards established by the Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or as required, the construction contractor shall incorporate project design elements consistent with Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or required standards, and thus further reduce any potential for impacts resulting from unstable geologic units and soils. The County of Los Angeles shall conform to measures described in the project geotechnical study(ies) to ensure compliance throughout the construction and development of the project. ***Measure Geology-3*** A geotechnical engineer shall be present on site for observation of earth-moving activities (such as site preparation, excavation) to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered shall be evaluated by the project engineering geologist and the soil engineer.	Implementation of mitigation measure Geology-1 would reduce significant impacts of Tier I related to soil erosion or loss of topsoil to below the level of significance. Implementation of mitigation measure Geology-2 would reduce significant impacts of Tier I related to the proposed project being located on a geologic unit or soil that is unstable to below the level of significance. Implementation of mitigation measure Geology-3 would reduce significant impacts of Tier I related to the proposed project being located on expansive soil to below the level of significance.
Implementation of Tier II of the proposed project would be expected to result in significant impacts to geology and soils in relation to substantial soil erosion and loss of topsoil, being located on a geologic unit or soil that is unstable, or that would become unstable, and being located on expansive soil, creating substantial risks to life or property.	**Tier II** ***Measure Geology-1*** The construction contractor shall incorporate best management practices consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[2] As discussed in the Geotechnical Investigation that was prepared for the project site, earthwork at the project site should be performed in conformance with the Los Angeles County Building Code and other guidelines provided in the geotechnical study, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. ***Measure Geology-2*** Due to seismic compliance standards established by the Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code,, or as required, the construction contractor shall incorporate project design elements consistent with Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or required standards, and thus further reduce any potential for impacts resulting from unstable geologic units and soils. The County of Los Angeles shall conform to measures described in the project geotechnical study(ies) to ensure compliance throughout the construction and development of the project.	Implementation of mitigation measure Geology-1 would reduce significant impacts of Tier II related to soil erosion or loss of topsoil to below the level of significance. Implementation of mitigation measure Geology-2 would reduce significant impacts of Tier II related to the proposed project being located on a geologic unit or soil that is unstable to below the level of significance. Implementation of mitigation measure Geology-3 would reduce significant impacts of Tier II related to the proposed project being located on expansive soil to below the level of significance.

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[1] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

[2] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	Measure Geology-3 A geotechnical engineer shall be present on site for observation of earth moving activities (such as site preparation, excavation) to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered shall be evaluated by the project engineering geologist and the soil engineer.	
Greenhouse Gas Emissions		
	Tier I	
Implementation of the proposed project would be expected to result in significant impacts to greenhouse gas emissions related to emissions during construction and operation.	***Measure GHG-1*** Prior to construction of the proposed project, the final design plan and schemes for Tier I shall be reviewed to ensure that the County of Los Angeles conforms to its commitments pursuant to the California Climate Action Registry and the greenhouse gas emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven (7) of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide (CO_2) emissions per capita: • Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use • Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings • Create water-efficient landscapes • Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site.) • Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods • Incorporate provisions for future public transit into project design • Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio The review shall further ensure that all applicable sustainable design measures or comparable measures have been incorporated into the final project design.	Mitigation measure GHG-1 would reduce CO_2 emissions contributed by operation of Tier I of the proposed project, thereby assisting compliance with the goals of AB 32 to reduce CO_{2e} emissions to 1990 levels by the year 2020. Mitigation measure GHG-1 would ensure that indirect and cumulative GHG emission impacts would be reduced to the maximum extent feasible. After implementation of mitigation measure GHG-1, potential GHG emission impacts associated with operation of Tier I would remain at below the level of significance. However, cconstruction of Tier I of the proposed project may be expected to remain above the level of significance if CAPCOA's suggested quantitative threshold of 900 tons of CO_{2e} per year is used.
	Tier II	
Implementation of the proposed project would be expected to result in significant impacts to greenhouse gas emissions related to emissions during construction and operation.	***Measure GHG-1*** Prior to construction of the proposed project, the final design plan and schemes for Tier II shall be reviewed to ensure that the County of Los Angeles conforms to its commitments pursuant to the California Climate Action Registry and the greenhouse gas emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven (7) of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide (CO_2) emissions per capita: • Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use	Mitigation measure GHG-1 would reduce CO_2 emissions contributed by operation of Tier II of the proposed project, thereby assisting compliance with the goals of AB 32 to reduce CO_{2e} emissions to 1990 levels by the year 2020. Mitigation measure GHG-1 would ensure that indirect and cumulative GHG emission impacts would be reduced to the maximum extent feasible. However, potential GHG emission impacts associated with construction and operation of Tier II would remain as significant and unavoidable.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	• Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings • Create water-efficient landscapes • Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site.) • Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods • Incorporate provisions for future public transit into project design • Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio The review shall further ensure that all applicable sustainable design measures or comparable measures have been incorporated into the final project design.	
Hazards and Hazardous Materials		
Implementation of Tier I of the proposed project would be expected to result in significant impacts to hazards and hazardous materials in relation to the release of hazardous materials into the environment and hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste, to existing or proposed schools located within one-quarter mile of the project site, and Government Code Section 65962.5.	**Tier I** ***Measure Hazards-1*** To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law. ***Measure Hazards-2*** To avoid exposure to asbestos-containing materials and lead-based paints during demolition, construction, and remediation activities, the County of Los Angeles and the Office of Statewide Health Planning and Development shall require that all such materials and wastes be identified and an Operations and Maintenance Plan developed prior to the issuance of demolition permits for each structure constructed prior to 1979. The Operations and Maintenance Plan shall ensure compliance with all applicable federal, state, and local requirements and specify all work to be done, including lead and asbestos surveys of structures to be demolished, proper handling and storage of lubricants and fuels for construction equipment, and methods for remediation of asbestos-containing materials and lead-based paints, if necessary. The Operations and Maintenance Plan shall be submitted to the County of Los Angeles Department of Health Services for review and approval prior to initiation of construction and demolition activities for the MACC building, emergency room, storage building, and cooling towers. The Operations and Maintenance Plan shall, as appropriate and necessary, conform to the requirements of the Los Angeles County Department of Health Services (Local Enforcement Agency), South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, and the Department of Toxic Substances Control. Compliance with the Operations and Maintenance Plan shall be monitored by the County of Los Angeles Regional Planning Department throughout construction and demolition. To reduce impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. These agencies shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.	Implementation of mitigation measure Hazards-1 and Hazards-2 for Tier I would reduce significant impacts related to the exposure of hazards and hazardous materials to below the level of significance. Implementation of mitigation measure Hazards-3 for Tier I would reduce significant impacts related to USTs below the level of significance. Implementation of mitigation measure Hazards-4 for Tier I would reduce significant impacts related to exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the proposed project to below the level of significance. Implementation of mitigation measure Hazards-5 for Tier I would reduce significant impacts related to hazards and hazardous materials below the level of significance.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	Measure Hazards-3 Prior to the issuance of grading permits for development, the County of Los Angeles shall ensure that a Soil Management Plan is prepared for the project site and that the Office of Statewide Health Planning and Development reviews the grading plans to ensure that the construction contractor is required to stop work and notify the Certified Unified Program Agency of the unanticipated encounter of underground storage tanks during grading activities. In the event that any leaking underground storage tanks are located or encountered, the County of Los Angeles Department of Public Works shall be notified and the underground storage tank shall be remediated in accordance with County of Los Angeles guidelines and consistent with specifications of the Department of Toxic Substances Control and other relevant standards. The County of Los Angeles Fire Department Health Hazardous Materials Division shall be notified of all other contaminated soils encountered during construction-related site activities. ***Measure Hazards-4*** To avoid exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the project, the County of Los Angeles shall require that the construction contractor store, use, and transport all hazardous materials in compliance with all relevant regulations and guidelines. The routine transport of hazardous materials to and from the Martin Luther King, Jr. Medical Center Campus during construction and operation of the elements of the project shall be accomplished via Wilmington Avenue, Compton Avenue, and 119th Street. Compliance shall be determined by monitoring by regulatory agencies. Transport, storage, and handling of construction-related hazardous materials shall be consistent with the guidelines provided by the California Department of Transportation, Los Angeles Regional Water Quality Control Board, the South Coast Air Quality Management District, and the Certified Unified Program Agency. Each agency shall regulate and enforce, through permitting and record keeping, the monitoring and enforcement of this mitigation measure. ***Measure Hazards-5*** At least 30 days prior to approval of Tier I final plans and specifications for development, the Office of Statewide Health Planning and Development shall review and provide comments on the plans and specifications to ensure compliance with all requirements of the Department of Toxic Substances Control and in order to verify that the site remains unlisted on the Hazardous Materials and Substance Sites List maintained by the California Environmental Protection Agency, Department of Toxic Substances Control. **Tier II**	
Implementation of Tier II of the proposed project would be expected to result in significant impacts to hazards and hazardous materials in relation to the release of hazardous materials into the environment and hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste, to existing or proposed schools located within one-quarter mile of the project site, and Government Code Section 65962.5.	***Measure Hazards-1*** To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law. ***Measure Hazards-2*** To avoid exposure to asbestos-containing materials and lead-based paints during demolition, construction, and remediation activities, the County of Los Angeles and the Office of Statewide Health Planning and Development shall require that all such materials and wastes be identified and an Operations and Maintenance Plan developed prior to the issuance of demolition permits for each structure constructed prior to 1979. The Operations and Maintenance Plan shall ensure compliance with all applicable federal, state, and local requirements and specify all work to be done, including lead and asbestos surveys of structures to be demolished, proper handling and storage of lubricants and fuels for construction	Implementation of mitigation measure Hazards-1 and Hazards-2 for Tier II would reduce significant impacts related to the exposure of hazards and hazardous materials to below the level of significance. Implementation of mitigation measure Hazards-3 for Tier II would reduce significant impacts related to UST below the level of significance. Implementation of mitigation measure Hazards-4 for Tier II would reduce significant impacts related to exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the proposed project to below the level of significance. Implementation of mitigation measure Hazards-5 for Tier II would reduce significant impacts related to hazards and hazardous materials below the level of significance.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	equipment, and methods for remediation of asbestos-containing materials and lead-based paints, if necessary. The Operations and Maintenance Plan shall be submitted to the County of Los Angeles Department of Health Services for review and approval prior to initiation of construction and demolition activities for the MACC building, emergency room, storage building or the cooling towers. The Operations and Maintenance Plan shall, as appropriate and necessary, conform to the requirements of the Los Angeles County Department of Health Services (Local Enforcement Agency), South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, and the Department of Toxic Substances Control. Compliance with the Operations and Maintenance Plan shall be monitored by the County of Los Angeles Regional Planning Department throughout construction and demolition. To reduce impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. These agencies shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law. ***Measure Hazards-3*** Prior to the issuance of grading permits for development, the County of Los Angeles shall ensure that a Soil Management Plan is prepared for the project site and that the Office of Statewide Health Planning and Development reviews the grading plans to ensure that the construction contractor is required to stop work and notify the Certified Unified Program Agency of the unanticipated encounter of underground storage tanks during grading activities. In the event that any leaking underground storage tanks are located or encountered, the County of Los Angeles Department of Public Works shall be notified and the underground storage tank shall be remediated in accordance with County of Los Angeles guidelines and consistent with specifications of the Department of Toxic Substances Control and other relevant standards. The County of Los Angeles Fire Department Health Hazardous Materials Division shall be notified of all other contaminated soils encountered during construction-related site activities. ***Measure Hazards-4*** To avoid exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the project, the County of Los Angeles shall require that the construction contractor store, use, and transport all hazardous materials in compliance with all relevant regulations and guidelines. The routine transport of hazardous materials to and from the Martin Luther King, Jr. Medical Center Campus during construction and operation of the elements of the project shall be accomplished via Wilmington Avenue, Compton Avenue, and 119th Street. Compliance shall be determined by monitoring by regulatory agencies. Transport, storage, and handling of construction-related hazardous materials shall be consistent with the guidelines provided by the California Department of Transportation, Los Angeles Regional Water Quality Control Board, the South Coast Air Quality Management District, and the Certified Unified Program Agency. Each agency shall regulate and enforce, through permitting and record keeping, the monitoring and enforcement of this mitigation measure. ***Measure Hazards-5*** At least 30 days prior to approval of Tier II final plans and specifications for development, the Office of Statewide Health Planning and Development shall review and provide comments on the plans and specifications to ensure compliance with all requirements of the Department of Toxic Substances Control and in order to verify that the site remains unlisted on the Hazardous Materials and Substance Sites List maintained by the California Environmental Protection Agency, Department of Toxic Substances Control.	

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
Hydrology and Water Quality		
Implementation of Tier I of the proposed project would be expected to result in significant impacts to hydrology and water quality related to water quality standards, waste discharge, runoff water, and degrade water quality during construction and limited operation.	**Tier I** ***Measure Hydrology-1*** The County shall ensure that the construction, landscape features, and site grading for Tier I of the project comply with standard best management practices set forth by the Regional Water Quality Control Board. Prior to final plans and specifications for all elements of the project, the County of Los Angeles shall review the plans and specifications for all elements to ensure that the plans and specifications require the construction contractor to prepare a Standard Urban Stormwater Mitigation Plan for construction activities and implement best management practices for construction, materials, and waste handling activities, which will include, but not be limited to: • Scheduling excavation, grading, and paving activities for dry weather periods. • Controlling the amount of runoff crossing the construction site by means of berms and drainage ditches to divert water flow around the site. • Identifying potential pollution sources from materials and wastes that will be used, stored, or disposed of on the site. • Informing contractors and subcontractors about the clean storm water requirements and enforce their responsibilities in pollution prevention through a contractual agreement • Sweeping the streets surrounding the proposed project site daily and trash removal throughout the construction of the project to avoid degradation of water quality. ***Measure Hydrology-2*** The construction contractor shall incorporate Standard Urban Stormwater Mitigation Plan requirements and best management practices to mitigate storm water runoff, which include the following: • The incorporation of bio-retention facilities located within the project area • The incorporation of catch basin filtration systems • The use of porous pavements to reduce runoff volume ***Measure Hydrology-3*** In the event that groundwater is encountered during Tier I construction, the County of Los Angeles shall require the construction contractor complete the dewatering operations in accordance with the established National Pollution Discharge Elimination System permit requirements. ***Measure Hazards-1*** To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.	Implementation of mitigation measures Hydrology-1 through Hydrology-3, in addition to Hazards-1, would reduce significant hydrology and water quality impacts related to construction-related water quality to below the level of significance.
Implementation of Tier II of the proposed project would be expected to result in significant	**Tier II** ***Measure Hydrology-1*** The County shall ensure that the construction, landscape features, and site grading for Tier II of the project comply with standard best management practices set forth by the Regional Water Quality Control Board. Prior to final plans and specifications for all elements of the project, the County of	Implementation of mitigation measures Hydrology-1 through Hydrology-4, in addition to Hazards-1, would reduce significant hydrology and water quality impacts related to construction- and operation-related water quality to below the level of significance.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
impacts to hydrology and water quality related to water quality standards, waste discharge, runoff water, and degrade water quality during construction and operation.	Los Angeles shall review the plans and specifications for all elements to ensure that the plans and specifications require the construction contractor to prepare a Standard Urban Stormwater Mitigation Plan for construction activities and implement best management practices for construction, materials, and waste handling activities, which will include, but not be limited to: • Scheduling excavation, grading, and paving activities for dry weather periods. • Controlling the amount of runoff crossing the construction site by means of berms and drainage ditches to divert water flow around the site. • Identifying potential pollution sources from materials and wastes that will be used, stored, or disposed of on the site. • Informing contractors and subcontractors about the clean storm water requirements and enforce their responsibilities in pollution prevention through a contractual agreement • Sweeping the streets surrounding the proposed project site daily and trash removal throughout the construction of the project to avoid degradation of water quality. ***Measure Hydrology-2*** The construction contractor shall incorporate Standard Urban Stormwater Mitigation Plan requirements and best management practices to mitigate storm water runoff, which include the following: • The incorporation of bio-retention facilities located within the project area • The incorporation of catch basin filtration systems • The use of porous pavements to reduce runoff volume ***Measure Hydrology-3*** In the event that groundwater is encountered during Tier I construction, the County of Los Angeles shall require the construction contractor to complete the dewatering operations in accordance with the established National Pollution Discharge Elimination System permit requirements. ***Measure Hydrology-4*** To ensure that operational impacts associated with Tier II remain below the level of significance, the County of Los Angeles shall require that best management practices and sustainable practices, such as regularly removing vegetation and debris from curbs, catch basins, and outlets; limiting the amount of pesticides and fertilizers used in landscaping, and other best management practice as recommended by the Environmental Protection Agency or in the California Stormwater Best Management Practice Handbooks as ongoing maintenance measures, are implemented into a maintenance plan for the campus. ***Measure Hazards-1*** To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.	

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
Noise		
Implementation of Tier I of the proposed project would be expected to result in significant impacts to noise related to groundbourne temporary ambient noise increase during construction, vibration, and mechanical noise during construction.	**Tier I** ***Measure Noise-1*** The County of Los Angeles shall require that the plans and specifications require that construction equipment be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 dB. The height and length of the barriers or curtains shall be determined based on location of construction activity and receptor. Because of the close proximity of the source and receptors, the noise impact would be dependent on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during demolition and construction, and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noises shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall take into account the demolition and equipment mix that would be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels. ***Measure Noise-2*** Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment. ***Measure Noise-3*** The distance at which impact pile driving would not exceed a peak particle velocity of 0.2 inch per second at a residence would be 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving shall be utilized. ***Measure Noise-4*** The County of Los Angeles shall ensure that mechanical noise generated by the project is less than 45 dBA at residences immediately south (approximately 50 feet) of the project. This shall be achieved by implementing one, or a combination of more than one of the following strategies: utilizing quiet mechanical systems; locating mechanical systems away from residences (mechanical systems that produce a noise level of 55 DBA at 50 feet would need to be located a minimum of 160 feet from residences to bring mechanical noise levels below 45 dBA at residences), or utilizing insulating screens to break the line-of-site between the mechanical systems and nearby residences.	The distance from the proposed project site at which impacts to affected residential structures would be below the level of significance is 80 feet. The nearest residential land use is approximately 50 feet south of the proposed project. Implementation of mitigation measures Noise-1 and Noise-2 would reduce construction noise at residential properties to the east and west of the campus to below the level of significance; however, construction noise levels would exceed the 75 dBA permissible level at residences south of the proposed project site that are within 80 feet of the proposed project property. Therefore, noise impacts from construction, while temporary, would remain significant and unavoidable. Implementation of mitigation measure Noise-3 would reduce significant impacts related to potential building damage from vibration during construction to below the level of significance. However, vibration levels would still be perceptible at sensitive receptors; therefore, vibration levels during construction of the proposed project would result in a significant and unavoidable impact. Implementation of mitigation measure Noise-4 would reduce significant impacts related to mechanical noise to below the level of significance.
Implementation of Tier II of the proposed project would be expected to result in significant impacts to noise related to groundbourne temporary ambient noise increase during construction, vibration, and mechanical noise during construction.	**Tier II** ***Measure Noise-1*** The County of Los Angeles shall require that the plans and specifications require that construction equipment be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 dB or to the maximum extent possible. The height and length of the barriers or curtains shall be determined based on the location of the construction activity and receptor. Because of the close proximity of the source and receptors, the noise impact would be dependent on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during	The distance from the proposed project site at which impacts to affected residential structures would be below the level of significance is 80 feet. The nearest residential land use is approximately 50 feet south of the proposed project. Implementation of mitigation measures Noise-1 and Noise-2 would reduce construction noise at residential properties to the east and west of the campus to below the level of significance; however, construction noise levels would exceed the 75 dBA permissible level at residences south of the proposed project site that are within 80 feet of the proposed project property. Therefore, noise impacts from construction, while temporary, would remain significant and unavoidable.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	demolition and construction, and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noises shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall take into account the demolition and equipment mix that would be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels. ***Measure Noise-2*** Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment. ***Measure Noise-3*** The distance at which impact pile driving would not exceed a PPV 0.2 inch per second at a residence would be 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving will not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving will be utilized. ***Measure Noise-4*** The County shall ensure that mechanical noise generated by the project is less than 45 dBA at residences immediately south (approximately 50 feet) of the project. This shall be achieved by implementing one, or a combination of more than one of the following strategies: utilizing quiet mechanical systems; locating mechanical systems away from residences (mechanical systems that produce a noise level of 55 DBA at 50 feet would need to be located a minimum of 160 feet from residences to bring mechanical noise levels below 45 dBA at residences), or utilizing insulating screens to break the line-of-site between the mechanical systems and nearby residences.	Implementation of mitigation measure Noise-3 would reduce significant impacts related to potential building damage from vibration during construction to below the level of significance. However, vibration levels would still be perceptible at sensitive receptors; therefore, vibration levels during construction of the proposed project would result in a significant and unavoidable impact. Implementation of mitigation measure Noise-4 would reduce significant impacts related to mechanical noise to below the level of significance.
Population and Housing		
Tier I The analysis undertaken for this EIR determined that no significant impacts related to population and housing would arise from implementation of the proposed project. Therefore, no mitigation measures are required. **Tier II** The analysis undertaken for this EIR determined that no significant impacts related to population and housing would arise from implementation of the proposed project. Therefore, no mitigation measures are required.		
Public Services		
Tier I The analysis undertaken for this EIR determined that no significant impacts related to public services would arise from implementation of the proposed project. Therefore, no mitigation measures are required. **Tier II** The analysis undertaken for this EIR determined that no significant impacts related to public services would arise from implementation of the proposed project. Therefore, no mitigation measures are required.		
Recreation		
Tier I The analysis undertaken for this EIR determined that no significant impacts related to recreation would arise from implementation of the proposed project. Therefore, no mitigation measures are required. **Tier II** The analysis undertaken for this EIR determined that no significant impacts related to recreation would arise from implementation of the proposed project. Therefore, no mitigation measures are required.		

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
Transportation/Traffic		
Implementation of Tier I of the proposed project would result in significant transportation and traffic impacts related to circulation system and congestion during construction.	**Tier I** ***Measure Traffic-1*** To reduce the traffic-related construction impacts, the County of Los Angeles shall require the construction contractor to provide a Construction Traffic Management Plan, to be prepared in accordance with the California Department of Transportation's Construction Manual and Manual on Uniform Traffic Control Devices. The Construction Traffic Management Plan shall at the minimum include: • Timing of deliveries of heavy equipment and building materials; • Directing construction traffic with a flag person; • Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic; • Identifying if improvements to the intersection of 120th Street, Wilmington Avenue, or Compton Avenue are necessary to accommodate the turning radii needed by large trucks accessing site; • Identifying multiple alternate ingress/egress access point for the circulation of traffic and emergency response vehicles; • Determining the need for construction work hours and arrival/departure times outside peak traffic periods; • Ensuring access for emergency vehicles to the project site; • Temporary closure of travel lanes or disruptions to street segments and intersections during materials delivery, transmission line stringing activities, or any other utility connections; • Maintaining access to adjacent property; • Specifying both construction-related vehicle travel and oversize load haul routes, minimizing construction traffic during the AM and PM peak hour, distributing construction traffic flow across alternative routes to access the proposed project site, and avoiding residential neighborhoods to the maximum extent feasible; and • Identifying vehicle safety procedures for entering and exiting site access roads.	Implementation of the mitigation measures Traffic-1 would reduce impacts generated during the construction of Tier I. Therefore, impacts from Tier I would be less than significant.
Implementation of Tier II of the proposed project would result in significant transportation and traffic impacts related to circulation system and congestion during construction, operation, and cumulatively.	**Tier II** ***Measure Traffic-1*** To reduce the traffic-related construction impacts, the County of Los Angeles shall require the construction contractor to provide a Construction Traffic Management Plan that is prepared in accordance with the California Department of Transportation's Construction Manual and Manual on Uniform Traffic Control Devices. The Construction Traffic Management Plan shall at the minimum include: • Timing of deliveries of heavy equipment and building materials; • Directing construction traffic with a flag person; • Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic; • Identifying if improvements to the intersection of 120th Street, Wilmington Avenue, or Compton Avenue are necessary to accommodate the turning radii needed by large trucks accessing site; • Identifying multiple alternate ingress/egress access point for the circulation of traffic and emergency response vehicles; • Determining the need for construction work hours and arrival/departure times outside peak traffic periods; • Ensuring access for emergency vehicles to the project site; • Temporary closure of travel lanes or disruptions to street segments and intersections during materials delivery, transmission line stringing activities, or any other utility connections; • Maintaining access to adjacent property;	Implementation of the mitigation measures Traffic-1 through Traffic-3 would reduce construction-related Tier II and construction and operational Tier II project impacts and cumulative project impacts to below the level of significance.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	• Specification of both construction-related vehicle travel and oversize load haul routes, the minimization of construction traffic during the AM and PM peak hour, distributing construction traffic flow across alternative routes to access the proposed project site, and avoiding residential neighborhoods to the maximum extent feasible; and • Identification of vehicle safety procedures for entering and exiting site access roads. ***Measure Traffic-2*** In order to address the Tier II project impacts, the County of Los Angeles shall complete the following improvements: • Compton Avenue/Imperial Highway – County of Los Angeles / City of Los Angeles: Re-stripe westbound approach to provide a separate right-turn lane. • I-105 / Imperial Highway: Provide a third northbound, left-turn lane by widening off-ramp by 10 feet for approximately 150 to 200 feet. • Wilmington Avenue / El Segundo Boulevard: Re-stripe eastbound and westbound approaches to have separate right-turn lanes. Allow buses to go through the intersection from the right-turn lanes. • Central Avenue / 120th Street: Re-stripe northbound approach to provide a separate right-turn lane. Also, widen the east leg by 3 feet on each curbside (i.e., reduce sidewalk along 120th Street east of Central Avenue by 3 feet for approximately 120 feet and re-stripe westbound 120th Street approach to provide a left-turn, two through lanes and a separate right-turn lane. • Wilmington Avenue / I-105 Eastbound Ramps – County of Los Angeles / California Department of Transportation: Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach would have a left-turn lane, shared left-right turn lane, and a separate right-turn lane. The sidewalks on either side of Wilmington Avenue (as noted above) would be reduced by 2 feet and the Wilmington Avenue roadway would be widened by 2 feet on either side (a total of 4 feet) from the south leg of this intersection. Provide an additional northbound left-turn lane by widening (reducing the medians). The northbound approach would have dual left-turn lanes and three through lanes. • Wilmington Avenue/118th Street – County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on either side and re-stripe to provide two through lanes, a shared through right-turn lane and dual left-turn lanes along the southbound approach. Re-stripe the westbound approach to provide a separate right-turn land and a share left-through lane. Northbound approach would have the same lane geometry as existing conditions. Under cumulative conditions, widen 118th Street roadway by 4 feet and re-stripe to provide a separate right-turn lane and shared left-through lane along the eastbound approach. • Wilmington Avenue / 120th Street-119th Street – County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on either side and re-stripe the southbound approach to provide a separate right-turn lane, three through lanes, and a left-turn lane. Re-stripe northbound approach to provide a shared through-right turn lane, two through lanes, and a left-turn lane. Remove median adjacent to northbound approach to facilitate three southbound receiving lanes. Restrict parking along Wilmington Avenue roadway during morning and evening peak periods along the eastside of Wilmington between 120th Street and Martin Luther King, Jr. Hospital Driveway entrance. Widen 120th Street west of Wilmington Avenue for 250 feet, on the south side by 2 feet, and re-stripe the eastbound approach to provide a separate right-turn lane, dual left-turn lanes, and a through lane. The westbound approach of 119th Street would have the same lane geometry as existing conditions. • Wilmington Avenue / Martin Luther King, Jr. Hospital Entrance-120th Street – County of Los Angeles: Re-stripe southbound approach to provide a separate right-turn lane, two through lanes, and a left-turn lane. Provide three northbound receiving lanes and restrict on-street curb parking along the eastside of Wilmington Avenue between Martin Luther King, Jr. Hospital Driveway and 120th Street and 120th Street and 119th Street during morning and evening peak hours.	

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
	Remove the median within the hospital entrance and re-stripe the driveway to provide dual left-turn lanes, a through lane, and a separate right-turn lane along the eastbound approach. Re-stripe to provide one receiving lane. The appropriate conceptual signing and striping plans shall be submitted to the County of Los Angeles Department of Public Works, Traffic and Lighting Division for review and approval during the planning phase. ***Measure Traffic-3*** In order to address the Tier II cumulative projects impacts, using County of Los Angeles traffic study guidelines, the following mitigation measures shall be implemented to alleviate the cumulative significant impacts: • Avalon Boulevard/El Segundo Boulevard—County of Los Angeles: Widen northbound approach by 2 feet and re-stripe the approach to provide a left turn lane, two through lanes, and a separate right-turn lane (10 feet, 10 feet, 10 feet, 12 feet). The approach could be widened by narrowing the 5-foot-wide median to a 3-foot-wide median, or by reducing the 12-foot-wide sidewalk to a 10-foot-wide sidewalk. This widening would need to occur all the way to an alley located approximately 100 feet south of the intersection. The bus stop at this approach would continue to be located at the same location; however, buses would be allowed to go straight through the intersection. • Alameda Street/El Segundo Boulevard—County of Los Angeles/Compton: Re-stripe northbound/southbound approaches and provide a southbound right-turn lane. The lanes along the north leg would be re-striped to provide 13-foot and 11-foot receiving lanes; 10-foot, 11-foot, 10-foot, and 12-foot approach lanes for southbound right, both southbound turns, and southbound right lanes, respectively. The lanes along the south leg would have a 13-foot shared right through-way, 11-foot through lane, 10-foot left-turn lane, 12-foot receiving lane, and a 20-foot receiving lane. Remove two on-street parking spaces along the southbound approach during peak hours. • Alameda Street/103rd Street—County of Los Angeles/Lynwood: Re-stripe eastbound approach to provide a 10-foot, left-turn lane and a 12-foot, left-right shared lane. The receiving lane would be re-striped for 18.5 feet. • Central Avenue/Rosecrans Avenue—County of Los Angeles/Compton: Re-stripe westbound approach to provide a separate right-turn lane. Allow buses to go through the intersection from the right-turn lane. • Central Avenue/El Segundo Boulevard—County of Los Angeles/Compton: Re-stripe southbound approach to provide a separate right-turn lane. Widen northbound approach by reducing median by 1 foot to 2 foot. Provide re-striping to show a separate northbound right-turn lane. Allow buses to go through the intersection from the right-turn lane. • Alameda Street/Imperial Highway—County of Los Angeles/City of Lynwood: Re-stripe southbound approach to provide the following roadway geometry: dual left-turn lanes, a through lane, a shared through-right turn lane, and a separate right-turn lane. The appropriate conceptual signing and striping plans shall be submitted to the County of Los Angeles Department of Public Works, Traffic and Lighting Division for review and approval during the planning phase.	
Utilities and Service Systems		
Tier I The analysis undertaken for this EIR determined that no significant impacts related to recreation would arise from implementation of the proposed project. Therefore, no mitigation measures are required.		
Implementation of Tier II of the proposed project would be expected to result in significant impacts to utilities and	**Tier II** ***Measure Utilities-1*** Prior to issuance of the permits to connect to the sewer system, the County of Los Angeles shall ensure payment of the connection fee for the capital facilities has been submitted to the appropriate Sanitation Districts of Los Angeles County for compliance with the California Health and Safety Code.	Implementation of mitigation measures Utilities-1 and Utilities-2 would reduce impacts to utilities and service systems related to wastewater treatment and solid waste to below the level of significance.

TABLE ES.4-1
SUMMARY OF SIGNIFICANT IMPACTS, Continued

Impact	Mitigation Measure	Level of Significance After Mitigation
services systems related to wastewater treatment requirements and solid waste compliance.	***Measure Utilities-2*** The County of Los Angeles shall review the plans and specifications for the proposed project and the parking facilities to ensure that adequate service areas are provided for trash and recycling receptacles for compliance with applicable federal, state, and local statutes related to solid waste, and to reduce direct and cumulative impacts from project operation and maintenance to below the level of significance. Prior to advertising for construction bids for the new building, the County of Los Angeles shall ensure that the plans and specifications designating locations for trash receptacles and recycling receptacles are in conformance with the California Solid Waste Reuse and Recycling Access Act of 1991. Wherever trash receptacles are provided throughout the project site, a recycling receptacle for plastic, aluminum, and metal shall also be provided. Signs encouraging patrons to recycle shall be posted near each recycling receptacle. To ensure conformance with the Solid Waste Management Act of 1989, the County of Los Angeles shall require the construction contractor to manage the solid waste generated during construction of each element of the project by diverting at least 50 percent of solid waste from disposal in landfills, particularly Class III landfills, through source reduction, reuse, and recycling of construction and demolition debris. The construction contractor shall submit a construction solid waste management plan to the County of Los Angeles for approval prior to initiation of demolition activities. The construction contractor shall demonstrate compliance with the solid waste management plan through the submission of monthly reports during construction and demolition activities that estimate total solid waste generated and diversion of 50 percent of the solid waste.	

ES.5 PROJECT ALTERNATIVES

As a result of the project formulation process, the County of Los Angeles (County) explored alternatives to the proposed project to assess their ability to meet most of the objectives of the project and reduce significant effects of the proposed project. Alternative projects recommended by the scoping process were evaluated as related to the project objectives and their ability to reduce significant impacts as described in Section 4.0 of this EIR. The No Project Alternative that is required under CEQA, as well as five other alternatives, have been carried forward for detailed analysis in this EIR:

- No Project Alternative
- Alternative 1: Reduced Project Size Alternative (900,000 square foot Tier II)
- Alternative 2: Re-opening the Existing MACC Alternative
- Alternative 3: Public Transportation Focused Alternative
- Alternative 4: 500 beds (in Tier I) Alternative
- Alternative 5: No Tier II Alternative

The No Project Alternative was determined to be the environmentally superior alternative. Following the No Project Alternative, the Re-opening the Existing MACC Alternative is the environmentally superior alternative. These alternatives are described and analyzed in Section 4.0, *Alternatives to the Proposed Project*, of this EIR.

SECTION 1.0
INTRODUCTION

This Environmental Impact Report (EIR) has been prepared by the County of Los Angeles (County) to assess the environmental consequences of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project). The County is the lead agency for the proposed project pursuant to the California Environmental Quality Act (CEQA). The proposed project entails two tiers of redevelopment.

Tier I involves project-level development of the new Multi-Service Ambulatory Care Center (MACC) Building and the Ancillary Building, tenant improvements in existing buildings, site improvements, and the potential relocation of the Magnetic Resonance Imaging (MRI) Building. The MRI would be relocated to the tech dock behind the new MACC Building. Tier I would also entail site improvements and tenant improvements to the following existing buildings: the North Support Building, South Support Building, and Plant Management Building.

Tier II of the proposed project would entail the reuse or replacement of the existing MACC Building (which will be vacant following construction of the new MACC Building in Tier I) and demolition of the following: Emergency Room, Storage Building, and Cooling Towers. Tier II construction would entail additional master-planned mixed-use development, which may include the potential for medical offices, general offices, commercial and retail space, residential units, recreational areas, and other development in support of the campus. The maximum programmed development for Tier II is currently estimated at approximately 1,814,696 square feet.

The Tier II components of the proposed project are conceptual at this time, and have therefore been discussed in a programmatic level in the EIR, as permitted under §15168 of State CEQA Guidelines. Once the detailed future development plans for Tier II components are known, consistent with the guidelines for programmatic EIRs under CEQA, the projects will be examined in light of the program EIR analysis, to determine whether additional environmental document(s) must be prepared.

As such, this EIR provides a dual-level analysis for the proposed project. A project-level analysis will be prepared for Tier I, and a program-level analysis will be prepared for Tier II.

1.1 PURPOSE AND SCOPE OF ENVIRONMENTAL IMPACT REPORT

The County has prepared this EIR to support the fulfillment of the six major goals of CEQA:

- Disclose to the decision makers and the public significant environmental effects of the proposed activities
- Identify ways to avoid or reduce environmental damage
- Prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures
- Disclose to the public reasons for agency approvals of projects with significant environmental effects
- Foster interagency coordination in the review of projects
- Enhance public participation in the planning process

Although the EIR neither controls nor anticipates the ultimate decision on the proposed project, the County (and other agencies that rely on this EIR) must consider the information in the EIR and make findings concerning each potentially significant impact identified.

1.1.1 Intent of CEQA

As provided in the State CEQA Guidelines (*California Code of Regulations*, Section 15000 et seq.), public agencies are charged with the duty to avoid or minimize environmental damage where feasible. In discharging this duty, the County has an obligation to balance a variety of public objectives, including economic, environmental, and social issues (Section 15021 of the State CEQA Guidelines). The findings and conclusions of the EIR regarding environmental impacts do not control the County of Los Angeles Board of Supervisors' discretion to approve, deny, or modify the project but, instead, are presented as information intended to aid the decision-making process. Sections 15122 through 15132 of the State CEQA Guidelines describe the required content of an EIR: a description of the project and the environmental setting (existing conditions), an environmental impact analysis, mitigation measures, alternatives, significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts. As a combined project-level and program-level EIR, this document primarily focuses on the changes in the environment that would result from construction and operation of the proposed project. The County of Los Angeles Board of Supervisors is required to consider the information in the EIR, along with any other relevant information, in making final decisions on the proposed project (Section 15121 of the State CEQA Guidelines).

1.1.2 Environmental Review Process

A Notice of Preparation (NOP) concerning the EIR for the proposed project was circulated for a 30-day review period that began on March 8, 2010, and closed on April 6, 2010. An Initial Study was prepared to focus the environmental topic areas to be analyzed in the EIR. Copies of the NOP and the comment letters submitted in response to the Initial Study are included in this document (Appendix A, *Initial Study, Scoping Meeting Comments, and Comment Letters*). The Initial Study prepared for the proposed project identified the contents of the EIR, based on environmental issue areas anticipated to be potentially subject to significant impacts.

The NOP and Initial Study were sent to the State Clearinghouse on March 5, 2010, and distributed to 31 federal, state, regional, and local agencies. A public Notice of Availability (NOA) of the NOP was provided in two local newspapers: *L.A. Watts Times* newspaper on March 11, 2010, and *La Opinión* newspaper on March 8, 2010. The NOA, which noted the completion of the NOP and Initial Study, was mailed directly to more than 209 interested parties and to 1,276 property owners and resident within a 0.25-mile radius of the proposed project site. The NOP and Initial Study document were available for review and posted at the Martin Luther King, Jr. Medical Center and the Willowboork Library, located east of the proposed project site at 11838 South Wilmington Avenue, City of Los Angeles, California. The NOA of the NOP and Initial Study was also posted on the Web site of the Second Supervisorial District, at: http://ridley-thomas.lacounty.gov/blog/?cat=189.

Both the NOA and NOP advertised a public scoping meeting for interested parties to receive information on the proposed project and the CEQA process, as well as providing an opportunity for the submittal of comments. The scoping meeting facilitated early consultation with interested parties in compliance with Section 15082 of the State CEQA Guidelines. The meeting was held on Wednesday, March 24, 2010, at 6:00 p.m. at the Ted Watkins Memorial Park Gymnasium, located at 1335 East 103rd Street, City of Los Angeles, California. More than 67 individuals attended the scoping meeting. Approximately 48 comments were collected at this meeting (Appendix A). The County requested information from the public related to the proposed project under consideration, alternatives, mitigation measures, and significant effects to be analyzed in depth in the EIR. All verbal and written comments related to environmental issues that were provided during public review of the NOP and at scoping meetings have been taken into consideration in the preparation of this EIR. This EIR considers alternatives that are capable of avoiding or reducing significant effects of the project. The comment period on the NOP and Initial Study closed on Tuesday, April 6, 2010. Eight comment letters were received in response to the NOP and Initial Study (Appendix A), comprising six letters from agencies and two letters from individuals. Responses to these comments have been incorporated into the body of this EIR (Table 1.1.2-1, *Initial Study Comment Matrix*).

TABLE 1.1.2-1
INITIAL STUDY COMMENT MATRIX

Comment No.	Agency / Affiliation	Response Location in EIR
1	California Department of Transportation (Caltrans)	Responses to this letter were incorporated into Section 3.12, *Transportation and Traffic*, and Appendix H, *Traffic Impact Analysis*.
2	County of Los Angeles Department of Public Works, Traffic and Lighting Division	Responses to this letter were incorporated into Section 3.12, *Transportation and Traffic*, and Appendix H, *Traffic Impact Analysis*.
3	County of Los Angeles, Sheriff's Department	Responses to this letter were incorporated into Section 3.9, *Population and Housing*, and Section 3.10, *Public Services*.
4	Metropolitan Transportation Authority (MTA; Metro)	Responses to this letter were incorporated into Section 3.12, *Transportation and Traffic*, and Appendix H, *Traffic Impact Analysis*.
5	Native American Heritage Commission	Responses to this letter were incorporated into Section 3.3, *Cultural Resources*, and Appendix E, *Cultural Resources Technical Report*.
6	South Coast Air Quality Management District (SCAQMD)	Responses to this letter were incorporated into Section 3.2, *Air Quality*; Section 3.5, *Greenhouse Gas Emissions*; and Appendix C, *Air Quality and Greenhouse Gas Emissions Technical Impact Report*.
7	BuildTheDream.org	Responses to this letter were incorporated into Section 3.3, *Cultural Resources*, and Appendix E, *Cultural Resources Technical Report*.
8	Sanitation Districts of Los Angeles County, Facilities Planning Department, Will Serve Program	Responses to this letter were transmitted to the Sanitation Districts of Los Angeles County and incorporated into Section 2.0, *Project Description*.
*	Scoping Meeting Comments	Responses to these comments were incorporated throughout the EIR.

The County determined that the proposed project may have a significant effect on the environment and that the preparation of an EIR would be required. As a result of the analysis undertaken in the Initial Study, it was determined that the proposed project would not be expected to result in impacts to agriculture and forest resources, biological resources, mineral resources, and land use and planning.[1] Those issue areas will receive no further analysis. However, the analysis in the Initial Study concluded that the proposed project has the potential to result in significant impacts related to 13 environmental topics, which are the subject of the detailed evaluation undertaken in this EIR:

- Aesthetics
- Air Quality
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation and Traffic
- Utilities and Service Systems

This Draft EIR has been distributed to various federal, state, regional, and local government agencies and interested organizations and individuals for a 45-day public review period. This Draft EIR was provided to the State Clearinghouse on August 30, 2010, for additional distribution to agencies. In addition, a public NOA of the EIR will appear in two local newspapers, *L.A. Watts Times* and *La Opinión*, and will be mailed directly to interested parties requesting the document (in either electronic or hard copy format). The dates of the public review period are Tuesday August 31, 2010, to Friday October 15, 2010, a period of 45 days. In addition, copies of this Draft EIR are available during the public review period at the following library:

Willowbrook Library
Ms. Alice Tang
Community Library Manager
11838 South Wilmington Avenue
Los Angeles, California 90059
Telephone number: (323) 564-5698
Hours of operation: Monday – 10:00 a.m. to 6:00 p.m.
Tuesday – 12:00 p.m. to 8:00 p.m.
Wednesday – 10:00 a.m. to 6:00 p.m.
Thursday –- 10:00 a.m. to 6:00 p.m.
Friday – 11:00 a.m. to 5:00 p.m.
Saturday – 11:00 a.m. to 5:00 p.m.
Sunday – Closed

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*. Prepared by: Sapphos Environmental, Inc. Pasadena, CA.

The Draft EIR will also be available for review at the following location:

Martin Luther King, Jr. Multi-service Ambulatory Care Center
Administration Office
Elaine Saafir or Cynthia Moore-Oliver
12021 South Wilmington Avenue
Los Angeles, CA 90059
Telephone number: (310) 668-5201
Hours of operation: Monday–Friday 8:00 a.m. to 4:30 p.m.

Written comments on this Draft EIR should be transmitted during the public review period to the County of Los Angeles, Chief Executive Office, Sabra White, Kenneth Hahn Hall of Administration, 500 West Temple Street, Room 754, Los Angeles, California 90012.

Written comments provided by the general public and public agencies will be evaluated, and written responses will be prepared for all comments received during the designated comment period. Upon completion of the evaluation, a Final EIR will be prepared and provided to the County of Los Angeles Board of Supervisors for certification of compliance with CEQA and for review and consideration as part of the decision-making process for the proposed project.

1.2 ORGANIZATION AND CONTENT

This Draft EIR consists of the following sections:

- **Section ES, Executive Summary,** provides a summary of the existing setting, proposed project, identified significant impacts of the proposed project, and mitigation measures. Those alternatives that were considered to avoid significant effects of the project are identified in the Executive Summary. In addition, the Executive Summary identifies areas of controversy known to the County, including issues raised by agencies and the public. The Executive Summary includes a list of the issues to be resolved, including the choice among alternatives and whether or how to mitigate significant effects of the project.

- **Section 1, Introduction,** provides information related to the purpose and scope of the EIR, environmental review process, and the organization and content of the EIR.

- **Section 2, Project Description,** provides the location and boundaries of the proposed project, statement of objectives, a description of the technical, economic, and environmental characteristics of the project, considering the principal engineering proposals and supporting public service facilities. The project description identifies the intended uses of the EIR, including the list of agencies that are expected to use the EIR in their respective decision-making processes, a list of the related discretionary actions (permits and approvals) required to implement the proposed project, and a list of any related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies. The project description lists the related projects that were considered in the evaluation of the proposed project.

- **Section 3, Existing Conditions, Significance Thresholds, Impacts, Mitigation Measures, and Level of Significance after Mitigation,** describes existing conditions found at the project site and the surrounding area; lists the thresholds used to assess the potential for the proposed project to result in significant impacts; evaluates the potential impacts on environmental resources that may be generated by the proposed project, including the cumulative impacts of the proposed project in conjunction with other related projects in the area; identifies available mitigation measures to reduce significant impacts; and assesses the effectiveness of proposed measures to reduce identified impacts to below the level of significance. This portion of the EIR is organized by the applicable environmental topics resulting from the analysis undertaken in the Initial Study.

- **Section 4, Alternatives to the Proposed Project,** describes a range of reasonable alternatives to the proposed project or to the location of the proposed project. CEQA requires that the EIR explore feasible alternatives that would avoid or substantially lessen any of the significant effects of the proposed project. To be feasible, an alternative must be capable of attaining most of the basic objectives of the proposed project. CEQA requires an evaluation of the comparative impacts of the proposed project, action alternatives to the proposed project, and the no-project alternative.

- **Section 5, Significant Environmental Effects that Cannot be Avoided if the Proposed Project Is Implemented,** summarizes the significant effects of the proposed project.

- **Section 6, Significant Irreversible Environmental Changes,** evaluates potential uses of nonrenewable resources and potential irreversible changes that may occur during the course of the proposed project.

- **Section 7, Growth-Inducing Impacts,** evaluates the potential for the proposed project to foster economic growth or population growth, either directly or indirectly, in the surrounding environment.

- **Section 8, Organizations and Persons Consulted,** provides a list of all governmental agencies, community groups, and other organizations consulted during the preparation of this EIR.

- **Section 9, Report Preparation Personnel,** provides a list of all personnel that provided technical input to this EIR.

- **Section 10, References,** lists all sources, communications, and correspondence used in the preparation of this EIR.

- **Section 11, Distribution List,** provides a distribution list of agencies and libraries receiving this Draft EIR that was made available for a 45-day public review period.

SECTION 2.0
PROJECT DESCRIPTION

Consistent with the requirements of §15124 of the State California Environmental Quality Act Guidelines (State CEQA Guidelines), the project description of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) includes the precise location and boundaries of the proposed project; a brief characterization of the existing conditions at the proposed project site; a statement of objectives for the proposed project; a general delineation of the proposed project's technical, economic, and environmental characteristics; and a statement describing the intended uses of the Environmental Impact Report (EIR).

2.1 PROPOSED PROJECT LOCATION

The proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) site is located on the existing 38-acre Martin Luther King, Jr. Medical Center Campus, at 12021 Wilmington Avenue in the unincorporated area of Willowbrook, County of Los Angeles (County), California (Figure 2.1-1, *Project Location Map*).

The proposed project site is located approximately 3 miles north of State Route 91 (SR-91; Artesia Freeway), approximately 3 miles northeast of Interstate 710 (I-710; Long Beach Freeway), approximately 2 miles east of I-110 (Harbor Freeway), less than 1 mile south of East Imperial Highway, and less than 1 mile south of I-105 (Glen Anderson Freeway) (Figure 2.1-2, *Regional Vicinity Map*). The proposed project site can be accessed from East 120th Street or from Wilmington Avenue.

The proposed project site is bounded on the north by East 120th Street, on the east by Wilmington Avenue, on the south by a narrow alley separating the proposed project site from the residential neighborhood that is largely located north of East 122nd Street, and on the west by Compton Avenue of Los Angeles. The proposed project site is less than 1 mile north of the City of Compton. The proposed project site is also less than 1 mile south of the City of Los Angeles (Figure 2.1-3, *Local Vicinity Map*). The proposed project is also located less than 1 mile west of the City of Lynwood.

The proposed project site appears on the U.S. Geological Survey (USGS) 7.5-minute series South Gate topographic quadrangle (Figure 2.1-4, *Topographic Map*).[1] Elevations at the proposed project site range from 86 feet above mean sea level (MSL) to 88 feet above MSL.[2] The topography of the site can be generally characterized as flat.

2.2 BACKGROUND AND EXISTING CONDITIONS

2.2.1 Background

The Martin Luther King, Jr. Medical Center Campus began operations in 1972. The Martin Luther King, Jr. Medical Center Campus was developed to address a need for local community services in

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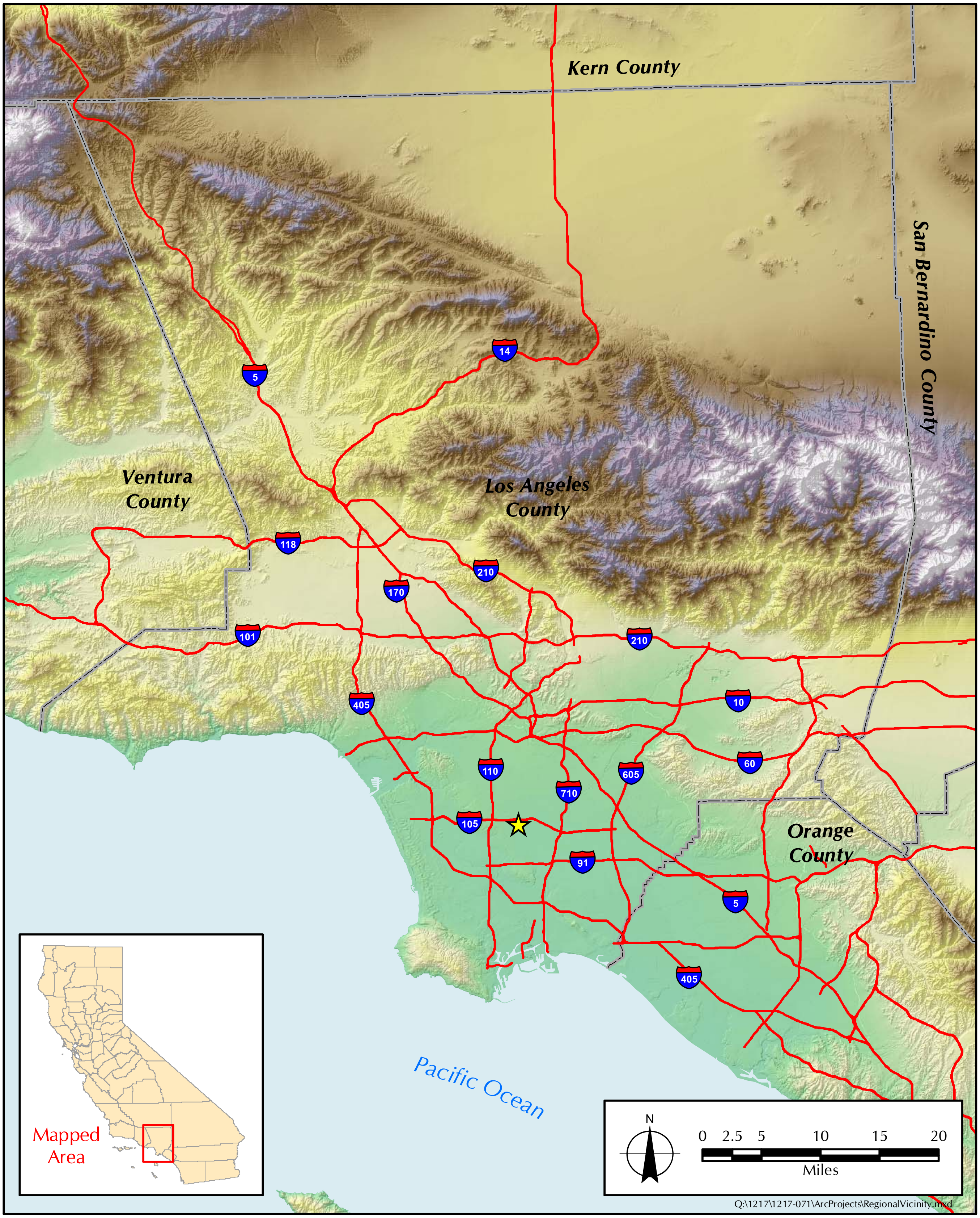
[1] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[2] Sapphos Environmental, Inc. 2010. Geographic Information System. Pasadena, CA.

SOURCE: ESRI, SEI

FIGURE 2.1-1

Project Location Map



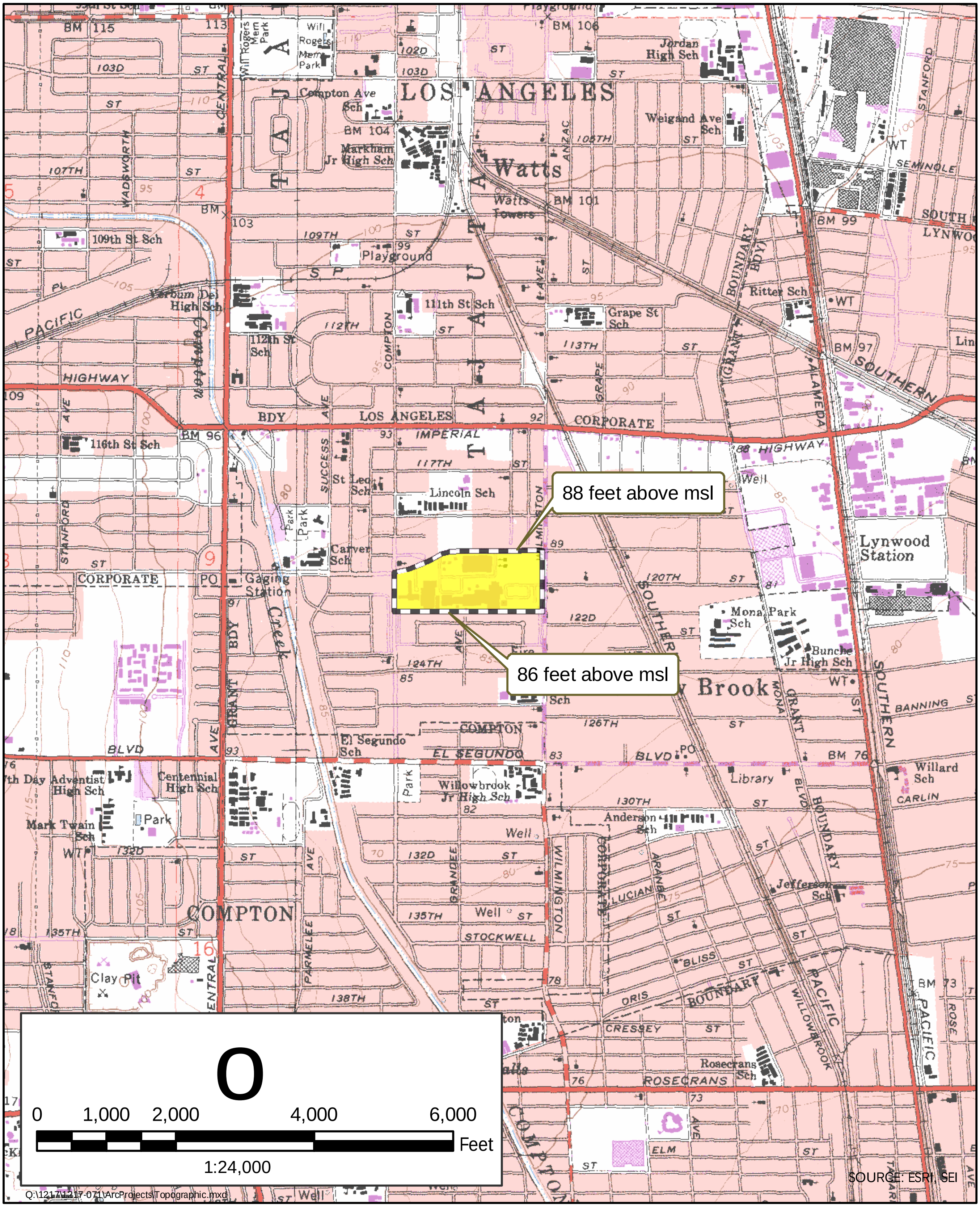
★ Proposed Project Location

FIGURE 2.1-2

Regional Vicinity Map

FIGURE 2.1-3

Local Vicinity Map



▭ Proposed Project Boundary

FIGURE 2.1-4

Topographic Map

South Los Angeles. Following the 1965 Watts Civil Unrest/Riots, a commission appointed by the Governor reported a lack of healthcare access as one of the contributing factors to the unrest.[3]

The hospital was operational from 1972 to August 2007, when the license was suspended for the provision of inpatient services at the Martin Luther King, Jr. Medical Center Campus due to concerns over the quality of service at the hospital. Currently, the existing Martin Luther King, Jr. Medical Center Campus (existing campus) is only partially operational and does not provide inpatient services. However, the proposed project site provides various outpatient and administrative support services. Figure 2.2.1-1, *MLK Timeline of Planning and Environmental Review Process*, identifies key dates related to the construction and operation of the existing campus and the proposed project.

In 2009, the County initiated improvements to the existing campus to provide community-based inpatient hospital functions and support spaces that would be seismically compliant beyond the 2030 seismic standards established by the Office of Statewide Health and Planning Development (OSHPD). These improvements to the existing campus would be an adjacent and ongoing project.

In 2009, a Categorical Exemption was approved by the County Board of Supervisors for minor renovations and improvements to the existing campus. This process allowed the minor renovations and improvements to the campus to be exempt from the CEQA process under Class 1, "Existing Facilities;" Class 2, "Replacement or reconstruction of existing schools and hospitals to provide earthquake resistant structures which do not increase capacity more than 50 percent;" and Class 3, "New Construction or Conversion of Small Facilities;"[4] Categorical Exemption [Sections 15301, 15302, and 15303 of the Guidelines], pursuant to the requirements specified in Section 15300.2 of the State CEQA Guidelines.

The upgrades that will be completed as part of the ongoing CEQA-exempt project on the campus include renovation and improvements of up to 172,591 square feet within the Inpatient Tower to include hospital beds and other hospital functions, including the placement of the Emergency Department (ED) on the first floor of the Inpatient Tower, renovation to the basement and second floor, and build-out of three unused upper floors to accommodate the hospital functions use. In addition, the improvements include necessary renovations within other buildings on the existing campus to accommodate various hospital support functions, hospital administration support, and other outpatient services. Renovations to house the hospital support functions and hospital administration support will be placed in the Pediatric Acute Care, Medical Records and Laundry, North Support, South Support, Central Plant, and Plant Management buildings. Renovations to house the outpatient services will be placed in the existing Multi-Service Ambulatory Care Center (MACC; formerly known as the Main Hospital Building). The Pediatric Acute Care building will be renovated to serve as the hospital entry and lobby area. Finally, a Pneumatic Tube System (PTS) will be installed in the penthouse to the roof of the Inpatient Tower building. The PTS will serve the Inpatient Tower, the new MACC, and Augustus F. Hawkins Comprehensive Mental Health Center buildings. The work described above will operate with the capacity of up to 120 licensed beds; the 120 beds will be located on the first through fifth floors of the Inpatient Tower. These adjacent and ongoing CEQA-exempt improvements to the campus serve as existing conditions and a related project for the proposed project, and are not part of Tier I or Tier II of the proposed project.

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[3] County of Los Angeles. Accessed 9 October 2009. *Los Angeles County Health Services, MLK-MACC*. Available at: http://www.ladhs.org/wps/portal/KingHomepage

[4] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15301–3.

1965 – Watts Civil Unrest
A commission appointed by the Governor Edmund G. "Pat" Brown reports a lack of healthcare access as one of the contributing factors to the Watts Civil Unrest/Riots (also 1965)

1966 – Hospital Program Concept Developed
The Los Angeles County Department of Hospitals established a task force to develop a program concept that would provide a full-service community teaching hospital operated by the County in conjunction with the Drew Medical Society, USC, and UCLA.

1960

1968 – Ground Braking Ceremony
Groundbreaking ceremony for Martin Luther King Jr. General Hospital was held on May 4, 1968.

1968 – Main Hospital Constructed
The building now referred to as the Multiservice Ambulatory Care Center (MACC) Building is constructed on the Martin Luther King, Jr. Medical Center Campus.

1968 – Central Plant Constructed (Phase I).
Phase I of the Central Plant building is constructed on the Martin Luther King, Jr. Medical Center Campus.

1968 – Medical Records and Laundry Constructed
The Medical Records Building is constructed on the Martin Luther King, Jr. Medical Center Campus

1972 – Hospital Begins Operations
Martin Luther King, Jr. Medical Center Campus begins operations. The new hospital accepted its first patients (March 27, 1972)

1970s - Interns and Physicians Constructed
Interns and Physicians Building is constructed on the Martin Luther King, Jr. Medical Center Campus

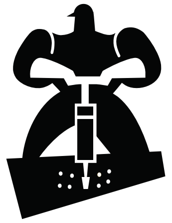
1973 – South Support Constructed
The South Support building is constructed on the Martin Luther King, Jr. Medical Center Campus

1973 – North Support Constructed
The North Support Building is constructed on the Martin Luther King, Jr. Medical Center Campus

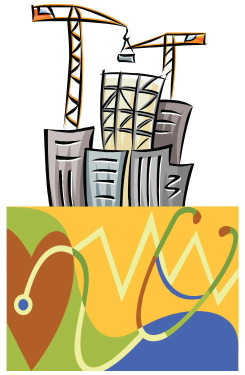
1970

1975 – Central Plant Constructed (Phase II)
The Phase II of the Central Plant building is constructed south of the Phase I building on the Martin Luther King, Jr. Medical Center Campus.

1979 – Hawkins Constructed
The Augustus F. Hawkins Comprehensive Mental Health Center is constructed on the Martin Luther King, Jr. Medical Center Campus (Construction Drawing Date 1977).



1980



1990

1992 – Pediatric Acute Care Constructed
The Pediatric Acute Care Building is constructed on the Martin Luther King, Jr. Medical Center Campus).

1993 – Inpatient Tower Constructed
The Inpatient Tower is constructed on the Martin Luther King, Jr. Medical Center Campus

August 2007 – License Suspended
The license is suspended for the provision of inpatient services at the Martin Luther King, Jr. Medical Center Campus due to concerns over levels of service

2007

December 2008 – Hospital Reopening Initiated
The County of Los Angeles initiates improvements to the existing campus to provide community-based inpatient hospital functions and support spaces that would be seismically compliant beyond 2030 seismic standards established by the Office of Statewide Health and Planning Development (OSHPD). Includes renovations and improvements to the existing Inpatient Tower and MACC, and the placement of 120 beds within the Inpatient Tower

2008

December 2008 – UC Partnership Initiated
At the direction of the Board of Supervisors, the County of Los Angeles (County) Chief Executive Office approached the University of California (UC) to assist the County with developing options to provide hospital services at the Martin Luther King, Jr. Medical Center Campus

December 2008 – Jumpstart Reopening Process
County of Los Angeles Board of Supervisors approves Supervisor Ridley-Thomas' request for a plan to help 'jump start' process to reopen MLK Medical Center Campus

August 2009 – Town Hall Meeting
Supervisor Ridley-Thomas hosted a Town Hall meeting at Drew Magnet High School on August 1st to discuss the New Martin Luther King Hospital

August 2009 – BOS UnanimouslySupport New MLK
County of Los Angeles Board of Supervisors unanimously support plan to build a new MLK Medical Center Campus

2009

November 2009 – BOS Approve MLK Motion
County of Los Angeles Board of Supervisors approves motion to expedite design services on the new MLK Medical Center Campus

December 2009 – Community Meeting
County and the Second Supervisorial District host a project introduction meeting to present plans for the MLK Medical Center Campus Redevelopment project to the community which would include: re-opening the MLK Medical Center Campus, construction a new MACC, an Ancillary Building and related site improvements, as well as the preparation of a Master Plan for the MLK Medical Center Campus that would allow a mix of uses

January 2010 – Planning Workshop
County and the Second Supervisorial District host a community planning workshop to gather ideas from the community regarding the Master Plan for the MLK Medical Center Campus

March 2010 – Scoping Meeting
The County hosts a public scoping meeting for the environmental impact report (EIR) addressing the MLK Medical Center Campus Redevelopment project under the California Environmental Quality Act (CEQA)

2010

FIGURE 2.2.1-1
MLK Timeline of Planning and Environmental Review Process

The renovations and improvements to the campus as described above will allow the hospital to regain its license and quickly and cost-effectively meet the unmet inpatient needs for the community, while also allowing the County to reopen a fully functional medical campus that more accurately reflects community needs.

The existing structures within the proposed project site are described in the following section. The existing campus information described in this section are based on information provided by the County Chief Executive Office and County Department of Public Works, as well as from information described in a Martin Luther King, Jr. Medical Center Campus Planning Programming Report that was prepared by HMC Architects.[5]

2.2.2 Existing Structures

The proposed project site consists of 15 main buildings: Genesis Clinic, Oasis Clinic (old), Oasis Clinic (new),[6] Registration Building, Augustus F. Hawkins Comprehensive Mental Health Center, Inpatient Tower, MACC, Pediatric Acute Care Building, Medical Records and Laundry Building, Central Plant, Plant Management Building, North Support Building, South Support Building, Interns and Physicians Building, and Hub Clinic.[7] There is also a multi-level parking structure available for parking and six support and ancillary buildings and facilities including: an Emergency Room, Magnetic Resonance Imaging (MRI) Building, Claude Hudson Auditorium, Cooling Towers, and two storage buildings on the proposed project site (Figure 2.2.2-1, *MLK Existing Campus Plan*, and Table 2.2.2-1, *Existing Buildings and Structures*). Below are structural descriptions and status of the existing buildings and other structural components. The developed floor area (not including the parking structure) is approximately 1.2 million square feet. The existing conditions on the campus (which may exclude some of the ongoing renovations and improvements to the buildings as described above in Section 2.2.1, Background) provide the existing baseline conditions for these buildings.

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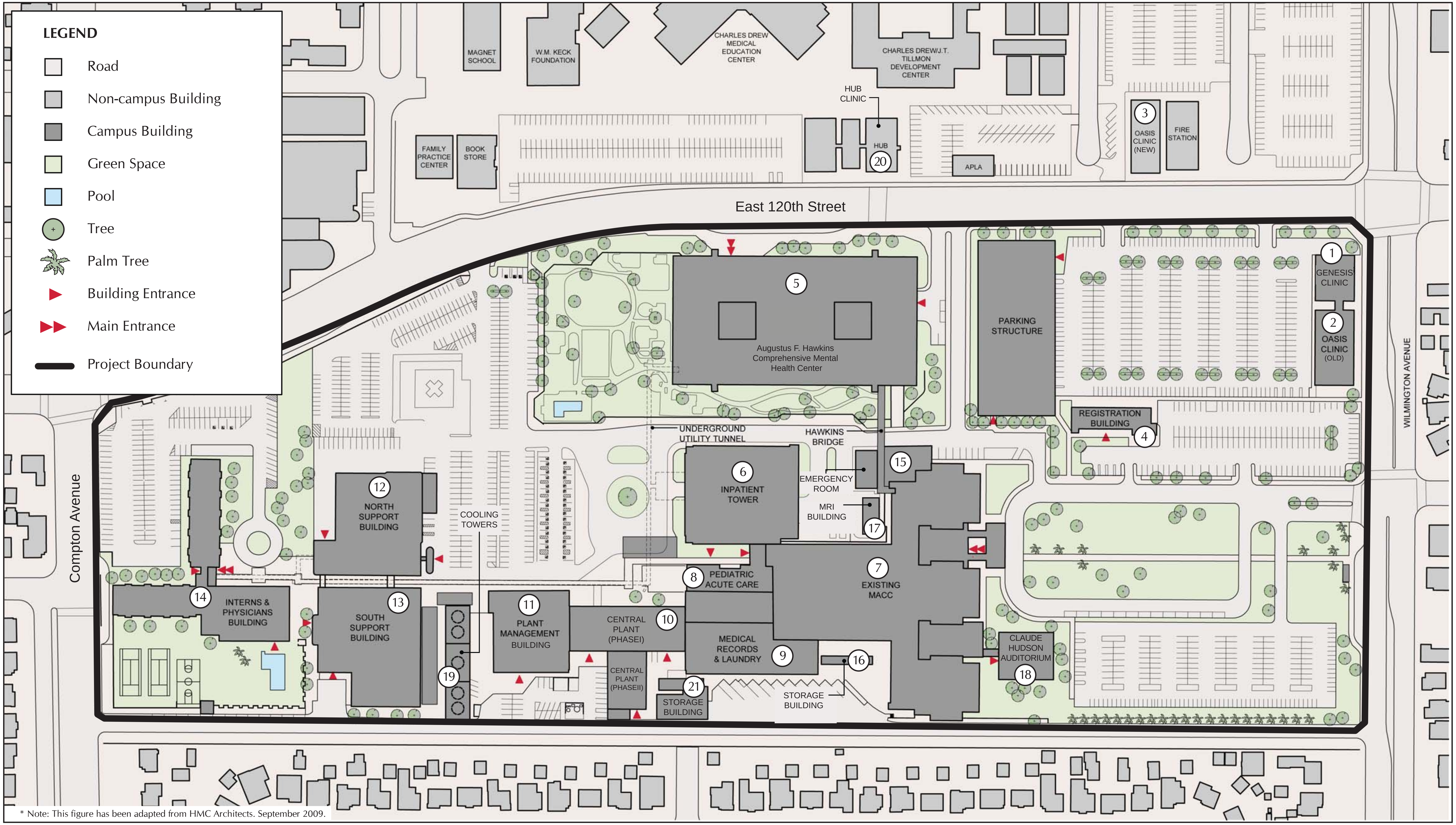
[5] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[6] The Oasis Clinic (new) and the Hub Clinic buildings are located north of the existing 38-acre campus but are considered part of the existing campus structures and operations.

[7] The Hub Clinic and the Oasis Clinic (new) buildings are located north of the existing 38-acre campus but are considered part of the existing campus structures and operations.



* Note: This figure has been adapted from HMC Architects. September 2009.

FIGURE 2.2.2-1
MLK Existing Campus Plan

TABLE 2.2.2-1
EXISTING BUILDINGS AND STRUCTURES

	Building / Structure Name	Floor Area (square feet)	Would Buildings/ Structures Remain Following the Tier II Development of the Proposed Project? (Y/N)	Floors	Currently Operational	Footprint of Campus Buildings / Structures (square feet)
1	Genesis Clinic	2,100	Y	1	N	2,100
2	Oasis Clinic (old)	2,580	Y	1	N	2,580
3	Oasis Clinic (new)	1,850	Y	1	Y	1,850
4	Registration Building	10,950	Y	2	Y	5,475
5	Augustus F. Hawkins Comprehensive Mental Health Center	226,818	Y	3 (and a basement)	Y	75,606
6	Inpatient Tower	187,676	Y	5 (and a basement)	Y	37,535
7	MACC	495,335	N	5 (and a basement)	Y (only partially operational)	99,067
8	Pediatric Acute Care	7,878	Y	1	Y	7,878
9	Medical Records and Laundry	26,355	Y	1	Y	26,355
10	Central Plant (I and II)	24,103	Y	1	Y	24,103
11	Plant Management Building	15,648	Y	1	Y	15,648
12	North Support Building	52,276	Y	2	Y	26,138
13	South Support Building	34,762	Y	2	Y	17,381
14	Interns and Physicians Building	124,391	Y	6	Y (only partially operational)	20,731
15	Emergency Room	3,300	N	1	Y	3,300
16	Storage Building	1,060	N	1	Y	1,060
17	MRI Building	1,100	Y	1	Y	1,100
18	Claude Hudson Auditorium	3,922	Y	1	Y	3,922
19	Cooling Towers[a]	6,790	N	1	Y	6,790
20	Hub Clinic	12,265	Y	1	Y	12,265
21	Storage Building[b]	2,533	Y	1	Y	2,533
	EXISTING CAMPUS TOTAL	**1,243,692**				**393,417**

NOTE:

a. These structures would likely be reused, replaced, or removed following the reuse, replacement, or removal of the existing MACC Building.

b. This building is in the footprint of the Central Plant expansion, but may just be incorporated during design and remain.

2.2.2.1 Genesis Clinic

The Genesis Clinic is a 2,100-square-foot outpatient clinic located on the north-eastern portion of the proposed project site. The Genesis Clinic is attached by a walkway to the Oasis Clinic. This clinic is currently not operational.

2.2.2.2 Oasis Clinic (Old)

The Oasis Clinic is a 2,580-square-foot Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome (HIV/AIDS) clinic that provided comprehensive HIV/AIDS medical care to patients, while it was operational. The services of this clinic included nutritional counseling; treatment education; women's services; mental health; on-site case management; Aids Drug Assistance Program enrollment, orientation, and education for patients diagnosed with HIV; hormone therapy; and adolescent services. This clinic is currently not operational.

2.2.2.3 Oasis Clinic (New)

The Oasis Clinic is a 1,850-square-foot HIV/AIDS clinic that provides comprehensive HIV/AIDS medical care to patients. The services of this clinic include nutritional counseling; treatment education; women's services; mental health; on-site case management; Aids Drug Assistance Program enrollment, orientation, and education for patients diagnosed with HIV; hormone therapy; and adolescent services.

2.2.2.4 Registration Building

The 10,950-square-foot Registration Building is a two-story building, which provides office space in support of the campus. The registration building is located off the existing main entrance of the proposed project site, off Wilmington Avenue.

2.2.2.5 Augustus F. Hawkins Comprehensive Mental Health Center

The existing 226,818-square-foot Augustus F. Hawkins Comprehensive Mental Health Center is a three-story building with a partial one-level basement and was constructed in 1979. The building provides inpatient and outpatient mental healthcare. This building is composed of reinforced-concrete construction. The lateral-force-resisting system is composed of reinforced-concrete shear walls. The foundation system is composed of reinforced-concrete piles. The building is categorized by the OSHPD as Structural Performance Category–4 (SPC-4), which means that the building can remain functional to beyond the year 2030.

2.2.2.6 Inpatient Tower

The 187,676-square-foot Inpatient Tower was constructed in 1993. This building consists of a five-floor facility with a one-level basement that provides outpatient services. The roof of the Inpatient Tower contains a helipad that is used for hospital specific emergency use. The building is base isolated, utilizing rubber-bearing isolators and sliders to reduce the seismic forces or accelerations experienced by the building in a seismic event. The building superstructure is composed of structural steel construction. The gravity system utilizes a concrete-filled metal deck supported by structural steel beams, girders, and columns. Special concentric-braced frames are used for the building's lateral-force-resisting system. The foundation system is composed of cast-in-place concrete-drilled piles. The SPC of the building is categorized by California OSHPD as SPC-5, which is the highest SPC rating and permits the building to be used for hospital functions beyond the year 2030.

The CEQA-exempt, ongoing project includes installation of a pneumatic tube blower room on the roof of the existing building. This would probably require strengthening of the building as well as localized strengthening of the framing to support the added weight.

2.2.2.7 Multi-Service Ambulatory Care Center Building

The existing 495,335-square-foot MACC was constructed in the late 1960s. This building is a six-story building with a penthouse constructed in the late 1960s. The building consists of three structurally independent buildings: Central Tower, North Tower, and South Tower. This building was formerly used as a 437-bed inpatient, outpatient, and emergency facility. All components of the MACC Building are composed of reinforced concrete construction. The gravity system utilizes two-way reinforced concrete slabs supported by reinforced concrete beams and columns. The lateral-force-resisting system is composed of reinforced concrete shear walls. The foundation system is composed of cast-in-place concrete drilled piles. The SPC of the building is categorized by OSHPD as SPC-1. In order to provide inpatient services, the existing MACC would require significant seismic improvements in January 2013 for compliance with OSHPD requirements. Solely for the purposes of this analysis, it has been anticipated that this structure will be replaced in order to adopt the most conservative approach to the environmental analysis; however, the disposition of the building will be determined by the future Master Plan.

2.2.2.8 Pediatric Acute Care Building

The existing 7,878-square-foot Pediatric Acute Care Building is a one-story building with a mezzanine level and was constructed in 1992. The building is composed of structural steel construction. The gravity system utilizes a concrete-filled metal deck supported by structural steel beams, girders, and columns. Special concentric braced frames are used for the building's lateral-force-resisting system. The foundation system is composed of cast-in-place concrete drilled piles. The building is categorized by OSHPD as SPC-3, which permits the building to remain functional to the year 2030 and beyond. The existing Nonstructural Performance Category (NPC) of the building is NPC-3. Under the CEQA-exempt ongoing project, the building will be upgraded to continue to be used for hospital functions.

2.2.2.9 Medical Records and Laundry Building

The existing 26,355-square-foot Medical Records Building is a one-story building constructed in 1972. The building is composed of reinforced-concrete construction. The gravity system utilizes two-way reinforced-concrete slabs supported by reinforced-concrete beams and columns. The lateral-force-resisting system is composed of reinforced-concrete shear walls. The foundation system is composed of cast-in-place concrete drilled piles. The building is categorized by the OSHPD as SPC-2, which means that the building can remain functional until only the year 2030, unless it is brought into compliance with the OSHPD structural provisions. Under the CEQA-exempt ongoing project, the building will be upgraded seismically to bring it up to OSHPD SPC-4 or SPC-5, thus allowing the building to be used for inpatient functions until the year 2030 and beyond. The seismic retrofit work would include the addition of new reinforced-concrete shear walls, mitigation of existing discontinuous shear wall conditions, and possible localized strengthening of existing foundations. The building is also expected to be completely gutted, and all new nonstructural and information technology work would comply with the current code.

2.2.2.10 Central Plant

The 24,103-square-foot Central Plant was constructed in two phases. The Phase I component is a single-story building, with partial mezzanine floor, built in the 1960s. The roof structure consists of reinforced concrete one-way slab supported by tapered steel girders. Concrete shear walls form the perimeter of the building and provide the seismic bracing for the building. The foundation system of the building consists of cast-in-place concrete piles. However, the mechanical, electrical, and plumbing equipment upgrade within it and some structural work (voluntary) were performed in 1993 under OSHPD permit number HS912289. OSHPD records show the building rated as SPC-1. Under the CEQA-exempt ongoing project, the building will be upgraded seismically to bring it up to OSHPD SPC-4 or SPC-5, thus allowing the building to be used for hospital function until the year 2030 and beyond.

The Central Plant Phase II building, located to the south of the Phase I building, was constructed in 1975. The building structure currently has an SPC-4 rating; therefore, no seismic retrofit upgrade of the building is required. The construction of the Phase II building is similar to the Phase I building. There is an underground water storage tank, measuring 47 feet by 47 feet by 22.5 feet deep and occupying the southern half of the building. Construction of water storage tank consists of cast-in-place concrete slabs and walls. Under the CEQA-exempt ongoing project, new plant equipment will be placed on the floor slab above the tank, which may require strengthening.

The CEQA-exempt ongoing project, a 6,000-square-foot expansion to the Central Plant will include installation of chiller equipment on the roof.

2.2.2.11 Plant Management Building

The 15,648-square-foot Plant Management Building supports campus functions at the proposed project site. This building is architecturally comparable to the other structures on the proposed project site in that it has concrete walls. Under the CEQA-exempt ongoing project, renovations and improvements to the interior of the building may be required.

2.2.2.12 North Support Building

The existing 52,276-square-foot North Support Building is a two-story building, constructed in two phases. The original building, which consisted of the lower full level and a partial second level, was built as a concrete structure in 1973. The second floor and roof consist of two-way waffle slab supported on concrete columns. Perimeter concrete walls provide lateral bracing to the structure. Foundation system consists of cast-in-place drilled pile. The second phase consisted of capturing the setback area over the second floor at the east side to provide additional space in the late 1980s. The addition was constructed of steel framing with concrete fill roof deck. The two phases appear to be connected so that the buildings function structurally as one. Under the CEQA-exempt ongoing project, interior renovations to the first and second floors will be included.

2.2.2.13 South Support Building

The 34,762-square-foot South Support building is a single-story concrete building with partial mezzanine floor, built in the early 1970s. Construction is similar to the North Support Building. The gravity system of the building consists of concrete waffle slab supported on concrete columns. The lateral-force-resisting system is composed of reinforced concrete shear walls. Under the CEQA-exempt ongoing project, interior renovations will be included.

2.2.2.14 Interns and Physicians Building

The 124,391-square-foot Interns and Physicians Building is a six-story building also built in the 1970s. This building is currently not fully operational. This building housed mainly the interns and physicians involved in the Physician Assistant Program of the Charles R. Drew Postgraduate

Medical School. This building is architecturally comparable to the other structures on the proposed project site in that it has concrete walls.

2.2.2.15 Emergency Room

The 3,300-square-foot Emergency Room is connected to the northwestern portion of the existing MACC Building. This one-story structure served as a waiting room for the emergency room. Solely for the purposes of this analysis, it has been anticipated that this structure will be replaced in order to adopt the most conservative approach to the environmental analysis; however, the disposition of the building will be determined by the future Master Plan.

2.2.2.16 Storage Building

The 1,060-square-foot, one-story Storage Building is currently used for campus storage. This building is located south of the existing MACC Building and may be reused, replaced, or removed following the reuse, replacement, or removal of the existing MACC Building. Solely for the purposes of this analysis, it has been anticipated that this structure will be replaced in order to adopt the most conservative approach to the environmental analysis; however, the disposition of the building will be determined by the future Master Plan.

2.2.2.17 Magnetic Resonance Imaging Building

The 1,100-square-foot MRI Building houses the MRI systems. This one-story structure is located north of the existing MACC Building and may be relocated to the tech dock behind the new MACC Building in Tier I of the proposed project.

2.2.2.18 Claude Hudson Auditorium

The 3,922-square-foot Claude Hudson Auditorium is a one-story structure that is attached by a walkway to the existing MACC Building. This building may remain following the reuse, replacement, or removal of the existing MACC Building. Solely for the purposes of this analysis, it has been anticipated that this structure will be replaced in order to adopt the most conservative approach to the environmental analysis; however, the disposition of the building will be determined by the future Master Plan.

2.2.2.19 Cooling Towers

The 6,790-square-foot Cooling Towers are one-story structures that serve the heat removal and heating, ventilating, air conditioning functions of the existing MACC. These structures may be reused, replaced, or removed following the reuse, replacement, or removal of the existing MACC Building in Tier II of the proposed project. Solely for the purposes of this analysis, it has been anticipated that this structure will be replaced in order to adopt the most conservative approach to the environmental analysis; however, the disposition of the building will be determined by the future Master Plan.

2.2.2.20 Hub Clinic

The 12,265-square-foot Hub Clinic is situated north of the Hawkins Building off East 120th Street. This is a one-story building. The Hub Clinic services the needs of children and families in the foster care system.

2.2.2.21 Storage Building

The 2,533-square-foot, one-story Storage Building is currently used for storage. This building is located south of the Central Plant and Medical Records and Laundry Buildings. This building will be removed under the CEQA-exempt ongoing project. Solely for the purposes of this analysis, it has been anticipated that this structure will be replaced in order to adopt the most conservative approach to the environmental analysis; however, the disposition of the building will be determined by the future Master Plan.

2.2.2.22 Additional Support Structures

Existing Tunnel

The existing underground utility tunnel was constructed in two phases. The Phase I tunnel extends north from the north side of Central Plant Phase I and connects to the east-west segment serving the existing MACC Building to the east and Interns and Physicians Building to the west. The Phase I tunnel was constructed in the early 1970s. Under the CEQA-exempt ongoing project, the existing Phase I tunnel will be seismically retrofitted to obtain an SPC-5 rating.

The Phase II tunnel consists of north-south segment extending north from the Phase I tunnel to serve the Hawkins Building and Inpatient Tower. The Phase II tunnel was built in late 1970s.

2.2.3 Existing Operational Conditions

The existing campus currently provides urgent care services and outpatient clinic services. The Urgent Care Center consists of 27 treatment spaces and operates out of the space that was previously occupied by the Emergency Department.[8] The Urgent Care Center treats non-life-threatening medical problems such as sprains or fractures, minor injuries and rashes, and colds and fevers.[9] The Urgent Care Center is open from 7:00 a.m. to 11:00 a.m. daily.[10] There are currently 70 specialty Outpatient Clinics operating at the existing hospital.[11] The Outpatient Clinics provide general medical care ranging from general medicine to HIV/AIDS, cardiology, dermatology, dentistry, geriatrics, neurology, orthopedic, and physical therapy.[12] Outpatient Clinics operate Monday through Friday from 8:00 a.m. to 5:00 p.m.[13] The Outpatient Clinics provide services for approximately 160,000 individuals annually (the patient volume capacity is described further below).[14] There are currently approximately 621 employees at the partially operational hospital.

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[8] Los Angeles County Health Services. Accessed 2 February 2010. "Departments and Clinics." Available at: http://www.ladhs.org/wps/portal/KingHomepage

[9] Los Angeles County Health Services. Accessed 2 February 2010. "Departments and Clinics." Available at: http://www.ladhs.org/wps/portal/KingHomepage

[10] Los Angeles County Health Services. Accessed 29 July 2010. "Departments and Clinics." Available at: http://www.ladhs.org/wps/portal/KingHomepage

[11] Los Angeles County Health Services. Accessed 2 February 2010. "Departments and Clinics." Available at: http://www.ladhs.org/wps/portal/KingHomepage

[12] Los Angeles County Health Services. Accessed 29 July 2010. "Departments and Clinics." Available at: http://www.ladhs.org/wps/portal/KingHomepage

[13] Los Angeles County Health Services. Accessed 29 July 2010. "Departments and Clinics." Available at: http://www.ladhs.org/wps/portal/KingHomepage

[14] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report- Executive Report*. Los Angeles, CA.

The Outpatient Clinics and Departments currently available at the MLK Medical Center Campus include, but are not limited to:[15]

- Ancillary Services
    - Echocardiogram
    - Electroencephalogram
    - Occupational Therapy
    - Physical Therapy
- Community Health Plan
    - Adult
    - Pediatric
- Internal Medicine
    - Cardiology
    - Chemotherapy
    - Chest
    - Dermatology
    - Diabetic
    - Dietary
    - Endocrinology
    - Gastroenterology
    - General medicine
    - Geriatrics
    - Hematology-Oncology
    - Hypertension
    - Neurology
    - OASIS HIV/AIDS Clinic
    - Renal
- Obstetrics/Gynecology
    - Colposcopy
    - Gynecology
    - Gynecology oncology
    - Obstetrics
- Ophthalmology
    - General eye
- Oralmaxillofacial
    - General Dental
    - Oral surgery
- Orthopedic
    - General Orthopedic
    - Hand Orthopedic
- Otolaryngology (Ear, Nose, and Throat)
    - Adult allergy
    - Audiology
    - General (Ear, Nose, and Throat)
    - Oncology (Head and Neck)
- Pediatric

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[15] Los Angeles County Health Services. Accessed 2 February 2010. "Departments and Clinics." Available at: http://www.ladhs.org/wps/portal/KingHomepage

    - Allergy
    - Cardiology
    - Chest
    - Dermatology
    - HUB (Children in Foster Care)
    - Pediatric Intervention Program
    - Nutrition
- Pulmonary Services
- Pharmacy
- Radiology Services
    - Magnetic Resonance Imaging (MRI)
    - Mammography
    - Nuclear Medicine
    - Ultrasound
- Surgery
    - Breast (Minor)
    - General surgery
    - Prostate
    - Urology

Although the license was suspended for the provision of inpatient services at the proposed project site, it is understood that the existing campus has the capacity to be fully operational. Therefore, despite the fact that the campus is currently only partially operational, the past operational use of the existing campus will provide a reference for the capacity of the proposed project site to operate at full capacity and will also be utilized to further establish baseline conditions for this analysis.

2.2.3.1 Patient Volume

The existing patient volume on the campus is largely determined by the MACC patient volume and services. The patient volume capacity for the MACC, based on the 2008–2009 workload and estimates, is as follows: 160,000 annual outpatient services visits (including 11,000 walk-in clinic visits); 10,000 inpatient visits; 30,000 annual emergency services visits; 2,700 inpatient surgery procedures; and 3,500 outpatient surgery procedures.

2.2.3.2 Accessibility

The existing campus is accessible via both pedestrian and vehicular traffic. Public access is available off 120th Street and Wilmington Avenue. There is a service entry to the loading docks and buildings located off Compton Avenue, and there is one ambulance emergency department entry to the existing campus located off 120th Street.

2.2.3.3 Parking

Approximately 1,767 parking spaces are currently provided on-site in seven designated parking areas, as well as miscellaneous surface parking interspersed throughout the campus.[16] The total

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[16] HMC Architects. 18 August 2010. *Martin Luther King, Jr. Medical Center Parking Inventory*. Prepared for: County of Los Angeles. Pasadena, CA.

1,767 parking spaces are comprised of 1,678 standard spaces, 83 accessible spaces, and 6 temporary parking spaces.[17]

Following completion of the CEQA-exempt ongoing project, there will be approximately 1,925 parking spaces on the campus.[18] Although a minimum of 2,220 parking spaces would be required for Tier I of the proposed project by County Code,[19] a parking forecast prepared for the existing campus determined that approximately 1,915 parking spaces were required for Tier I on the existing campus due to the proximity of public transportation.[20] Additionally, parking utilization observations and counts at the existing campus have noted that on average, there is a parking surplus on the campus of more than 41 percent during the peak parking demand hour (11 a.m.).[21]

Furthermore, it has been noted that:[22]

- The County Code parking requirements are essentially intended to accommodate the peak parking demand for uses on a "stand-alone" basis, and therefore do not account for parking efficiencies obtained when complementary medical uses are developed in a campus environment. For example, medical staff (physicians, nurses, etc.) may work in different buildings throughout the day while patients may arrive for an appointment in one office and then be administered a test or treatment in a separate building. Thus, the synergies and efficiencies of these complementary uses contribute to some "double-counting" when estimating parking demand based in the cumulative Code parking requirements of the individual facilities; [and]

- The Medical Center is well-served by public transportation, thereby reducing the need for travel by automobiles. As previously noted, stations for the Metro Green Line and Metro Blue Line are within walking distance to the Medical Center. Further, public buses operated by Metro (Lines 55, 202, 205, 305, 612) and other local transit agencies including the MLK Shuttle, the Hahn's Trolley and Shuttle Service, and the Los Angeles County Dial-A-Ride serve the campus. Accordingly, there are substantial public transportation options for staff, patients and visitors that allow for a reduction in parking demand.

Currently, the observed peaking parking demand on the campus is approximately 1,052 parking spaces.[23] Additionally, it is anticipated that the peak parking demand may rise to roughly 1,142

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[17] HMC Architects. 18 August 2010. *Martin Luther King, Jr. Medical Center Parking Inventory*. Prepared for: County of Los Angeles. Pasadena, CA.

[18] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[19] Linscott, Law, Greenspan Engineers. 27 May 2010. *Martin Luther King, Jr. Medical Center Updated Parking Review*. Prepared for: County of Los Angeles. Pasadena, CA.

[20] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[21] Linscott, Law, Greenspan Engineers. 27 May 2010. *Martin Luther King, Jr. Medical Center Updated Parking Review*. Prepared for: County of Los Angeles. Pasadena, CA. Utilization counts were conducted over the course of several days in April 2009 and May 2010 and were performed by Linscott, Law, Greenspan Engineers and The Traffic Solution for Linscott, Law, Greenspan Engineers.

[22] Linscott, Law, Greenspan Engineers. 27 May 2010. *Martin Luther King, Jr. Medical Center Updated Parking Review*. Prepared for: County of Los Angeles. Pasadena, CA.

[23] HMC Architects. 18 August 2010. *Martin Luther King, Jr. Medical Center Parking Inventory*. Prepared for: County of Los Angeles. Pasadena, CA.

following completion of ongoing campus improvements.[24] During construction it is anticipated that the total available parking spaces will drop as low as 1,289 parking spaces.[25] However, the available parking on campus would be sufficient to ensure that parking spaces are available during and after construction of both tiers of the proposed project.

2.2.3.4 Public Transportation

Public transportation in the vicinity of the proposed project include: the Metropolitan Transportation Authority (MTA), Los Angeles Department of Transportation Downtown Area Short Hop (LADOT-DASH), the City of Compton Renaissance Transit System, the City of Gardena Municipal Bus Line, Rosewood Smart Shuttle, Lynwood Trolley, Torrance Transit System, Carson Circuit System, Long Beach Transit (LBT), and the Hahn Trolley Shuttle Service, which is discussed below.

The existing campus is currently accessible by multiple means of public transportation. There are two bus stations located on the existing campus boundary: one bus station is located on the northern boundary on 120th Street, and one bus station is located on the eastern boundary on Wilmington Avenue. In addition, Metro Blue Line and Green Line stations are located approximately 0.5 mile northeast of the existing campus; the Metro Blue Line and Green Line stations have a shuttle bus that transports individuals between the existing campus and the metro stations. It is anticipated that these public transportation services would continue to operate during construction and following completion of the proposed project. The County will coordinate with the public transportation providers to ensure the compatibility of the proposed project with these services.

The County Board of Supervisors currently funds the *Hahn's Trolley and Shuttle Service*, which provides shuttle services to the community surrounding the existing campus. *Hahn's Trolley and Shuttle Service* operates three interconnecting routes. The County also funds a van service, *L.A. County Dial-A-Ride,* in the community surrounding the campus that provides transportation service for senior citizens and people with disabilities who reside within the unincorporated areas of Willowbrook, Walnut Park, Florence/Graham, Athens, Rosewood, and Rancho Dominguez.

2.2.3.5 Utilities

The existing campus is connected to the public utilities, water, gas, and sewer through a system of underground piping, valves, and access points to all the buildings. This complex piping system is used to maintain the connectivity from the buildings to the utilities in the streets.[26]

Existing utilities for the campus are provided through the following equipment and structures: underground utility tunnel, cooling towers, electrical equipment, bulk oxygen (O_2) storage, gas cylinders, generator fuel storage, central plant, underground fuel tanks, and emergency generators.

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[24] HMC Architects. 18 August 2010. *Martin Luther King, Jr. Medical Center Parking Inventory*. Prepared for: County of Los Angeles. Pasadena, CA.

[25] HMC Architects. 18 August 2010. *Martin Luther King, Jr. Medical Center Parking Inventory*. Prepared for: County of Los Angeles. Pasadena, CA.

[26] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

Electrical Infrastructure

The existing campus is served by the Southern California Edison Company. The existing campus has the capacity to supply approximately 10 megawatts of power to the campus. A review of the existing electrical infrastructure has determined the following: (1) portions of the existing campus electric system equipment and cable, which receive power at 4,160 volts (V), have not been upgraded since the hospital was constructed in the 1970s; these systems would be replaced as part of the ongoing campus improvements; (2) many building power systems on the existing campus would need to meet the requirements of the California Electric Code and National Fire Protection Association 99, Standard for Health Care facilities. Furthermore, building power diesel generators do not meet the existing Air Quality Management District emissions requirements, and the electrical systems require modifications that will be addressed under the CEQA-exempt ongoing project.

2.2.3.6 Water Use

Water use at the existing campus has varied over time. The average water use on the campus between the years 2002 and 2006 was more than 80 million gallons (or 107,793 hundred cubic foot (HCF) unit) of water per year.[27] The maximum annual amount of water consumption at the campus was roughly 88 million gallons. It is anticipated that the maximum water consumption amounts for Tier I of the proposed project would result in a decrease in water use from this amount. It is further anticipated that Tier II of the proposed project would include sustainable design elements including, but not limited to, sustainable and water-efficient features. As such the annual water use at the proposed project site would not be expected to be significantly greater than the maximum operational usage amount of approximately 88 million gallons.

2.2.4 Existing Campus Surroundings

The areas surrounding the existing Martin Luther King, Jr. Medical Center Campus include various commercial, retail, transit, and institutional land uses. Among these uses are the Charles Drew University of Medicine and Science (CDU), the Rosa Parks Transit Station, the Kenneth Hahn Plaza and Village, and various residential neighborhoods, commercial businesses, public and semipublic, industrial, open space, and transportation corridor uses.

2.2.4.1 Charles Drew University of Medicine and Science

The CDU is located between 118th Street to the north and 120th Street to the south. Historically, the existing campus and CDU have maintained a complimentary relationship; the existing campus has been used by CDU as a teaching hospital. In 2008, CDU opened a health clinic to provide service to some patients that have been impacted by the suspension of the license for the provision of inpatient services at the Martin Luther King, Jr. Medical Center Campus.[28] Just north of the existing campus, CDU is joined by other institutional uses, including the King Drew Magnet High School of Medicine and Science, and Lincoln Drew Elementary School. The CDU is not part of the proposed project; however, it is a relevant existing condition that neighbors the proposed project site.

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[27] One (1) HCF equals 748 gallons of water. Baseline water use information provided by the County of Los Angeles, 2009.

[28] Charles Drew University of Medicine and Science. Accessed 26 January 2010. Web site. Available at: http://www.cdrewu.edu/news/2008/urgent-care-clinic

2.2.4.2 *Rosa Parks Transit Station*

The Rosa Parks Transit Station is located northeast of the existing campus. This station houses the Metro Blue Line and Green Line stations described in Section 2.2.3.4, *Public Transportation,* of this project description. As previously noted, the Metro Blue Line and Green Line stations have a shuttle bus that transports individuals between the existing campus and the metro stations.

2.2.4.3 *Other Surrounding Uses*

The Kenneth Hahn Plaza and Village at Willowbrook shopping center are located northeast and east of the existing campus. These areas house commercial, retail, and other uses including a public library.

These properties are not currently included in the Martin Luther King, Jr. redevelopment efforts, as they are owned and operated by various private and public entities. However, in response to the community's interest in the inclusion of the development of these properties along with the existing campus (which is owned by the County), the County is currently reviewing alternatives and opportunities to include these properties in a master plan that encompasses the surrounding community.

2.2.5 General Plan Land Use Designation

The proposed project site consists of County Office of the Assessor parcel numbers (APNs) 6140-028-902, 6140-028-900, 6140-028-907, and 6140-028-903. The County General Plan land use designation for these APNs is Public and Semipublic Facilities (P). According to the County General Plan, the Public and Semipublic land use designation provides for activities by public and quasipublic entities and allows for the establishment of facilities, infrastructure, and their related operations in these areas that are public or semipublic in nature, including hospitals (Figure 2.2.5-1, *General Plan Land Use*).[29] The current use of the proposed project site as a medical facility is in conformance with this land use designation.

The land use designations surrounding the proposed project site include the Public and Semipublic Facilities and Major Commercial (C) to the north, Medium-density Residential [12 to 22 dwelling units (du)/acre] to the east, Low-density Residential (1 to 6 du/acre) to the south, and Low-density Residential (1 to 6 du/acre) and Low/Medium-density Residential to the west. Other land uses within the vicinity of the proposed project site include High-density Residential, Major Commercial, Major Industrial, Open Space, and Transportation Corridor.

2.2.6 Zoning

The County zoning designation for all project parcels (APNs 6140-028-902, 6140-028-900, 6140-028-907, and 6140-028-903) is Neighborhood Commercial (C-2; Neighborhood Business Zone) (Figure 2.2.6-1, *Zoning Designations*). This zoning designation is established to identify community-related commercial uses and permits the following uses: drugstores, medical clinics

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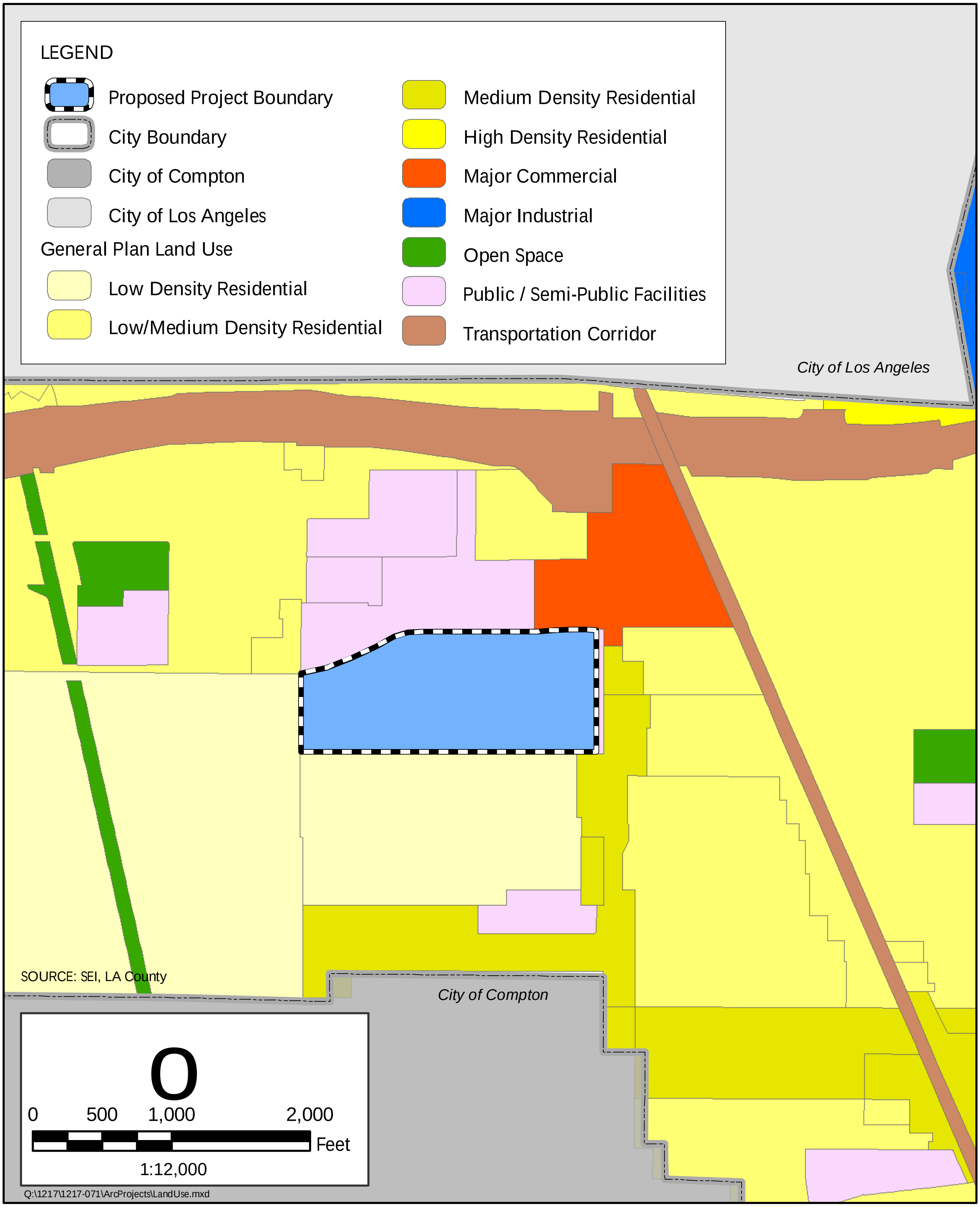
[29] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

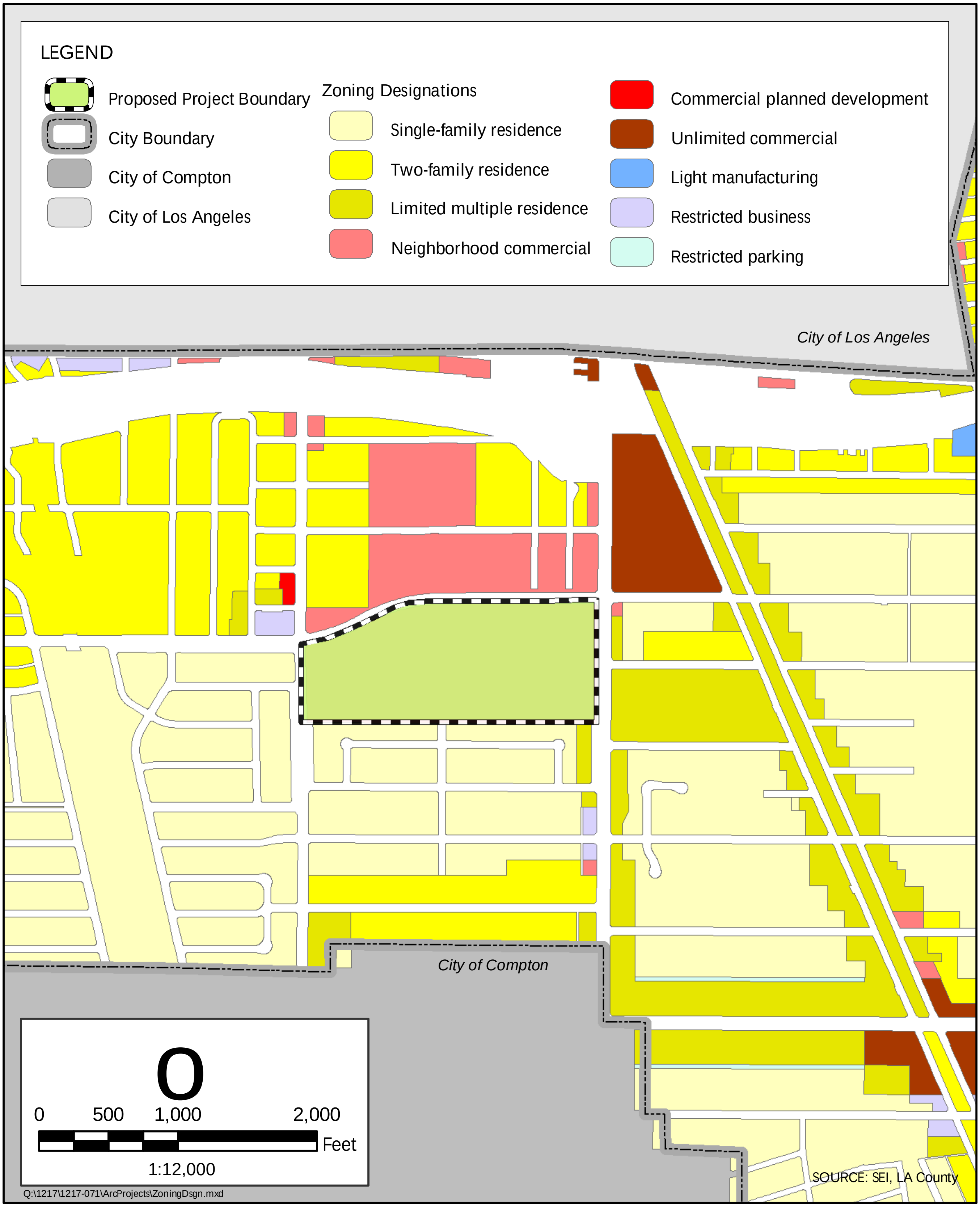


SOURCE: SEI, LA County

Q:\1217\1217-071\ArcProjects\LandUse.mxd

FIGURE 2.2.5-1

General Plan Land Use



SOURCE: SEI, LA County

FIGURE 2.2.6-1

Zoning Designations

(including laboratories), professional or business office space, parking lots and buildings, and hospital equipment and supply rentals.[30]

The County has established development standards for the Neighborhood Business Zone:

> No more than 90 percent of the net area [shall] be occupied by buildings, with a minimum of 10 percent of the net area landscaped with a lawn, shrubbery, flowers and/or trees, which shall be continuously maintained in good condition. Incidental walkways, if needed, may be developed in the landscaped area; that there be parking facilities as required by Part 11 of Chapter 22.52; and that a building or structure shall not exceed a height of 35 feet above grade, excluding signs which are permitted by Part 10 of Chapter 22.52 (such as chimneys, and rooftop antennas).[31]

Zoning designations surrounding the proposed project site include Single-family Residential (R-1) to the south and west, Limited Multiple Residences (R-3) to the east, and Two-family Residence (R-2) and Commercial (C-2; specifically, Neighborhood Commercial) to the north. Other zoning designations within the vicinity of the proposed project site include Commercial Planned Development, Unlimited Commercial, Light Manufacturing, Restricted Business, and Restricted Parking. The proposed project's hospital-related uses would be consistent with the existing and permitted uses of this zoning designation, and no General Plan amendment or zone change would be required. However, uses related to residential development would be subject to a conditional use permit and would be required to meet the conditions of the permit.[32] It is anticipated that the County would obtain a conditional use permit during the planning phase of the proposed project and would be required to meet the specified conditions.

The County would further seek to ensure compatibility of the proposed project with the existing campus and its surroundings but reserves the right to exempt elements of the proposed project from the zoning designation. It is anticipated that the future campus development and master plan will provide land use designations, recommended capital improvements, and design guidelines to provide for the consistent and compatible development of the campus with the existing buildings in a manner that meets the needs of the community, consistent with the County's General Plan and zoning regulations.

2.3 STATEMENT OF PROJECT GOAL AND OBJECTIVES

2.3.1 Goal

The goal of the proposed project is to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care.

The County seeks to establish the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce

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[30] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[31] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[32] County of Los Angeles. Accessed 12 November 2009. *Title 22, Planning and Zoning*. Available at: http://ordlink.com/codes/lacounty/_DATA/TITLE22/Chapter_22_28_COMMERCIAL_ZONES.html#3

development, academic research and teaching, and economic development. The campus provides an opportunity to develop up to an additional 1,814,696 square feet for a mix of uses, including space for medical offices, commercial, retail, residential, recreation, and general offices, in addition to any other development that will improve the community-based health program facility with a net new increase of 1,476,010.

2.3.2 Tier I: Project Development Objectives

The County identified and prioritized the basic objectives that are important in achieving the proposed project goals for Tier I:

- Revitalize the Martin Luther King, Jr. Medical Center Campus through the provision of comprehensive medical care.
- Demonstrate leadership in sustainable planning and design.
- Create a campus environment that encourages pedestrian movement and optimizes connectivity, staff interaction, and links to the community.
- Develop a campus that is contextually integrated with the County of Los Angeles and respects the surrounding communities.
- Improve the efficiency and quality of staff and tenant services.
- Maintain the 2,100-square-foot Genesis Clinic; 2,580-square-foot Oasis Clinic (old); 1,850-square-foot Oasis Clinic (new); 10,950-square-foot Registration Building; 226,818-square-foot Augustus F. Hawkins Comprehensive Mental Health Center; 187,676-square-foot Inpatient Tower; 7,878-square-foot Pediatric Acute Care; 26,355-square-foot Medical Records and Laundry; 24,103-square-foot Central Plant; 15,648-square-foot Plant Management; 52,276-square-foot North Support Building; 34,762-square-foot South Support Building; 124,391-square-foot Interns and Physicians Buildings; 3,922-square-foot Claude Hudson Auditorium; 1,100-square-foot MRI Building; and 12,265-square-foot Hub Clinic Building.
- Provide a 24,700-building-gross-square-footage (BGSF) space to accommodate the Ancillary Building to house the cafeteria, administrative functions, and support services for the MACC and the Inpatient Tower.
- Provide a 132,000-BGSF space to accommodate the MACC program.
- Provide 34,000 square feet of tenant improvements to accommodate support functions in the North Support, South Support, Interns and Physicians, and Plant Management Buildings.
- Connect to an upgraded central plant to service the MACC, North Support Building, South Support Building, Inpatient Tower, and Interns and Physicians Building.
- Provide a parking area to allow sufficient parking for patients, client, visitors, employees, medical staff; site work; and landscaping.
- Provide for a possible relocation of the MRI Building.

2.3.3 Tier II: Master Plan Development Objectives

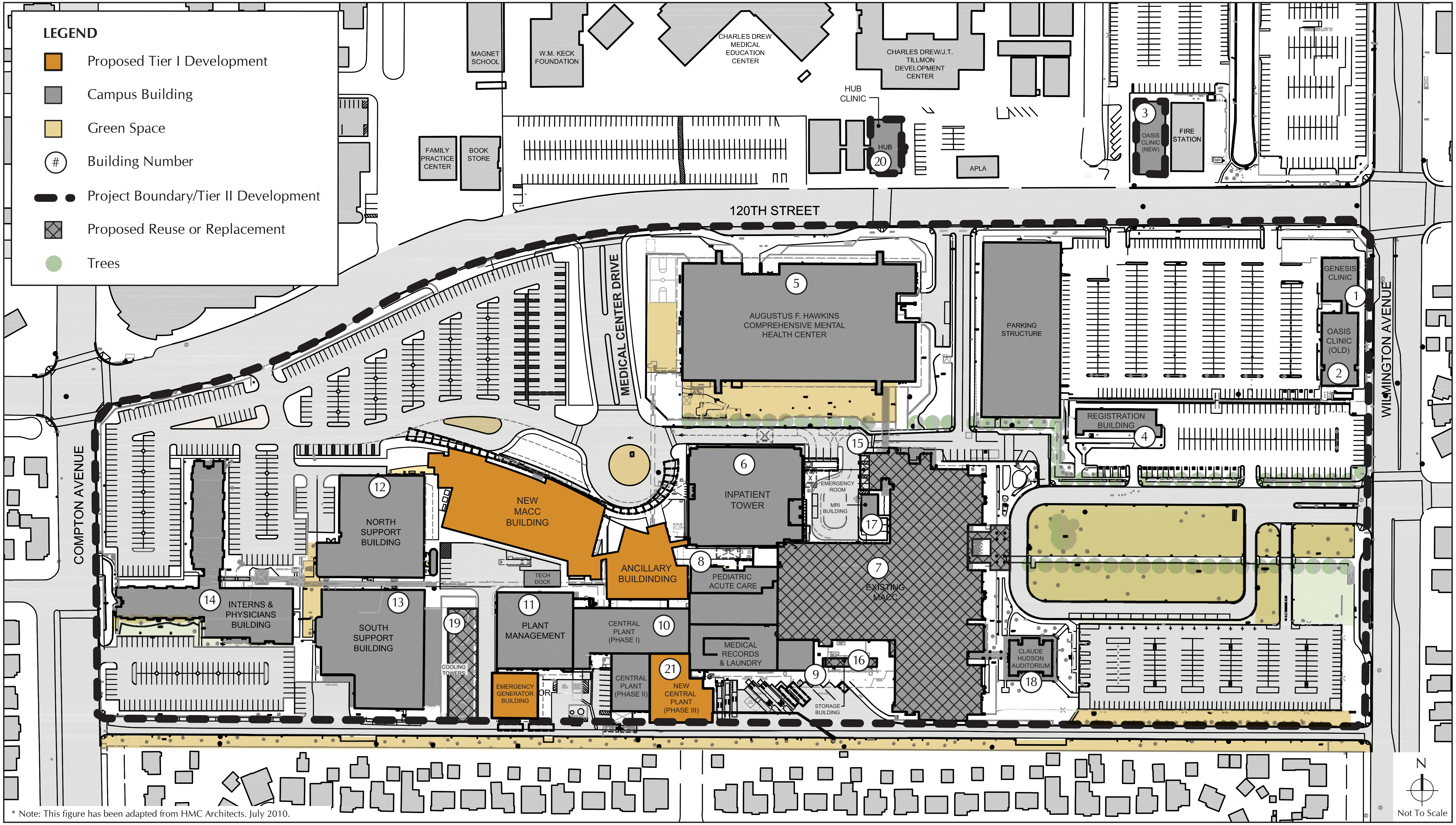
The County identified and prioritized the basic objectives that are important in achieving the proposed project goals for Tier II:

- Provide opportunities for development of up to 1,814,696 square feet of mixed use, including medical office, commercial, retail, residential, recreational, office space, and other development in support of the campus that are appurtenant to and compatible with the primary land use of a community-based health program facility.

- Provide sufficient parking for mixed-use development.

2.4 PROPOSED PROJECT

The proposed project entails two tiers (Figure 2.4-1, *MLK Proposed Campus Plan*, and Table 2.4-1, *Proposed Campus Development Matrix*). Tier I would involve development of the new MACC Building and the Ancillary Building. Tier I would also include tenant improvements to the following existing buildings: North Support Building, South Support Building, and the Plant Management Building; site improvements; and potential relocation of the MRI Building.



* Note: This figure has been adapted from HMC Architects. July 2010.

FIGURE 2.4-1
MLK Proposed Campus Plan

TABLE 2.4-1
PROPOSED CAMPUS DEVELOPMENT MATRIX

	Building Name	Current Total Floor Area (SF)	Proposed Total Floor Area of Existing Campus to Remain in Tier II Buildings (SF)	Floor Area to Be Reused, Replaced, or Removed[a] (SF)	New Total Floor Area of Tier I Campus Buildings (SF)	Floors
1	Genesis Clinic	2,100	2,100	N/A	N/A	1
2	Oasis Clinic (old)	2,580	2,580	N/A	N/A	1
3	Oasis Clinic (new)	1,850	1,850	N/A	N/A	1
4	Registration Building	10,950	10,950	N/A	N/A	2
5	Augustus F. Hawkins Comprehensive Mental Health Center	226,818	226,818	N/A	N/A	3[b]
6	Inpatient Tower	187,676	187,676	N/A	N/A	5[b]
7	Existing MACC[c]	495,335	0	(495,335)	N/A	5[b]
8	Pediatric Acute Care	7,878	7,878	N/A	N/A	1
9	Medical Records and Laundry	26,355	26,355	N/A	N/A	1
10	Central Plant I and II	24,103	24,103	N/A	N/A	1
11	Plant Management	15,648	15,648	N/A	N/A	1
12	North Support Building	52,276	52,276	N/A	N/A	2
13	South Support Building	34,762	34,762	N/A	N/A	2
14	Interns and Physicians Building	124,391	124,391	N/A	N/A	6
15	Emergency Room	3,300	0	(3,300)	N/A	1
16	Storage Building	1,060	0	(1,060)	N/A	1
17	MRI Building	1,100	1,100	N/A	N/A	1
18	Claude Hudson Auditorium	3,922	3,922	N/A	N/A	1
19	Cooling Towers[d]	6,790	0	(6,790)	N/A	1
20	Hub Clinic	12,265	12,265	N/A	N/A	1
21	Storage Building[e]	2,533	0	(2,533)	N/A	1
A	New MACC	0		N/A	132,000	4
A	Ancillary Building	0		N/A	24,700	2
A	Emergency Generator	0		N/A	4,223	1
A	Central Plant III	0		N/A	9,409	1
	TOTAL	**1,243,692**	**734,674**	**509,018**	**170,332**	**N/A**

NOTES:

a. It is understood that the emergency room, storage buildings, cooling towers, and existing MACC would be vacated in Tier I and may be reused, replaced, or removed as part of Tier II of the proposed project. These buildings may be either (1) removed during Tier II or (2) reused, replaced, or removed in Tier II. In either case, the building space would not be operational as part of Tier I. Should these buildings be reused, replaced, or removed in Tier II, the floor area of the space would be included within the total Tier II potential development of 1,814,696 square feet. Thus, the total of all net new development floor area at build-out of the campus would not exceed 1,476,010 square feet. The new MACC Building, Ancillary Building, emergency generator space, and new central plant III are labeled "A" in Table 2.4-1, are proposed buildings.

b. These buildings also have basements, or a partial floor in the case of the Augustus F. Hawkins Comprehensive Mental Health Center.

c. This scenario takes into account the replacement of the MACC Building, which is the 'worst-case scenario for the proposed development. Should this structure be reused, 132,000 square feet for the MACC Building should be accounted for in both the proposed total floor area and proposed footprint of the campus buildings.

d. These structures would likely be removed following the reuse, replacement, or removal of the existing MACC Building.

e. This building is in the footprint of the Central Plant (Phase III) expansion but may just be incorporated during design and remain.

NOTES FOR TABLES 2.4-1, 2.4-2, and 2.4-3:

- The calculations assume that the campus would retain 10-percent open space through use of landscape for the purpose of aesthetic designs / beautification, noise barriers, storm water runoff reduction, air quality, and overall health and sustainability. The County Zoning Code specifications require a minimum of 10 percent open space).
- The calculations assume that a maximum of 40 percent of the campus would be reserved for the potential parking structures or parking lots.
- The calculations include a 2.5-story-average building-height limit, based on the existing structures. The County Zoning Code specifications require a 35' (3-story) height limit.
- There is no required setback for the development.
- The 100 residential units would be included in the approximately 1,814,696 square feet of new development.

Tier II of the proposed project would entail the reuse, replacement, or removal of the existing MACC Building (which will be vacant following construction of the new MACC Building in Tier I) and reuse, replacement, or removal of the following: Emergency Room, Storage Building, and Cooling Towers.[33] Tier II construction may entail additional master-planned mixed-use development, which may include the potential for medical offices, general offices, commercial and retail space, residential units, recreational areas, and other development that is appurtenant to and compatible with the primary land use, in support of the campus.

To establish a proposed program of development level for the mixed-use portion of Tier II that is described in Table 2.4-1 as the potential build-out, the currently undeveloped areas of the campus (undeveloped in this case includes parking lots and structures but not buildings) were calculated and adjustments were made for buildings to be reused, replaced, or removed and developed, to obtain a surface area from which to calculate allowable build-out (Table 2.4-2, *Proposed Tier II Campus Development Calculations*). A maximum build-out of this remaining area was calculated using maximum build-out criteria from the Los Angeles County Zoning Code restrictions applicable to the site. Initially, this maximum build-out number was in excess of 2 million square feet and included zoning code allowances of a maximum of three stories in building height and a minimum of 10 percent open space (i.e., areas without structures). To determine a more accurate level of development for Tier II, the following assumptions were added: (1) open space site-wide would remain a minimum of 10 percent in order to maintain some of the current character of the site as an open and landscaped campus; (2) the site area to be set aside for the potential development of an up to 100-unit residential component, parking structures or parking lots, and walkways would be a maximum of 40 percent of the entire site; and (3) although a maximum of three stories would be allowed for new buildings, an average height of 2.5 stories was assumed.[34] With these assumptions added in, the maximum programmed development for Tier II could consist of up to 1,814,696 square feet.

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[33] However, the functions of these buildings would be substituted.

[34] An average building size of 2.5 was used although it is anticipated that the Tier II buildings would vary in size and may be taller than 2.5 stories.

TABLE 2.4-2
PROPOSED TIER II CAMPUS DEVELOPMENT CALCULATIONS

	Total Proposed Tier II Development (square feet)
TIER II DEVELOPMENT	
Total Campus Area (less the buildings retained)	1,344,219
Total Campus Area (less 10% open space)	1,209,797
Total Campus Area (less 40% potential parking)	725,878
Total Campus Area (multiplied by average building stories 2.5)	1,814,696
Total Campus Potential Build-out	**1,814,696**
Total Campus Area (38.36 acres)	***1,670,920***

Tier I of the proposed project will result in a decrease of the existing square feet, as the functions of several existing buildings would be removed. Tier II of the proposed project has the potential to result in a total floor area of up to 1,814,696 square feet (or a footprint of up to approximately 725,878 square feet) of new development. A summary of the proposed project development is provided in Table 2.4-3, *Proposed Project Development Summary*. As shown, given the net reduction in building floor area in Tier I, the net new development after completion of Tier I plus Tier II is 1,476,010 square feet of floor area.

TABLE 2.4-3
PROPOSED PROJECT DEVELOPMENT SUMMARY

	Summary	**Square Feet**
1	Existing floor area	1,243,692
2	Existing floor area proposed to remain	734,674
3	Floor area proposed to be reused, replaced, or removed[a]	(509,018)
4	Floor area proposed as new construction in Tier I	170,332
5	**Total net new Tier I development** *(Sum of lines 3 and 4)*	**(338,686)**
6	Potential new build-out Tier II	1,814, 696
7	**Total net new Tier I and Tier II** *(Sum of lines 5 and 6)*	**1,476,010**

NOTE:

a. This is the total amount of building floor area to be removed from operations, including reuse, replacement, or removal of buildings. See Table 2.4.1 for annotation of buildings that are being vacated, awaiting Tier II reuse, replacement, or removal. The vacation of the specified buildings in Tier I will result in a reduction of the existing floor area. The vacated buildings will be reused, replaced, or removed during Tier II of the proposed project.

Leadership in Energy and Environmental Design Elements

On January 16, 2007, the County of Los Angeles Board of Supervisors approved the Countywide Energy and Environmental Policy. The Countywide Energy and Environmental Policy consists of programs that are designed to institute energy conservation and environmental stewardship into all

County efforts.[35] As part of the Countywide Energy and Environmental Policy, the County has established requirements for capital construction. The County requires that all new County buildings (greater than 10,000 square feet) under the County's Capital Project Program, which includes capital improvement and development projects, shall be Leadership in Energy and Environmental Design (LEED) certified at the silver level.[36]

Development of the new MACC Building and the Ancillary Building under Tier I of the proposed project are currently registered with the U.S. Green Building Council under LEED for New Construction (LEED-NC).[37] The County will seek LEED silver certification for the MACC Building and the Ancillary Building.[38] In addition, any County buildings that are more than 10,000 square feet that are developed under Tier II of the proposed project will be required to seek a minimum LEED silver certification. The LEED program recognizes and promotes a project's success in five areas: (1) sustainable sites, (2) water efficiency, (3) energy and atmosphere efficiencies, (4) materials and resources, and (5) indoor environmental quality. In addition, the federal government has a program titled "Green Guide for Healthcare Construction" (GGHC), which is designed to help hospitals navigate through the LEED program. The proposed project would incorporate energy efficient and sustainable strategies throughout the construction, development, and operation of the proposed project.

The development of Tier I and Tier II of the proposed project would utilize and incorporate materials to ensure visual consistency and continuity at the proposed project site and within the surrounding area. The proposed project must adhere to the design goals presented in the campus planning and programming report that was prepared for the MLK Medical Center Campus by HMC Architects in 2009. The report stated that the proposed architecture should achieve the following:

- Respect the existing fabric of buildings;
- The selection of exterior material and architectural forms should make reference to the material palette of the existing campus while incorporating contemporary materials and building technologies to project the future vision of this campus;
- The juxtaposition and massing of the new buildings should be strategically located to allow visitors a pleasurable aesthetic experience; and
- The open spaces created in between the buildings are designed the variations in size, shape, and scale that are conducive to pedestrian travel through the campus.[39]

2.4.1 Tier I: Project Development

Tier I of the proposed project would entail the development of two new buildings: the new MACC Building and the Ancillary Building, tenant improvements in existing buildings, site improvements,

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[35] County of Los Angeles. Accessed August 2010. "Energy and Environmental Efforts." Web site. Available at: http://green.lacounty.gov/green_buildings.asp

[36] County of Los Angeles. Accessed August 2010. "Energy and Environmental Efforts." Web site. Available at: http://green.lacounty.gov/green_buildings.asp

[37] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[38] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[39] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

and potential relocation of the MRI Building. Project-level environmental impact report (EIR) analysis will be provided for Tier I.

2.4.1.1 Multi-Service Ambulatory Care Center Building

The proposed MACC Building would be a four-story building consisting of approximately 132,000 square feet of floor area. This building would house the walk-in clinic, outpatient imaging, outpatient surgery, and various other outpatient clinics that are currently operating in the existing MACC. The proposed building would most likely be of structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. Similar to the proposed Ancillary Building, the lateral-force-resisting system of the MACC Building can be any one of the following: moment frames, braced frames, or a combination of the two. The lateral-force-resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

2.4.1.2 Ancillary Building

The proposed Ancillary Building would be a two-story structure consisting of approximately 24,700 square feet of floor area. This building would house the campus kitchen and cafeteria, and administrative offices. The building would be constructed to the east of the new MACC. A new pedestrian footbridge would be provided at the east end of the building for connection to the existing Inpatient Tower for the transportation of materials and supplies. The bridge would most likely be constructed of steel with a seismic joint at the Inpatient Tower.

The new building would most likely be structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. The lateral-force-resisting system for the building can be any one of the following: moment frames, braced frames, or a combination of the two. It is anticipated that the lateral-force-resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

2.4.1.3 Tenant Improvements

The tenant improvements would be performed in the North Support Building to provide space for the MACC administrative departments. The South Support Building would be reorganized to serve as the main warehouse for the MACC. The South Support Building may also serve as a central distribution center for other Los Angles County healthcare facilities in the area. Other tenant improvements would be performed in the Interns and Physicians and Plant Management Buildings for support functions to the MACC.

2.4.1.4 Site Improvements

The site work would consist of a new parking terrace, relocated entrance to the facility, new parking lots, re-striping of existing lots, and new landscaping at the entry of the new MACC and its surrounding area. A space for an emergency generator and a service yard with technical (tech) dock positions that connect mobile radiology equipment would also be provided.

In addition, site work would include improvements at 120th Street at the northern boundary of the proposed project site. These site improvements would entail: removing the existing cross walk and traffic signal at the new Oasis Clinic; adding a new crosswalk and traffic signal at the new campus (Medical Center Drive) entry; prohibiting curbside parking on both sides of 120th Street for a distance of approximately 300 feet east and 200 west of the new Medical Center Drive entrance;[40] adding a left-turn lane westbound at the new Medical Center Drive entrance; in order to remedy potential drainage defects, removing and replacing approximately 500 linear feet of street at Medical Center Drive entrance and/or constructing inlets and extending the public storm drain; repairing and/or replacing the curb, gutter, and sidewalk where necessary; and planting additional street trees and landscape.

Tier I would be expected to generate approximately 150 temporary construction jobs and no new permanent or operational staff positions as Tier I would only require existing staff to be shifted into the new Tier I facilities.

2.4.2 Tier II: Master Plan Development

Tier II of the proposed project would entail the development of a campus-wide Master Plan. It is anticipated that the development described in the Master Plan would seek to prepare the proposed project site for future mixed-use campus support development that would provide the health services necessary to respond to and address the needs of the community. Tier II would have the potential to build-out approximately 1,814,696 square feet of development on the proposed project site with mixed uses including medical office, commercial, retail, office space, recreation, and other development in support of the campus (Table 2.4.2-1, *Proposed Tier II Campus Development Matrix*). In addition, up to 100 residential units, to be developed at a multifamily density consistent with surrounding residential area multifamily development densities, are proposed in Tier II. Although the these buildings would be vacated as a component of Tier I, the Tier II components would entail the reuse, replacement, or removal of the existing MACC Building, Emergency Room, Storage Building, and Cooling Towers.

TABLE 2.4.2-1
PROPOSED TIER II CAMPUS DEVELOPMENT MATRIX

Land Use Description	Square Feet	Percentage of Tier II Development
Commercial / Retail	80,000	4.41
Residential	150,000	8.27
Medical Office	300,000	16.53
General Office	150,000	8.27
Additional Campus Support Buildings	1,134,696	62.53
TOTAL	**1,814,696**	**100.00**

NOTE:
Commercial/Retail assumes up to 4 spaces containing approximately 20,000 square feet multiplied by 2.5 stories; Residential assumes 100-unit building containing approximately 1,500 square feet per unit; Medical Office assumes the development of a 5-story building; General Office assumes the development of a 5-story building; Additional Campus Support Buildings assumes the rounded sum of a footprint of approximately 453,878 square feet multiplied by an average of 2.5 stories.

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[40] This would remove approximately 30 curbside parking spaces on 120th Street. Adequate off-street parking is proposed to be provided on-site at the campus to account for the removal of these curbside parking spaces.

The Tier II components are conceptual at this time, and will therefore only be discussed in a programmatic level in the EIR, as permitted under CEQA. Once the detailed future development plans for Tier II components are prepared, consistent with the guidelines for programmatic EIRs under CEQA, the projects will be examined in light of the program EIR analysis, to determine whether additional environmental document(s) must be prepared.

In accordance with §15168 of the State CEQA Guidelines, the program-level analysis that is provided in this EIR document for Tier II of the proposed project is intended to be prepared for a series of actions that can be characterized as one large project, such as a master plan. Through a programmatic EIR, the County seeks to provide the public, responsible agencies, and interested parties an opportunity for a more exhaustive consideration of the Tier II effects and alternative than would be practical in an EIR for each individual action; furthermore, the County can consider broad program-wide mitigation measures at an early time when there is greater flexibility to deal with basic problems or cumulative impacts. It is understood, however, that subsequent activities described within Tier II of the proposed project must be evaluated in light of the programmatic EIR to determine whether additional environmental document(s) must be prepared.

Although some variation in the distribution of these uses (i.e., percentage of the total) may occur when the project is implemented, the data in Table 2.4.2-1 present a reasonable projection at this time of the land use distribution for the purposes of environmental impact assessment.

Tier II development would be expected to generate approximately 150 temporary construction jobs that would vary according to the development and will be determined in the future Master Plan. Tier II also has the potential to result in a range of new permanent or operational staff positions. The County has estimated a conservative of the number of 100 jobs that could be associated with Tier II of the proposed project.[41]

2.4.3 National Environmental Policy Act Compliance

Funding for the proposed project has been solicited by the County through a variety of sources. One way in which the County intends to support a portion of the development on the proposed project's campus is by selling bond that have been made available through the American Recovery and Reinvestment Act of 2009 (ARRA). ARRA was signed into law by President Barack Obama on February 17, 2009. According to the U.S. Department of Treasury,

> It is an unprecedented effort to jumpstart the [United States] economy, create or save millions of jobs, and put a down payment on addressing long-neglected challenges so our country can thrive in the 21st century. The Act is an extraordinary response to a crisis unlike any since the Great Depression, and includes measures to modernize our nation's infrastructure, enhance energy independence, expand

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[41] This range is a conservative assessment based upon coordination with the County. These numbers are based solely upon estimates regarding what could occur as part of this project and do not reflect known or actual trends although labor fore casts related completed by the U.S. Bureau of Labor Statistics (BLS) were reviewed. The U.S. BLS, November 2009 Monthly Labor Review, which is available at http://www.bls.gov/opub/mlr/2009/11/mlr200911.pdf, projected the following for the year 2018: jobs in the health care and service assistance field will account for approximately 12% of the available non-farm jobs; retail and trade would account for 10%; professional business would account for 14%; and leisure and hospitality would account for approximately 9% of the available non-farm jobs in the U.S. in 2018.

> educational opportunities, preserve and improve affordable health care, provide tax relief, and protect those in greatest need.[42]

The County has determined that the proposed project is not subject to review under federal compliance standards of the Nation Environmental Policy Act (NEPA) as a result of the fact that the funds that were provided through ARRA were specifically distributed to address health and other provisions under ARRA which is not an "act" that would require that NEPA review.[43,44,45]

2.4.4 Construction Scenario

The information contained in the construction scenario for reasonably anticipated construction related activity for the proposed project tiers was developed based upon assessments completed for projects of a comparable size and was used in the assessment of potential construction impacts to air quality, ambient noise levels, and traffic and circulation.

The construction of the proposed project would comply with all applicable code and ordinance requirements for construction, access, water main, fire flows, and fire hydrants. Specific fire and line safety requirements for the construction of the proposed project would be reviewed for approval during each building's fire plan check. It is understood that there may be additional fire and other safety requirements that result from the plan check.

It is anticipated that the site Emergency Response and Evacuation plans will be updated for both Tier I and Tier II of the proposed project as appropriate and that these plans will address all campus development, as each building is completed.

It is also understood that communication with the County Fire Department, Sheriff's Department, and other emergency response agencies will continue throughout the development of the both tiers of the proposed project. It is further understood that the County of Los Angeles would coordinate with the respective service agencies for Tier II of the proposed project to review the specific proposed development during the planning phase of the proposed project in order to confirm whether Tier II of the proposed project adequately meets the requirements of the respective service provider.

2.4.4.1 Tier I Construction Scenario

Tier I of the proposed project—which consists of the construction of the new MACC Building, the Ancillary Building, tenant improvements, site improvements, and potential relocation of the MRI Building—would require approximately 37 months to complete (March 2011 to April 2014). Construction at the proposed project site is anticipated to be in accordance with all federal, state,

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[42] U.S. Department of Treasury. Accessed 5 April 2010. *The American Recovery and Reinvestment Act of 2009 (Recovery Act)*. Available at: http://www.ustreas.gov/recovery/

[43] Becker, Arto C., and Russell Miller, Bond Counsel. 7 April 2010. *Memorandum: Various Questions Regarding the American Recovery and Reinvestment Act of 2009.* Los Angeles, CA.

[44] Higdon, Matthew, Council on Environmental Quality. 7 April 2010. Telephone correspondence with Marlise Fratinardo, Sapphos Environmental, Inc., Pasadena, CA.

[45] Ward, Kristin, Management and Program Analyst, U.S. Department of Treasury. 7 April 2010. Telephone correspondence with Marlise Fratinardo, Sapphos Environmental, Inc., Pasadena, CA.

regional, and County regulations, including the National Pollution Discharge Elimination System[46] and the County General Plan.[47]

It is anticipated that construction related to Tier I for the proposed project may require the type of equipment listed below in Table 2.4.4.1-1, *Anticipated Construction Equipment*. The information contained in Table 2.4.4.1-1 will be used in the assessment of potential construction impacts to air quality, ambient noise levels, and traffic and circulation for Tier I of the proposed project. This information was prepared in consultation with the County of Los Angeles Department of Public Works, HMC Architects, and representatives from the American Institute of Architects.

TABLE 2.4.4.1-1
ANTICIPATED CONSTRUCTION EQUIPMENT

Approximate Quantity	Type of Equipment or Vehicle	Approximate Duration of On-site Construction Activity (in months)
2	Man lift	3
4	Pickup truck	8
2	Hand compactor	5
2	Crane	3
1	Concrete mixer	4
1	Backhoe	3
40–60	Crew members	8
50	Crew vehicles (maximum)	8
1	Pile Driver	6
1	Large Bulldozer	3
2	Dozer	3
1	Front-end loader	1
1	Water truck	2
1	Grader	1
5	Dump truck	6
16	Concrete mix truck	9
1	Roller	1
3	Fork lift / grade all	3

Site preparation and construction of the proposed project would be in accordance with all federal, state, and County building codes. Daily construction activities would be subject to County noise regulations. All construction-related activities would be scheduled in compliance with the County Noise Ordinance, which prohibits construction activities and operation of construction equipment between the hours of 8:00 p.m. and 7:00 a.m., Monday through Friday, or at any time on Sunday or holidays. Work conducted on Saturdays would commence at 7:00 a.m. and cease no later than 5:00 p.m. Noise levels exceeding 65 dBA (decibels, A-weighted sound levels) for single-family residences and 70 dBA for multifamily residences during construction hours are prohibited.

The construction contractor would ensure that source-reduction techniques and the development of recycling programs during construction and operation of the proposed project are considered

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[46] U.S. Environmental Protection Agency. 2009. *National Pollution Discharge Elimination System*. Available at: http://cfpub.epa.gov/npdes/

[47] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

and implemented whenever possible.[48] In addition, employee vehicles, construction equipment and vehicles, and storage and materials used throughout the proposed project site would be located in a designated staging area in an effort to minimize impacts to the site, pedestrians, and medical center employee or visitor traffic.

It is anticipated that there would be grading activities associated with the development of Tier I of the proposed project. It is anticipated that the approximately 40,000 cubic yards of material would be exported from the site during construction of the proposed project. It is further anticipated that excavation may exceed 20 feet but would not be expected to be greater than 45 feet deep. It is anticipated that a geotechnical engineer would be available for observation and testing of the earthwork-related tasks to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered would be evaluated by the proposed project engineering geologist and the soil engineer.[49] The existing access roads to and the streets surrounding the proposed project site would be used to transport import, export, and other construction related materials to and from the proposed project site. Specifically, construction-related vehicles would access the proposed project site from the north and south of the campus.

North Haul Route

The north hauling route would consist of the following: a vehicle would exit the I-105 at Wilmington Avenue; travel south on Wilmington Avenue to East 120th Street; turn right on East 120th Street; and head west to the north parking lot entrance. A vehicle would exit the site at the north parking lot and turn right; travel east on 120th Street; turn left on Wilmington Avenue; and travel north to the I-105.

South Haul Route

The south hauling route would consist of the following: a vehicle would exit the 1-105 at Wilmington Avenue, travel south to the alley at the southern border of the campus, and turn right onto the campus. A vehicle would exit the site by heading west towards Compton Avenue, turn right and travel north on Compton Avenue, turn right on East 120th Street, head east toward Wilmington Avenue, turn left on Wilmington Avenue, and travel north to the I-105.

Further analysis regarding the structural integrity of the roads along the hauling routes may be required and reviewed by the County Department of Public Works. In the event that the designated roads described in the hauling routes do not meet the structural integrity required for the purposes of the proposed project, it is possible that reconstruction of these roadways would be required to increase the structural integrity, to handle increased loading.

The construction contractor would be required to incorporate best management practices (BMPs) consistent with the guidelines provided in the California Storm Water Best Management Practice Handbooks: Construction.[50] Should the construction period continue into the rainy season,

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[48] *Los Angeles County Code*. Title 12, "Environmental Protection," Chapter 20.87.08.060, "Approval of Recycling and Reuse Plan." Available at: http://ordlink.com/codes/lacounty/index.htm

[49] URS. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

[50] California Stormwater Quality Association. 2009. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

supplemental erosion measures would need to be implemented, including, but not limited to, the following:

- Mulching
- Geotextiles and mats
- Earth dikes
- Temporary drains and gullies
- Silt fence
- Straw-bale barriers
- Sandbag barrier
- Brush or rock filter
- Sediment trap

The anticipated construction period would begin in March 2011 and conclude in April 2014. BMPs to control surface runoff and soil erosion would be required for construction taking place during rainy periods.

Construction equipment would be turned off when not in use. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times. It is currently anticipated an average of 150 construction workers would be on site at any given time during the construction of the proposed project.

Construction-related ingress and egress to the proposed project site would occur primarily off East 120th Street to the north or Wilmington Avenue to the east. Construction-related traffic delays and other nuisance traffic would be anticipated on the street identified above in the haul routes, as well as on the streets surrounding the campus as a result of the proposed project. The County would maintain the roads as necessary throughout the operation and maintenance of the proposed project. Furthermore, it is understood that all construction-related plans, including, but not limited to, hauling routes, construction scheduling (regarding deliveries of material, import/export, use of equipment, or other construction-related scheduling), and access to the proposed project would be subject to the review and approval of the County Department of Public Works, Traffic and Lighting Division and all other relevant agencies. Potential impacts related to construction, including potential impacts to the roadways surrounding the proposed project site are further analyzed in this EIR.

2.4.4.2 Tier II Construction Scenario

The Tier II of the proposed project consists of a campus-wide Master Plan and up to 1,814,696 square feet of development on the proposed project site. The potential construction scenario for Tier II may be envisioned as a multiphase process to be completed concurrently with Tier I. The construction scenario is to develop Tier II within an approximately 10-year timeframe, between 2010 and 2020. For the purposes of the analysis contained in this document, a build-out year of 2020 has been assumed for Tier II of the proposed project. This analysis approach of the construction scenario has been developed based on an aggressive scenario (which allows the proposed project site to be developed to the maximum extent possible) to allow the consideration of a reasonable worst-case environmental impacts scenario, which encompasses the maximum anticipated impacts of the proposed project, in the event that the County chooses to complete up to 1,814,696 square feet of development.

The type and quantity of equipment that would potentially be used in construction of Tier II would vary for each component. However, for the purposes of this analysis, it is anticipated that development of Tier II would require multiple phases that would utilize equipment that is comparable to the equipment described in Table 2.4.4.1-1 for each phase.

Site preparation and construction of the proposed project would be in accordance with all federal, state, and County building codes.

As with Tier I of the proposed project, the construction contractor would ensure that source-reduction techniques and the development of recycling programs during construction and operation of the proposed project are considered and implemented whenever possible.[51] The construction contractor would be required to incorporate BMPs consistent with the guidelines provided in the California Storm Water Best Management Practice Handbooks: Construction.[52]

BMPs to control surface runoff and soil erosion would be required for construction taking place during rainy periods.

Any construction equipment used during the potential development of Tier II would be turned off when not in use to reduce idling to the maximum extent possible. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times. It is currently anticipated that on average, up to 400 construction workers would be on site at any given time during the construction of the Tier II portion of the proposed project. It is also anticipated that approximately 60 County project and construction management staff would be at the site during Tier II construction. However, this number could vary as a result of the type an amount of work being completed on the site throughout the tier.

Construction-related ingress and egress to the proposed project site would occur primarily off East 120th Street to the north or Wilmington Avenue to the east.

2.5 INTENDED USES OF THE EIR

The County of Los Angeles is the lead agency for the proposed project. The County of Los Angeles Board of Supervisors will be requested to consider certification of the EIR and is authorized to render a decision on the approval of the proposed project.

Specific project elements may be subject to additional approvals, which include, but are not limited to, those described in Table 2.5-1, *Required Approvals*. The anticipated permits, approvals, and licenses would be required for development of the proposed project and specifies the agency(ies) and programs responsible for issuing each approval.

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[51] *Los Angeles County Code*. Title 12, "Environmental Protection," Chapter 20.87.08.060, "Approval of Recycling and Reuse Plan." Available at: http://ordlink.com/codes/lacounty/index.htm

[52] California Stormwater Quality Association. 2009. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

TABLE 2.5-1
REQUIRED APPROVALS

Permit / Approval / License Title	Agency/Program
Clinic License	• County of Los Angeles Department of Health Services, Health Facilities Inspection Division • State of California Department of Health Services, Licensing, and Certification Division • California Department of Public Health Licensing and Certification Program
Asbestos and Lead-Based Paint Abatement	• U.S. Environmental Protection Agency
Asbestos Abatement Notification / Asbestos Worker Notification	• California EPA, Department of Toxic Substances Control • California Division of Occupational Safety and Health • South Coast Air Quality Management District
Building, Grading, Excavation, Encroachment Permit	• County of Los Angeles Department of Regional Planning • County of Los Angeles Department of Public Works
Construction Permit	• County of Los Angeles Department of Regional Planning • County of Los Angeles Department of Public Works • County of Los Angeles Fire Department • Office of Statewide Health Planning and Development
Conditional Use Permit	• County of Los Angeles Department of Regional Planning • County of Los Angeles Department of Public Works • Office of Statewide Health Planning and Development
Demolition Permit	• County of Los Angeles Department of Public Works • California Division of Occupational Safety and Health • Office of Statewide Health Planning and Development
Abatement, Notification, Grading, and Operating Permit	• South Coast Air Quality Management District
NPDES Permit / SUSMP / SWPPP	• County of Los Angeles Department of Public Works
Notification (Cultural Resources)	• California Office of Historic Preservation
Transportation permits, encroachment permit, parking, transportation permit for the use of oversized vehicles, and traffic modifications on state highways	• State of California Department of Transportation • Metropolitan Transportation Authority (MTA) • County of Los Angeles Department of Regional Planning
Campus Plan Approval	• Office of Statewide Health Planning and Development • County of Los Angeles Department of Public Works • County of Los Angeles, Board of Supervisors

2.6 RELATED PROJECTS

The area surrounding the proposed project site was examined in order to determine whether there are currently any projects in progress or proposed for the future that could potentially add to the impacts of the proposed project, creating cumulative significant impacts.

It was determined that there are at least forty-two (42) projects that could affect the cumulative impacts analysis of the proposed project that are anticipated to be initiated within the construction period for both tiers of the proposed project and would occur within an approximate 3-mile radius of the proposed project site (Table 2.6-1, *List of Related Projects,* and Figure 2.6-1, *Related Project Locations*).

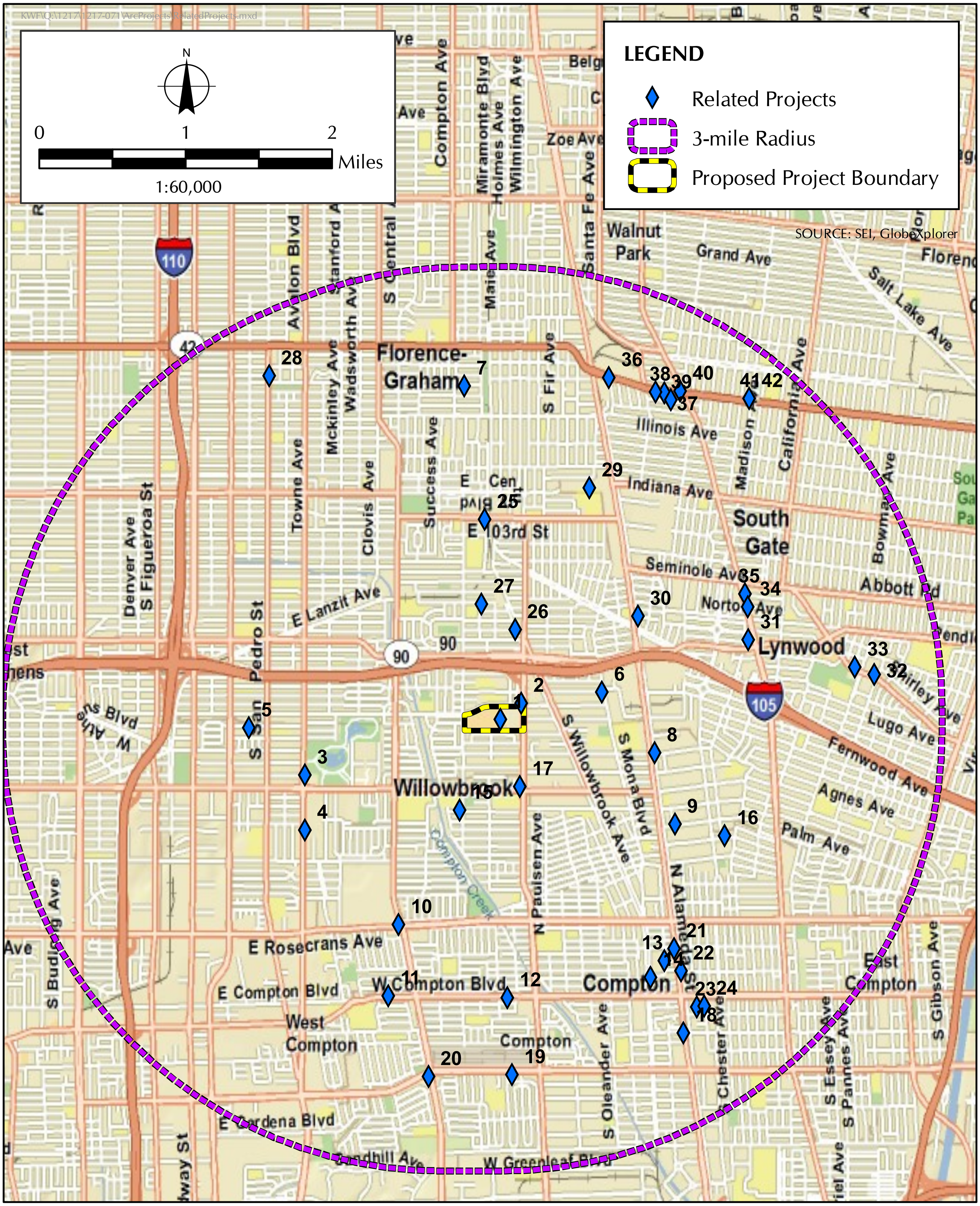

FIGURE 2.6-1

Related Project Locations

TABLE 2.6-1
LIST OF RELATED PROJECTS[a]

#	Related / Cumulative Project	Location	Description	Distance from Site (miles)
County of Los Angeles[b]				
1	MLK Campus Improvements	12021 South Wilmington Avenue	Hospital [h]; 172,591 square feet (sf) and 120 beds	0
2	South Public Health Clinic	11839 Wilmington Avenue	Health Clinic; 48,000 sf	0.02
3	Charter High School	12628 Avalon Boulevard	High School; 32,000 sf	1.2
4	Avalon II Apartment Project[c]	13218 Avalon Boulevard	Apartments; 55 units	1.2
5	Townhouses	East 121st Street between Main Street and San Pedro Street	Townhouses; 14 units	1.5
6	Single-family Houses	2354 East 118th Street	Single-family Residences; 4 units	0.6
7	South Region Elementary School No. 7	1536 East 89th Street	Elementary School; 950 students	2.2
City of Comptond				
8	Recycle Center	3100 North Alameda Street	Recycling Center; 43,350 sf	0.9
9	Warehouse	409 East Euclid Avenue	Warehouse; 10,874 sf	1.2
10	Commercial	2215 West Rosecrans Avenue	Commercial; 25,000 sf	1.4
11	Apartment	2301-2307 West Compton boulevard	Apartments; 4 units	1.9
12	Townhouses	930 West Compton Boulevard	Townhouses; 41 units	1.8
13	Mixed-Use	509 North Tamarind Avenue	Condominiums; 136 units Retail; 4,000 sf	1.9
14	Senior Center	Tamarind Avenue and Palmer Street	Senior Center; 4 units	2.0
15	Residential	1409 West 130th Street	Single-Family Residential; 4 units	0.5
16	Townhouses	809 East Pine	Townhouses; 8 units	1.5
17	Residential	2709 North Wilmington Avenue	Single-Family Residential; 4 units	0.4
18	Townhouses	501 South Alameda Street	Townhouses; 28 units	2.3
19	Retail	909 South Central Avenue	Retail; 6,500 sf	2.4
20	Mixed-Use	950 West Alondra Boulevard	Townhouses; 28 units Church; 3,000 sf	2.3
21	Senior Housing	Northwest corner of Alameda Street and Palmer Street	Senior Housing; 200 units	2.0
22	Condominium	Southwest corner of Alameda Street and Elm Street	Condominiums; 186 units	1.8
23	Mixed-Use	Northwest corner of Tamarind Avenue and Palmer Street	Live/work Units; 12 units Apartments; 6 units Retail; 11,500 sf	1.9
24	Apartment Complex	202 South Rose Avenue	Apartments; 4 units	2.3
25	Apartment Complex	205 North Willow Avenue	Apartments; 4 units	2.1

TABLE 2.6-1
LIST OF RELATED PROJECTS[a], Continued

#	Related / Cumulative Project	Location	Description	Distance from Site (miles)
City of Los Angeles[e]				
26	Movie Theater	10341 Graham Avenue	Movie theater w/ matinee; 1,040 seats Education Center; 12,000 sf	1.3
27	High School	11300 Monitor Avenue	Highs School; 500 seats	0.5
28	Amino Watts No. 2 at Flourny	1630 East 111th Street	High School; 125 seats	0.6
29	South Region High School No. 12	8800 South San Pedro Street	High School; 2,025 seats	2.6
30	Jordan Downs Redevelopment Project	97th Street to the north, Alameda Street to the east, 103rd Street to the south, and Grape Street to the west	Mixed Use and 1,800 units	1.3
City of Lynwood[f]				
31	Warehouse[f]	11298 Alameda Street	Warehouse; 7,200 sf	0.9
32	Oakwood Plaza	3211 Oakwood Avenue	Retail; 14,800 sf	1.6
33	Retail Building	3801-3831 Martin Luther King, Jr. Boulevard	Retail; 15, 90 sf	2.3
34	Commercial Building	3791 Martin Luther King, Jr. Boulevard	Office; 4,140 sf	2.4
35	Habitat for Humanity	4237 Imperial Highway	Condominiums; 10 units	3.0
36	Retail Building	10838 Long Beach Boulevard	Retail; 5,300 sf	1.7
City of South Gate[g]				
37	Calden Avenue Condominiums	Southwest corner of Firestone Boulevard and Calden Avenue	Mini-warehouse; 100,000 sf Condominiums; 107 units	2.3
38	Firestone Village Mixed-Use Project	Firestone boulevard between Long Beach Boulevard and Santa Fe Avenue	Shopping Center; 18,090 sf Condominiums; 47 units	2.3
39	Villa Santa Rosa Mixed-Use Project	South Firestone Boulevard between Long Beach Boulevard and Santa Fe Avenue	Shopping Center; 8,642 sf Office; 9,109 sf Condominiums; 56units	2.3
40	LAUSD Elementary School No. 9	2777 Willow Place	Elementary School; 650 seats	2.3
41	Bank	Northwest corner of Firestone and Long Beach Boulevard	Bank; 8,000 sf	2.4
42	Food Market	Northwest corner of Firestone and State Street	Shopping Center; 20,000 sf	2.6

SOURCES:

a. Raju Associates, Inc. November 2009. The traffic study measure distances to these related project boundaries (at the street) and as measured distances may be slightly smaller than those presented here.

b. County of Los Angeles Regional Planning. 2010. Web site. Available at: http://planning.co.la.ca.us/

c. Raju Associate, Inc. Associates. June 2006. "Traffic Study for the Avalon II Affordable Housing Residential Project."

d. City of Compton Planning Department. 2010. Web site. Available at: http://www.comptoncity.org/

e. City of Los Angeles Department of Transportation. 2010. Web site. Available at: http://ladot.lacity.org/

f. City of Lynwood Planning Department. 2010. Web site. Available at: http://www.lynwood.ca.us/

g. City of Southgate Planning Department. 2010. Web site. Available at: http://www.cityofsouthgate.org/

NOTE:

h. This includes the improvements and minor renovation as described in Section 2.2.1, Background, of the project description.

2.7 PROJECT ALTERNATIVES

During the initial design phases of the proposed project, several alternatives have been analyzed. The proposed project represents a combination of elements from the alternatives listed below. The No Project Alternative required under CEQA, as well as five (5) other alternatives, have been carried forward for detailed analysis in this EIR (refer to Section 4.0 for a full discussion on alternatives).

- No Project Alternative
- Alternative 1: Reduced Project Size Alternative (900,000 square foot Tier II)
- Alternative 2: Re-opening the Existing MACC Alternative
- Alternative 3: Public Transportation Focused Alternative
- Alternative 4: 500 beds (in Tier I) Alternative
- Alternative 5: No Tier II Alternative

SECTION 3.0
EXISTING CONDITIONS, IMPACTS, MITIGATION, AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

This section of the Environmental Impact Report (EIR) evaluates the potential of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) to result in significant impacts to the environment as a result of construction, operation, and maintenance of the proposed project. This section of the EIR provides a full scope of environmental analysis in conformance with the State California Environmental Quality Act Guidelines (State CEQA Guidelines).

The Initial Study for the proposed project determined that there was no evidence that the proposed project would cause significant environmental effects related to four environmental resources: agriculture and forest resources, biological resources, land use and planning, and mineral resources.[1] The Initial Study identified the potential for the proposed project to result in 13 significant impacts to environmental resources warranting further analysis: aesthetics, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems. As a result of the detailed evaluation contained in this EIR, it has been determined that neither Tier I nor Tier II of the proposed project would result in potentially significant impacts to population and housing, public services, and recreation.

TIER I

The analysis undertaken in support of Tier I of this EIR has determined that impacts to aesthetics, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, and transportation and traffic can be mitigated to below the level of significance. Construction-related impacts to greenhouse gas emissions and noise, may remain significant following the implementation of mitigation measures.

TIER II

The analysis undertaken in support of Tier II of this EIR has determined that impacts to aesthetics, geology and soils, hazards and hazardous materials, hydrology and water quality, transportation and traffic, and utilities and service systems can be mitigated to below the level of significance. Construction-related impacts to air quality, cultural resources, greenhouse gas emissions, and noise may remain significant following the implementation of mitigation measures.

Each section provides the regulatory framework, existing conditions, thresholds of significance, impact analysis, mitigation measures for significant impacts, level of significance after mitigation, and cumulative impact analysis. The applicable federal, state, regional, county, and local statutes and regulations that govern individual environmental resources that must be considered by the County of Los Angeles Board of Supervisors in the decision-making process are included in the regulatory framework described for each environmental resource. The existing conditions portion of the analysis has been prepared in accordance with the State CEQA Guidelines and includes a description of the environment in the vicinity of the proposed project as it currently exists, from both a local and regional perspective. The existing conditions are described based on literature review and archived resources,

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project, Initial Study*. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

agency coordination, and field inspections. Significance thresholds were established in accordance with Appendix G of the State CEQA Guidelines. The potential for cumulative impacts was considered in relation to 40 related projects identified as a result of scoping, agency consulting, and site inspections (Table 2.6-1, *List of Related Projects*, in Section 2, *Project Description*). Mitigation measures were derived from public and agency input and state-of-the-practice engineering methods. The level of significance after mitigation was evaluated in accordance with the thresholds of significance and the effectiveness of the proposed mitigations to reduce potentially significant impacts to below the significance threshold. The impact analysis contained in this environmental document is based solely on the implementation of the proposed project as described in Section 2, *Project Description*.

The Tier II components of the proposed project are conceptual at this time, and have therefore been discussed in a programmatic level in the EIR, as permitted under §15168 of State CEQA Guidelines. Once the detailed future development plans for Tier II components are known, consistent with the guidelines for programmatic EIRs under CEQA, the projects will be examined in light of the program EIR analysis, to determine whether additional environmental document(s) (including additional or different mitigation measures that are specific to the Tier II project elements) must be prepared.

3.1 AESTHETICS

As a result of the Initial Study,[1] the County of Los Angeles (County) has determined that the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in impacts to aesthetic resources. Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts from the aesthetic resources.

This analysis consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions at the proposed project area, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to aesthetic resources has been analyzed in accordance with Appendix G of the State California Environmental Quality Act (CEQA) Guidelines[2] and the methodologies and policies provided by the County General Plan.[3] In addition, the proposed project's potential for impacts to aesthetic (visual) resources has also been evaluated in accordance with the methodology provided by the California Department of Transportation's (Caltrans) "Scenic Highway System" designations,[4] along with previously prepared and other relevant documentation (see Appendix B, *Aesthetics Analysis Technical Report*) regarding the visual character of the proposed project site including light and glare, shade and shadow, and site reconnaissance.

3.1.1 Regulatory Framework

Federal

Section 4(f) of the U.S. Department of Transportation Act of 1966

The U.S. Department of Transportation Act of 1966, Section 4(f), "Protection of Publicly Owned Park, Recreation Area, Wildlife or Waterfowl Refuge, or Land from Historic Sites," was established to provide certain protections to publicly owned parks, recreation areas, wildlife and waterfowl refuges, and land from historic sites of national, state, or local significance. Section 4(f) requires that the federal agency must show that there are no feasible or prudent alternatives to the use of these areas.[5]

The proposed project would not result in the conversion of existing publicly owned park areas. The County zoning designation for all project parcels (APNs 6140-028-902, 6140-028-900, 6140-028-907, and 6140-028-903) is Neighborhood Commercial (C-2; Neighborhood Business Zone). This zoning designation is established to identify community-related commercial uses and permits the following uses: drugstores, medical clinics (including laboratories), professional or business office

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[2] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[3] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[4] California Department of Transportation. 5 October 2007. *Eligible (E) and Officially Designated (OD) Routes*. Available at: http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm

[5] U.S. Department of Transportation. 1966. U.S. Department of Transportation Act, Section 4(f). Available at: http://www.cr.nps.gov/local-law/FHPL_DOTAct.pdf

space, parking lots and buildings, and hospital equipment and supply rentals.[6] The Martin Luther King, Jr. Medical Center Campus began operations in 1972 following the 1965 Watts Civil Unrest/Riots as a response to the community healthcare needs.[7] The proposed project would meet the community needs for quality healthcare and is not intended to alter the public use or historic relevance of the site. Therefore, no further analysis regarding project compliance with the U.S. Department of Transportation Act would be required.

National Trails System Act

The National Trails System Act seeks to preserve scenic and natural qualities along trails, and recognizes the rights of private landowners and provides that "full consideration shall be given to minimizing the adverse effects upon the adjacent landowner or user and his operation" in the development and use of a trail.[8] The National Trails System Act assigns management responsibility for trails to various federal resource agencies, depending on which agency holds jurisdiction over the land on which the trail is located in a given area.

The Juan Bautista de Anza National Historic Trail was created under the 1968 National Trails System Act to provide for outdoor recreation opportunities and the conservation of significant scenic, historic, natural, or cultural qualities. At its closest point, the Juan Bautista de Anza National Historic Trail is located approximately 9.2 miles to the north of the property see Section 3.11, *Recreation*, for additional details.

State

California Scenic Highway Program

California's Scenic Highway Program preserves and protects scenic highway corridors from changes that would diminish their aesthetic value. Caltrans designates scenic highway corridors and establishes those highways that are eligible for the program. The program was created in 1963 with the enactment of the State Scenic Highways Law.[9] The street and highway code includes a list of those highways that are either eligible for designation or are designated. There are no officially designated State scenic highways or eligible State scenic highways within the vicinity of the proposed project site.

The nearest recognized highway to the proposed project is California State Route 110 (SR 110), which is located west of the proposed project site boundary. The Caltrans Scenic Highway System has identified a portion of SR 110 as a "Historic Parkway" (sometime referred to as a Scenic Byway), which is distinct from an official scenic designation.[10] Assembly Bill (AB 27) designated SR 110 as a California Historic Parkway, a new category of road within the Scenic Highway system.

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[6] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[7] County of Los Angeles. Accessed 9 October 2009. *Los Angeles County Health Services, MLK-MACC*. Available at: *http://www.ladhs.org/wps/portal/KingHomepage*

[8] U.S. Department of Interior, National Parks Service. Amended 2004. National Trails System Act. Available at: http://www.nps.gov/nts/legislation.html

[9] *California Codes*. Streets and Highways Code, Section 260–284.

[10] California Department of Transportation. 1 May 2006. The California Scenic Highway System: A List of Eligible (E) and Officially Designated (OD) Routes (by Route). Available at: http://www.dot.ca.gov/hq/LandArch/scenic_highways/scenic_hwy.htm

This stimulated efforts to pursue preservation and rehabilitation of the historic roadway.[11] A Historic Parkway designation was given to a portion of SR 110; this designation marked an important transitional moment in the history of American freeway engineering and transportation. SR 110 is the first freeway—a grade-separated, limited-access, high-speed divided road—in the western United States. SR 110 is identified as a Historic Parkway between milepost 25.7 and milepost 31.9 in Los Angeles.[12] While SR 110 is located approximately 2 miles from the proposed project site, the historic parkway area is not located near the campus. The scenic designation begins near Glenarm Street in the Pasadena area, to US 101 in Los Angeles.[13] The designated portion of SR 110 route passes through Chinatown and Elysian Park, and the Cypress Park neighborhood in Downtown Los Angeles, which is located approximately 14-miles away from the proposed project site.

Regional

Los Angeles County General Plan

The County General Plan (General Plan) provides a framework for coordinating short- and medium-range actions designed to meet public needs, address critical public issues and guide development and growth within the County. It sets forth guidelines for how the County should allocate its resources related to overall land use direction and development in the County. Moreover, the County General Plan serves as a document that provides decision-makers with a policy framework to guide specific, incremental decisions in support of achieving the Plan's stated goals and objectives, and to ensure the effective use of public resources.

The County General Plan land use designation for the proposed project is Public and Semipublic Facilities (P). As described in the County General Plan, the Public and Semipublic land use designation provides for activities by public and quasi-public entities and allows for the establishment of facilities, infrastructure, and their related operations in these areas that are public or semipublic in nature, including hospitals.

The County General Plan includes 10 elements. Two specific elements, the Conservation and Open Space element and the Scenic Highway element, provide policies related to scenic views and vistas and therefore were considered for this analysis.

County General Plan Conservation and Open Space Element

The Conservation and Open Space element provides goals, policies, and action items related to the open space–related resources of the County. These resources include land and water areas devoted to recreation, scenic beauty, conservation and use of natural resources, agriculture, and mineral production. The element's policies are based on the need to conserve natural amenities, protect against natural hazards, and meet the public's desire for open space experiences. Open space refers to both public and private lands and waters that are preserved for long-term open dedication and recreational uses. Existing open spaces in the County include national forests, state, county, city parks and nature preserves. Open space can also include recreational uses such as golf

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[11] California Department of Transportation. Updated 17 April 2008. Fact Sheet: Historic Arroyo Seco Parkway. Available at: Http://Www.Dot.Ca.Gov/Dist07/Sync/Cpimages/File/Historic%20Arroyo%20Seco.Pdf

[12] California Department of Transportation. "California Scenic Highway Mapping System: Route 110 Photo Album."

[13] California Department of Transportation. Accessed 21 May 2010. "Byway–State Route 110." Available at: http://www.dot.ca.gov/dist07/sync/cpimages/file/updated%20fact%20sheet.pdf

courses, beaches, and other private open space lands. Compliance with the Conservation and Open Space element goal and policies contributes towards avoiding atheistic impacts and or reducing visual impacts. The following goal and policy from the Conservation and Open Space element are relevant to the proposed project.[14]

> **Goal.** To preserve and protect sites of historical, archeological, scenic, and scientific value.
>
> **Policy 16.** Protect the visual quality of scenic areas, including ridgelines and scenic views from public roads, trails, and key vantage points.

<u>County General Plan Scenic Highway Element</u>

The Scenic Highway element provides goals, policies, and action items related to the establishment and protection of scenic highways in the County by identifying and evaluating a system of existing roads that traverse areas of scenic beauty and interest. The element's policies support the County General Plan policy of protection of environmental, social, and economic values associated with aesthetic scenic corridor resources and expansion of the opportunity for the enjoyment of these resources. Actions affecting the quality of roadside scenic resources should be based on the intent of the Scenic Highway Element's goals.[15] As the proposed project site is not within a scenic corridor, the intent of the goals and policies is relevant only to the extent that it provides guidance in avoiding and reducing aesthetic impacts.

Los Angeles County Zoning Ordinance[16]

The Zoning Ordinance (Title 22 of the Municipal Code), in conformance with the General Plan, regulates land use development within the County. The Ordinance also indicates Zoning Districts for parcels of land within the County. Within each Zoning District, the Zoning Ordinance specifies the permitted and prohibited uses, as well as the development standards including setbacks, height, parking, and design standards, among others.

As previously noted, the County zoning designation for all parcels within the proposed project (APNs 6140-028-902, 6140-028-900, 6140-028-907, and 6140-028-903) is Neighborhood Commercial (C-2; Neighborhood Business Zone). This zoning designation is established to identify community-related commercial uses and permits the following uses: drugstores, medical clinics (including laboratories), professional or business office space, parking lots and buildings, and hospital equipment and supply rentals.[17]

The County has established development standards for the Neighborhood Business Zone:

> No more than 90 percent of the net area can be occupied by buildings, with a minimum of 10 percent of the net area landscaped with a lawn, shrubbery, flowers

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[14] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[15] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[16] County of Los Angeles, Los Angeles County Code, *Title 22, Planning and Zoning*. Available at: http://search.municode.com/html/16274/_DATA/TITLE22/index.html

[17] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

> and/or trees, which shall be continuously maintained in good condition. Incidental walkways, if needed, may be developed in the landscaped area; that there be parking facilities as required by Part 11 of Chapter 22.52; and that a building or structure shall not exceed a height of 35 feet above grade, excluding signs which are permitted by Part 10 of Chapter 22.52 (such as chimneys, and rooftop antennas).[18]

The zoning classification for C-2 does not have a setback requirement.[19] Tier I is a replacement development with ancillary uses. Tier II is an expansion of the medical campus facilities. The County would seek to ensure compatibility of the proposed project with the existing campus and its surroundings but reserves the right to exempt elements of the proposed project from the zoning designation. Therefore, the proposed development would not conflict with the permitted uses of this zoning designation, and no General Plan amendment or zone change would be required. However, specific project elements, such as the residential development, may be subject to additional approvals, which include, but are not limited to, approvals such as a conditional use permit, and would be required to meet the conditions of the permit.[20] It is anticipated that the County would obtain the required approvals and permits during the site-specific planning and individual project approval phase of the proposed project and would be required to meet the specified conditions.

3.1.2 Existing Conditions

This subsection provides a detailed narrative of the existing conditions at the proposed project site in relation to scenic vistas, nearby scenic highways, visual quality of the site, shade and shadow and light and glare to support the content for the resource analysis. A field survey of the project area and the surrounding area (areas within view of the project area) was conducted on March 24, 2010, to evaluate the existing setting and develop an informed assessment of the potential effects of the proposed project on visual and aesthetic resources.

3.1.2.1 Scenic Vistas

The County of Los Angeles General Plan, the Conservation and Open Space element, and the Recreation element were evaluated with regard to scenic resources and the components proposed by the project.[21,22] Typically, a scenic vista is defined as a view of an area that is visually or aesthetically pleasing. Aesthetic components of a scenic vista include (1) scenic quality, (2) sensitivity level, and (3) view access. One example of a scenic vista would be the area encompassing a lake or a park-land water amenity, and the viewshed extending from the lake to the highest visible point surrounding the lake. An urban setting can offer scenic vistas as well, due

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[18] County of Los Angeles Department of Regional Planning. Accessed 4 May 2010. "Zoning Ordinance Summary—Commercial Zones." Available at: http://planning.lacounty.gov/luz/summary/category/commercial_zones/

[19] County of Los Angeles Department of Regional Planning. Accessed 4 May 2010. "Zoning Ordinance Summary—Commercial Zones." Available at: http://planning.lacounty.gov/luz/summary/category/commercial_zones/

[20] County of Los Angeles, Los Angeles County Code, *Title 22, Planning and Zoning*. Available at: http://ordlink.com/codes/lacounty/_DATA/TITLE22/Chapter_22_28_COMMERCIAL_ZONES.html#3

[21] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan, Conservation and Open Space Element*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[22] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

to the value provided by architectural style, landscaping, and or the historical significance of a development. The skyline of Downtown Los Angeles is an example of an urban setting that offers a vivid landscape in contrast with the surrounding areas. However, because the Downtown Los Angeles skyline is located approximately 9 miles from the proposed project site, the skyline is not considered readily visible from the proposed project site or surrounding area under existing conditions, and the proposed project site is therefore not considered to have a high level of sensitivity for scenic vista impacts.

The Juan Bautista de Anza National Trail, a historic route that stretches 1,210 miles from Nogales, Arizona to San Francisco, California is located to the north of the project area. The distance between the Juan Bautista de Anza National Historic Trail and the proposed project is approximately 9.2 miles. The existing ground of the proposed project site has elevations ranging from approximately 86 to 88 feet above mean sea level (msl). The proposed project site has the highest elevation at the east and dipping towards south and west. Scenic vistas with local environmental quality such as coastal, desert, and mountain views are not visible from within the proposed project site, as the proposed project site and surrounding areas are comprised of an urbanized setting. The proposed project site represents only a small and distant portion of the potential viewshed from the trail. Therefore, the proposed project site is not considered to have a high level of sensitivity with regard to scenic vistas from the trail. As supported by the County General Plan, there are no other scenic resources including, but not limited to, significant trees or unique rock outcrops located within the project vicinity. [23]

3.1.2.2 Scenic Highways and Resources

According to the County General Plan,[24] there are no officially designated scenic highways within the vicinity of the proposed project site. A portion of State Route 2 (Angeles Crest Highway), from the National Forest Boundary to the San Bernardino County Line,[25] located approximately 14 miles north of the proposed project site, is identified as an "Officially Designated State Scenic Highway." The proposed project site is located approximately 2 miles east of SR 110. The Caltrans Scenic Highway System has identified segments of SR 110 as a "Historic Parkway," which is distinct from an official scenic designation.[26] A Historic Parkway designation was given to a portion of SR 110 given the highway's unique and historic engineering. SR 110 was the first freeway—a grade-separated, limited-access, high-speed divided road—in the western United States. SR 110 is identified as a Historic Parkway between milepost 25.7 and milepost 31.9 in Los Angeles.[27] The designation begins near Glenarm Street in the Pasadena area, to US 101 in Downtown Los Angeles for approximately 8.2 miles.[28] The designated portion of SR 110 route passes through Chinatown and Elysian Park, and the Cypress Park neighborhood in Downtown Los Angels, approximately 14 miles away from the proposed project site; it is not likely that the project site would be discernable

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[23] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[24] California Department of Transportation. 5 October 2007. *Eligible (E) and Officially Designated (OD) Routes*. Available at: http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm

[25] County of Los Angeles Department of Regional Planning. 11 October 1974. *County of Los Angeles General Plan, Scenic Highway Element: Scenic Highway System Map Index*. Los Angeles, CA.

[26] California Department of Transportation. 1 May 2006. The California Scenic Highway System: A List of Eligible (E) and Officially Designated (OD) Routes (by Route). Available at: http://www.dot.ca.gov/hq/LandArch/scenic/schwy1.html

[27] California Department of Transportation. "California Scenic Highway Mapping System: Route 110 Photo Album."

[28] California Department of Transportation. Accessed 21 May 2010. "Byway–State Route 110." Available at: http://www.dot.ca.gov/dist07/sync/cpimages/file/updated%20fact%20sheet.pdf

at these distances. The proposed project would add additional buildings to the existing urban development is prevalent in the region between SR 110 and the edge of the proposed project site, which includes residential, commercial, public facilities, and some industrial buildings (as determined by site assessments and regional maps).

3.1.2.3 Visual Character

The proposed site for the proposed project is located on the existing 38-acre Martin Luther King, Jr. Medical Center Campus, and therefore is developed with medical and medical support structures including: outpatient and administrative support buildings, ancillary structures, and parking structures. The project site consists of 21 buildings, landscaping and ancillary support facilities: Genesis Clinic, Oasis Clinic (old), Oasis Clinic (new), Registration Building, Augustus F. Hawkins Comprehensive Mental Health Center, Inpatient Tower, Multi-Service Ambulatory Care Center (MACC), Pediatric Acute Care Building, Medical Records and Laundry Building, Central Plant, Plant Management Building, North Support Building, South Support Building, Interns and Physicians Building, Emergency Room, Storage Building, magnetic resonance imaging (MRI) Building, Claude Hudson Auditorium, Cooling Towers, Hub Clinic, and an additional Storage Building. Landscaping within the proposed project boundary consists of trees, shrubs, and general non-native vegetation for landscaping line areas surrounding the buildings. Lawn and other open space areas are also located throughout the property. In addition, the campus provides a multilevel parking structure available for parking and several surface lots.

Visual sensitivity can be described as viewer awareness of visual changes in the environment and is based on viewers' activities from public areas near a particular site, in this case, the proposed project site. To assist in defining the visual quality of the proposed project site, important views that include the proposed project site have been identified as key viewpoints (KVPs). In order to portray the aesthetic character of the proposed project site, photographs were taken of the proposed project site from several KVPs. These KVPs are typically public viewing areas and include a variety of locations at the medical campus and in the vicinity of the proposed project campus. The KVPs include foreground views (0 to 500 meters), middle-ground views (500 to 2,000 meters), and background views (greater than 2,000 meters) from several locations. Appendix B, *Aesthetics Analysis Technical Report,* provides eight figures that illustrate the views from the KVPs. The KVPs depict view from the proposed project site and from sites (such as the residences) surrounding the proposed project site.

As indicated above, visual sensitivity is based on viewers' activities from public areas near a particular site, in this case, the proposed project site. The existing campus is accessible via both pedestrian and vehicular traffic. Public access is available off 120th Street and Wilmington Avenue. The existing campus is also accessible by public transportation. There are two bus stations located on the existing campus: one located on the northern boundary on 120th Street, and the other located on the eastern boundary on Wilmington Avenue. In addition, a Blue Line and Green Line Metro stations are located approximately 0.5 mile northeast of the existing campus; the Blue Line and Green Line Metro stations have a shuttle bus that transports individuals between the existing campus and Blue Line and Green Line Metro stations.

The areas surrounding the existing Martin Luther King, Jr. Medical Center Campus include various commercial, retail, transit, and institutional land uses. Among these uses are the Charles Drew University of Medicine and Science (CDU), the Rosa Parks Transit Station, the Kenneth Hahn Plaza and Village, and various residential neighborhoods, commercial businesses, public and semipublic, industrial, open space, and transportation uses.

3.1.2.4 Shade and Shadow

New development can create new shadows that shade private and public outdoor space. Shadow-sensitive receptors would be considered residences (particularly yards), solar collectors, recreational facilities and parks, schools, and or outdoor restaurants. Shadow is dependent on the height, size and shape (or massing) of the building from which shadow is cast and the angle of the sun. The angle of the sun varies with respect to the rotation of the earth and the Earth's elliptical orbit. The longest shadows are cast during winter months and the shortest shadows are cast during the summer months. The shortest day of the year (i.e., the shortest day of the year and the longest night) is the winter solstice, which occurs in late December.

3.1.2.5 Light and Glare

Perceived glare is the unwanted and potentially objectionable sensation as observed by a person as they look directly into the light source (e.g., the sun, its reflection, automobile headlights, or other light fixtures). Reflective surfaces on existing buildings, car windshields, etc. can expose people and property to varying levels of glare. A significant light impact would typically occur if a proposed project would cause a substantial increase in ambient illumination levels beyond the property line, visible glare from either fixtures or illuminated surfaces, or if it were to cause new lighting to spill-over onto light-sensitive land uses such as residences, schools, parks, or public open space.

The primary sources of light on the proposed project site include; light emanating from building interiors that passes through windows, automobile headlights and light from exterior sources (i.e., street lighting, building illumination, etc.). Existing sources of light at the proposed project site also include light structures in surface parking areas, and security lighting on buildings. The majority of existing building materials are inherently non-reflective; they do not provide a source of glare during the daytime when sunlight is present.

This analysis addresses only project-related lighting. Street lighting, required for safety, would not be affected by the proposed project.

3.1.3 Significance Thresholds

The potential for the proposed project to result in impacts related to aesthetics was analyzed in relation to the questions contained in Appendix G of the CEQA Guidelines.[29] The proposed project would be considered to have a significant impact to aesthetics when there is the potential for any of the following four thresholds to occur:

- Results in a substantial adverse effect on a scenic vista
- Substantially damages scenic resources, including but not limited to, trees, rock outcrops, and historic buildings within a state scenic highway
- Substantially degrades the existing visual character or quality of the site and its surroundings
- Creates a new source of light or glare that would adversely affect day or nighttime views in the area

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[29] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

3.1.4 Impact Analysis

This analysis provides a quantitative and qualitative investigation of the potential impacts based on existing conditions and the design of the project's buildings' scale, general shade and shadow, light and glare, and landscaping on sensitive receptors present in the vicinity of the project site. As indicated above, the potential aesthetic impacts of the proposed project are evaluated considering factors such as the scale, mass, and landscaping/buffering associated with the design of the proposed project.

3.1.4.1 Scenic Vistas

An aesthetic resource consists of the landforms, vegetation, water features, and cultural modifications that impart an overall visual impression of an area's landscape. Scenic areas typically include open space, landscaped corridors, and viewsheds.[30] The property is located approximately 9.2 miles south of Juan Bautista de Anza National Historic Trail. The distance between the Juan Bautista de Anza National Historic Trail and the proposed project is large enough that the proposed project site is not visible from this Historic Trail. Moreover, urban development—including residential, commercial, and industrial buildings—is widespread within the 9.2 miles between the proposed project's northern boundary and where the Juan Bautista de Anza National Historic Trail commences. Therefore, the proposed project would have no adverse impact to a designated scenic trail; substantially degrade the visual character of the area, or negatively impact views from the designated trail.

Under CEQA, an impact on views is considered significant if a view of a public scenic vista, scenic resource, or public object of aesthetic significance, is substantially impeded or obstructed from a public vantage point. Typically, views enjoyed from a particular private vantage point are generally not protected. The Court of Appeal held in *Topanga Beach Renters Assn. v. Department of General Services* (1976) 58 Cal.App.3d 188, 195, "[t]he issue is not whether [the Project] will adversely affect particular persons, but whether [the Project] will adversely affect the environment of persons in general." Views would remain along the perimeter of the project site, as well as between buildings, on sidewalks, and adjacent roadways.

The area surrounding the project site is an urbanized mix of existing development, including commercial, office spaces, public facilities, and residential land use. Residential development provides low- to moderate-density housing opportunities, including single-family homes along the west, south, and east sides of the medical campus boundary. Multi-family residential developments are also located along the eastern boundary of the project site, located on the opposite side of Wilmington Avenue. Zoning designations surrounding the proposed project site include Single-family Residential (R-1) to the south and west, Limited Multiple Residences (R-3) to the east, and Two-family Residence (R-2), and Commercial (C-2; specifically, Neighborhood Commercial) to the north. Other zoning designations within the vicinity of the proposed project site include Commercial Planned Development, Unlimited Commercial, Light Manufacturing, Restricted Business, and Restricted Parking.

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[30] A view corridor is typically defined as the line of sight of an observer from a public viewpoint, looking toward an object of significance to the community (e.g., ridgeline, river, historic building, etc.), or as the route that directs the viewers attention. A viewshed is typically defined as the area within view from a defined observation point.

The proposed project site and the surrounding area, as observed by its existing conditions, do not meet the criteria of a scenic vista as described above. The proposed project site is located in an area developed with public facilities, commercial uses, and residential structures. There are no designated scenic vistas within the vicinity for the proposed project property.

The County zoning designation for the project site is C-2, which identifies community-related commercial uses including drugstores, medical clinics (including laboratories), and parking lots and buildings.[31] Typically, buildings within this zoning are limited to 35 feet in height; however, although the County would seek to ensure compatibility of the proposed project with the existing campus and its surroundings it reserves the right to exempt elements of the proposed project from the zoning designation. Building heights at the existing project site range between 13 feet to 78 feet tall. Despite the scale of several buildings on the existing project site, the distance between the proposed project site and the skyline is large enough for the public to access views both within and outside the proposed project boundary. The areas where the public would be able to view the proposed project includes nearby residences, sidewalks, and adjacent roadways. As previously noted, the visual character of the area consists of various urban developments. Properties in the surrounding area have varying fence styles, and other appurtenances, such as mail boxes, building trim, and hardscaping (e.g., driveways).

The proposed project would result in an addition to the urbanization in the surrounding area than currently exists, such as the construction of more medical buildings, commercial, office and residential uses than those that are present at the proposed project site. Once constructed,[32] the proposed project would add to the diverse urban style of the area, and would maintain the character of the area with regard to open space, vegetation, and landscaping.

Tier I

Tier I would incorporate new buildings and landscaping at the existing campus, such as landscaping at the entry of the new MACC and its surrounding area.

Visual quality describes the intrinsic aesthetic appeal of a landscape or scene due to a combination of physical characteristics (such as a landform, body of water, and vegetation) and cultural modifications (physical change to a landscape caused by human activity). Visual character is influenced by many different landscape attributes including color contrasts, landform prominence, repetition of geometric forms, and uniqueness of textures among other characteristics. The proposed project site is presently developed as a medical campus with existing supporting uses. The proposed project site does not contain any scenic resources such as trees, rock outcroppings, and unique or landmark features. As proposed, Tier I of the project would not obstruct any prominent scenic vista or views open to the public; or result in the creation of an aesthetically offensive site from a designated scenic public view. As proposed, Tier I of the project would not result in significant impact to scenic vistas.

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[31] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[32] Tier II project components are in the preliminary stages and may requires additional environmental analysis on a project by project basis pending their final engineering and design.

Tier II

Tier I would incorporate mixed-use campus support development that would provide the health services necessary to respond to and address the needs of the community. Tier II would have the potential to build-out approximately 1,814,696 square feet of development on the proposed project site.

The proposed project site does not contain any scenic resources such as trees, rock outcroppings, and unique or landmark features. As proposed, Tier I of the project would not obstruct any prominent scenic vista or views open to the public, or result in the creation of an aesthetically offensive site from a designated scenic public view. As proposed, Tier II of the project would not obstruct any prominent scenic vista or views open to the public, or result in the creation of an aesthetically offensive site from a designated scenic public view. Therefore, Tiers I and II of the proposed project would not result in a significant impact on a scenic vista.

3.1.4.2 State Scenic Highways and Resources

The proposed project would not be located within the viewshed of an Officially Designated Scenic Highway as designated by the Caltrans Office of State Landscape Architecture.[33] As indicated above, the proposed project site is located approximately 2 miles east of the SR 110 freeway. Urban development is prevalent in the region between SR 110 and the edge of the proposed project site, which includes residential, commercial, public facilities, and some industrial buildings as determined by site assessments and regional maps. The density of the existing development as well as the distance of SR 110 from the proposed project site, is large enough to obstruct the viewshed from SR 110 in viewing the project site. In addition, the proposed project is not located on or within the viewshed of the scenic segment of SR 110, or any other scenic highway corridor, nor is the project located at an elevation that would significantly degrade the view of the surrounding area. No designated scenic highways are present in the immediate project vicinity and no scenic highway viewsheds would be affected by the proposed project.

Tier I

As designated scenic highways are not present in the immediate project vicinity, no scenic highway viewsheds would be affected by Tier I of the proposed project. Tier I would not be expected to result in significant impacts to visual resources related to damaging a scenic resource within a state scenic highway.

Tier II

As designated scenic highways are not present in the immediate project vicinity, no scenic highway viewsheds would be affected by Tier II of the proposed project. Tier II would not be expected to result in significant impacts to visual resources related to damaging a scenic resource within a state scenic highway.

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[33] California Department of Transportation. 5 October 2007. *Eligible (E) and Officially Designated (OD) Routes.* Available at: http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm

3.1.4.3 Visual Character

This visual character subsection evaluates the visual impacts of the proposed project on potential viewers of the proposed project. The proposed project would alter the existing visual quality of the site and its vicinity. As illustrated in the KVPs included in Appendix B, the proposed project area is primarily visible from existing sidewalk, adjacent streets, and from the residential and commercial land uses located in the immediate area.

The assessment of visual quality for a development project is an assessment of the aesthetics in relation to its surroundings. Determinants of visual quality include land uses, density or intensity of land use, extent of open space and landscaping, building height and mass, architecture, and pedestrian usage or "walkability" of a neighborhood, among others. Land uses surrounding the proposed project area include Public and Semipublic Facilities and Major Commercial (C) to the north, Medium-density Residential [12 to 22 dwelling units (du)/acre] to the east, Low-density Residential (1 to 6 du/acre) to the south, and Low-density Residential (1 to 6 du/acre) and Low/Medium-density Residential to the west. Other land uses within the vicinity of the project site include High-Density Residential, Major Commercial, Major Industrial, Open Space, and Transportation Corridor. The Public and Semipublic Facilities as well as Major Commercial land uses include office and commercial structures with observed height of up to three stories tall. There are single-family residences to the west, south and east, and multi-family structures located to the east of the project site. In addition, there are homes located to the south of the project site adjacent to the alleyway. These residences are separated by a brick retaining wall and tress, which line the south side of the alleyway. The visual characterization of the surrounding area is typical of a residential development. Many of the residential structures has have stucco finish in natural hues such as beige, brown, or grey. Surrounding streets have sidewalks, and development in the area incorporates building setbacks and landscaping. Commercial areas have large surface-level parking areas.

The proposed project site is characterized by large medical buildings, surrounding by multiple areas of open space, which have been developed with grass lawns and paved parking lots. The medical campus is designed with large landscaped areas, which include the substantial-sized lawn to the east of the MACC, gardens, courtyards, and circulation routes for pedestrians and vehicles. There are several pedestrian walkways that enable medical personnel and students to travel expeditiously around the campus. The MACC, for example, is connected to the Claude Hudson Auditorium via a low covered walkway that extends from the MACC's east façade, which provides a physical link between the medical (MACC) and assembly (Auditorium) uses. Existing gardens and courtyards, particularly those associated with the Augusts F. Hawkins Comprehensive Mental Health Center and the Interns and Physicians Building, provided recreational facilities for medical students. There are 21 buildings and structures at the project site. The design and use of materials for construction of these existing structures along with the landscaped areas of the campus dominate the overall urban visual image of the project's immediate surrounding area.

Tier I

The County will seek LEED Silver certification for the MACC and the Ancillary buildings.[34] Tier I would also include tenant improvements to the following existing buildings: North Support Building, South Support Building, Interns and Physicians Building, and the Plant Management

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[34] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

Building; site improvements; and potential relocation of the MRI building. The new buildings would be contained within the existing campus and would be designed to complement the existing campus buildings. Tier I is consistent with the existing land uses at the site and in the adjacent area, and would be compatible with the visual appearance of the surrounding area and would result in less than significant impacts to visual character.

Tier II

The development envelope of Tier II allows for additional medical office space, general offices, commercial and retail space, residential units, and other facility improvements. Tier II is generally consistent with the existing land uses at the site and in the adjacent area. However, as many of the Tier II project elements and design features are unknown, and Tier II may result in significant alterations to buildings being added or removed from the campus, this impact is considered potentially significant and would require the implementation of mitigation measures to be reduced to below the level of significance.

Many of the surrounding residents near the project site are oriented away from the proposed site. The proposed project would be generally compatible with the visual appearance of the existing community, although the campus would maintain a different style given the facilities' past and continued medical uses. Medical, commercial, and residential developments are not visually incompatible. It is anticipated that the design of the proposed project would incorporate a complimentary style for all proposed structures. Architectural continuity within the campus would be achieved through consistency in the quality of design, workmanship, and materials utilized. The building orientation and envelope system are planned to maximize daylight into the interior space, optimize exterior envelope energy performance and maximize view to the natural elements of the outdoors.[35]

The site work would also consist of a new parking areas, re-striping of existing lots, site improvements, and new landscaping at the entry of the new (or refurbished and reused) MACC and its surrounding area. Tier II of the proposed project would allow for a development envelope that would provide the health services necessary to respond to and address the needs of the community. All campus development would be subject to the design goals and guidelines of a Master Plan for the campus, which would ensure the development on the campus is consistent and compatible with the of the proposed project with the existing campus and its surroundings; in addition, the proposed development would be subject to general design criteria, specified in the proposed project's mitigation measures. Tier II of the proposed project is not anticipated to "degrade the existing visual character of quality of the site and its surroundings," as stated in the CEQA criterion, however, the impact is considered potentially significant given many of the unknown design elements and mitigation measures have been provided to ensure that impacts are reduced to less than significant.

3.1.4.4 Daytime: Shade and Shadow

The shade analysis examined shade-sensitive uses including residential uses, schools, parks, open space, and public outdoor facilities. Existing shadow was not considered significant given that the existing buildings are located in the central and southern portions of the medical campus and do

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[35] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

not generate adverse shadow impacts. Commercial and retail uses are not considered shade-sensitive.

Tier I

Tier I of the proposed project, which consists of the development of a four-story 132,000-square-foot building and a 24,700-square-foot, two-story building would have no adverse impacts related to shade and shadow. These buildings would be located in the center of the campus and because of the size of these structures and the location of these structures (adjacent to structures that are two to five stories tall), they would not contribute to or create a new significant source of shade or shadow. Impacts would be less than significant.

Tier II

Tier II was examined on a programmatic level and the analysis was based upon the height of tallest existing building on the proposed project site (which is a six-story building). This height was then used as the height of a building that could to placed continuously along the west and east perimeter of the campus property. Shadow representations were generated through the use of shadow calculation software for the proposed project (Figure 3.1.4.4-1, *Potential Shade or Shadow Impacts: Worst-Case Scenario*, and Figure 3.1.4.4-2, *Possible Placement of Building Causing No Shade or Shadow Impacts*).[36]

Figure 3.1.4.4-1 illustrates the worst-case shade and shadow scenario for Tier II: development of a six-story building placed continuously along the edge of the existing campus property boundary. Figure 3.1.4.4-1 presents a building height of six-stories[37] (or 78 feet tall) and also assumes that there would not be any setbacks from the property boundary and roadways. At a minimum the development components in Tier II would have an approximately 14-foot setback from the property boundary, which is consistent with the setbacks for the existing buildings on the property.[38] As depicted in the figures, the areas that have the potential to be shaded by the worst-case shade and shadow scenario include residences to the west and to the east of the proposed project site. No shadow impacts would occur along the southern boundary of the property given the placement of the proposed project site relative to the sun's rising and setting patterns.

For the western campus property line, given the project site's longitude and latitude, the time frame with the longest shadows would occur in the winter from 6:23 a.m. to 7:18 a.m. and in the summer from approximately 5:42 a.m. to 6:29 a.m. If the above-described six-story (worst-case height) Tier II building were placed along the edge of the western campus property line, it would have the potential to shadow approximately 17 homes along Compton Avenue during the winter morning hours and approximately 12 homes during the summer morning period. Shade impacts on these adjacent land uses would increase and or decrease progressively as the Earth rotates;

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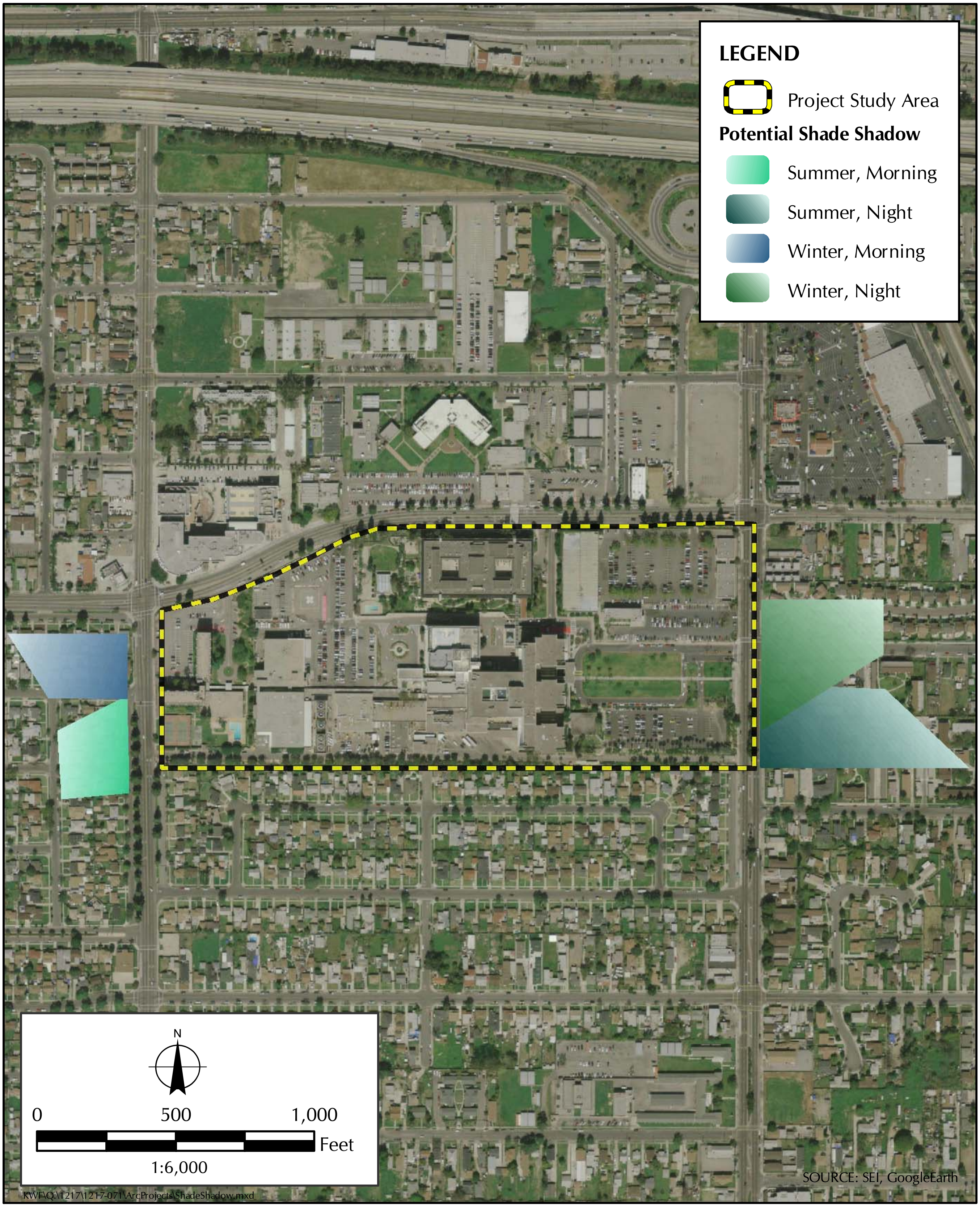
[36] Google's Sketch-Up 7.1, was utilized for preparation of the analysis diagrams. The hypothetical buildings were placed imported into Google Earth using the sunrise/sunset light module in Google Earth.

[37] This analysis used the height of the tallest existing building on the medical campus as a basis for the shadow estimate illustrated in Figures 3.1.4.4-1 and Figure 3.1.4.4-2. Tier II is in the preliminary stages of design, however, the average anticipated building height is not expected to exceed three stories.

[38] The existing setbacks include the pediatric modular building/ oasis clinic located approximately 14.8 feet from the property line along Wilmington Avenue, Interns and Physicians Building at approximately 20.0 feet from property line along Compton Avenue, the Hawkin's Building located at approximately 30.7 feet from property line along 120th Street, and the Cooling Tower located at 44.8 feet from property line along south property line.



SOURCE: SEI, GoogleEarth

FIGURE 3.1.4.4-1

Potential Shade or Shadow Impacts: Worst-Case Scenario

SOURCE: SEI, GlobeXplorer

KWF\Q:\1217\1217-071\ArcProjects\ShadeNOimpact.mxd

FIGURE 3.1.4.4-2

Possible Placement of Building Causing No Shade or Shadow Impacts however, the duration of the shadow could last up to a maximum of one and a half (1.5) hours for the homes closest to the proposed project site.

For the eastern campus property line, given the project site's longitude and latitude, the time frame with the longest shadows would occur in the winter from 3:53 p.m. to 4:48 p.m. and in the summer from approximately 6:48 p.m. to 8:08 p.m. If the above-described six-story (worst-case height) Tier II building were placed along the edge of the eastern proposed project boundary, it would have the potential to shade approximately 20 single-family residential homes along Wilmington Avenue during the winter night period and approximately 20 single-family residential homes and approximately five multi-family buildings during the summer night period. The duration of the shadow could last up to one and a half (1.5) hours for the homes closest to the proposed project site. Continuous and prolonged shade and shadow on adjacent residents could represent a potentially significant impact. However, the shading of adjacent properties by the proposed buildings would only occur for a short duration during the day/night and only for a small portion of the year, the impact to the adjacent residents is anticipated to be less than significant. Additionally, mitigation measures have been provided to ensure that impacts remain less than significant.

As depicted in Figure 3.1.4.4-2, reasonable building setbacks have been incorporated into the shade and shadow projections at the project site. As displayed in Figure 3.1.4.4-2, with implementation of building setbacks, potential shadows would fall within the project site avoiding impacts on adjacent residences, roads and other land uses. These setbacks significant reduce shade impacts to these adjacent uses. The likelihood of shadow spillover is low given the medical facilities existing building layout (buildings that would remain on site), access to proposed buildings (allowed under Tier II), emergency medical access and general transportation and facility parking needs. Impacts to aesthetics related to shade and shadow for Tier II of the proposed project would be reduce to below the level of significance with incorporation of mitigation measures.

3.1.4.5 Daytime and Nighttime: Light and Glare

The proposed project would be expected to result in less than significant impacts to aesthetics after mitigation is incorporated related to the creation of a new source of substantial light or glare that would adversely affect daytime or nighttime views in the project area. As supported by project design guidelines, the proposed project would create a level of light and glare that is consistent with existing light and glare conditions at the proposed project site. Moreover, new sources of light and glare from implementation of the proposed project would not be considered to substantially increase after mitigation.

As stated above, there are three primary sources of light on the proposed project site: light emanating from building interiors that passes through windows; light from the headlights of parked, and traveling vehicles and light from exterior sources. The construction of the proposed project would involve the presence of additional interior lighting within the proposed facilities and their activation during non-daytime hours would create additional effects of increased lighting. The residential component of the project would create a minor source of light due to the residents' interior lights; however, the residential lighting proposed would be similar to the amount of light generated by the single-family and multi-family residences located adjacent to the project site, along the west, south, and east sides. No adverse impacts would be anticipated from interior light sources.

There are currently no significant sources of glare at the project site (e.g., mirrored buildings, building materials, etc.). As proposed, the project would not contain large expanses of reflective or mirrored building surfaces or glare producing light fixtures; however, mitigation measures have been provided to ensure that impacts remain less than significant. As stated in the Martin Luther King, Jr. Medical Campus Center, Campus Planning and Programming Report,[39] the architecture of the proposed building would be designed "to be sustainable, soothing, and uplifting. It should capture the spirit of the contemporary architecture at the site. The building orientation and envelope system are planned to maximize daylight into the interior space, optimize exterior envelope energy performance and maximize view to the natural elements of the outdoors."

Tier I

Tier I involves project-level development of the new MACC, Ancillary Building, and other site improvements. Pedestrian scale street lamps, which would be coordinated with the landscape elements, would be located adjacent to the buildings and near the parking areas to provide safety and allow for appropriate nighttime visibility. The construction of the proposed project would involve the presence of additional interior lighting within the proposed facilities and their activation during non-daytime hours would create additional effects of increased lighting. These lights would be expected to contribute to minimal increases and alterations in the location of light and glare at the campus during construction and operation of the Tier I proposed project.

Tier I of the proposed project would incorporate low–level, downward-facing lights that would be used to illuminate the entrance of buildings, stairs, and where pathways occur between buildings, and adjacent to designated parking areas. Therefore, the light and glare effects of the proposed project's construction and operation would not be anticipated to result in a significant impact to the surrounding developments; however, mitigation measures have been provided to ensure that impacts related to Tier I of the proposed project remain less than significant.

Tier II

The construction of the proposed project would involve the presence of additional interior lighting within the proposed facilities and their activation during non-daytime hours would create additional effects of increased lighting. The components of the Tier II development would involve pedestrian, security, and parking lighting within and around the perimeter of project site. These lights are intended to enhance the visual character of the buildings and provide necessary pedestrian safety lighting for patients, workers, and visitors using the sidewalks throughout the project site. These lights would be expected to contribute to increases in light and glare at the campus during construction and operation of Tier II of the proposed project.

Tier II of the proposed project would incorporate low–level, downward facing lights that would be used to illuminate the entrance of buildings, stairs, and pathways between buildings and adjacent to designated parking areas. The residential component of the project would create a minor source of light due to the residents' interior lights; however, the residential lighting proposed would be similar to the amount of light generated by the single-family and multi-family residences located adjacent to the project site, along the west, south, and east sides. Lighting placement and selection would be carefully considered to reduce the chance of glare and light spillover to adjacent land uses. The proposed project's landscape lighting is intended to provide a softened nighttime appearance for the medical campus site. Therefore, the light and glare effects of the proposed project's construction and operation would not be anticipated to result in a significant impact to

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[39] Martin Luther King Jr. Medical Campus Center, Campus Planning and Programming Report, Executive Summary, September 18, 2009.

the surrounding developments; however, mitigation measures have been provided to ensure that impacts related to Tier II of the proposed project remain less than significant.

3.1.4.6 Cumulative Impacts

The incremental impacts of the proposed project to aesthetics, when added to the related past, present, or reasonably foreseeable future projects listed in Section 2, *Project Description*, would be expected to be less than significant. The recommended mitigation measures would reduce project-specific impacts to below the level of significance.

It was determined that there are at least 42 projects within an approximately 3-mile radius of the proposed project that could affect the cumulative impacts analysis of the proposed project (Section 2).

Tier I

Scenic Resources

There are no officially designated scenic highways within the vicinity of the proposed project site. Therefore, the cumulative development would not result in significant impacts on scenic highways ,and the proposed project would not contribute to cumulative impacts to scenic vistas and scenic resources.

Visual Character

Development of the related projects would gradually change the character of the City of Compton, City of Los Angeles, City of Lynwood, City of South Gate, and the County of Los Angeles. The potential for projects to have a cumulative impact depends on both geographic location as well as the project's schedule. Projects considered in this analysis were derived from the traffic study and include those that have recently been completed, are currently under construction, or are in the planning phase. The closest related projects include the South Public Heath Clinic located north of the existing medical campus facility in unincorporated territory of the County Los Angeles, a planned high school located at 11300 Monitor Avenue approximately 0.5 mile from the proposed project in the City of Los Angeles, and the proposed residential development located at 2709 North Wilmington Avenue approximately 0.4 mile from the proposed project in the City of Compton. The high school and the residential development fall under other jurisdictions as do the majority of the related projects. As such, those projects would be subject to their city's respective land use and zoning requirements. It is anticipated that these projects would be designed to include architectural and landscape design features that are in accordance with the existing standards and design guidelines set forth in each respective jurisdiction. Therefore, these related projects, individually, would not degrade the visual character of the area. If a significant impact were to occur from a related project, that project would be required to mitigate the impact as appropriate under their city's jurisdiction. As previously stated, the proposed project is not within a designated scenic vista or scenic highway, and all aesthetic impacts would not be considered significant after mitigation. Considering the nature of the project and the limited scope of views affected by the proposed project. The proposed project's contribution to adverse impacts on visual resources to the surrounding area or other related projects would not be cumulatively considerable. Overall, the visual character in the project vicinity would not significantly change from being a predominantly medical and an urban environment. These changes would not result in the degradation of the Martin Luther King, Jr. medical facility or the surrounding area. Therefore, the proposed project would be expected to result in a less than significant contribution to the cumulative visual character.

Light and Glare

Tier I involves project-level development of the new MACC, Ancillary Building, and other site improvements. Pedestrian scale street lamps, which would be coordinated with the landscape elements, would be located adjacent to the buildings and near the parking areas to provide safety and allow for appropriate nighttime visibility. These lights would be expected to contribute to minimal increases and alterations in the location of light and glare at the campus during construction and operation of the Tier I proposed project.

Shade and Shadow

Tier I of the proposed project, which consists of the development of a four-story, 132,000-square-foot building and a 24,700-square-foot, two-story building would have no adverse impacts related to shade and shadow.

Tier II

Scenic Resources

There are no officially designated scenic highways within the vicinity of the proposed project site. Therefore, the cumulative development would not result in significant impacts on scenic highways and the proposed project would not contribute to cumulative impacts to scenic vistas and scenic resources.

Visual Character

Development of the related projects would gradually change the character of the City of Compton, City of Los Angeles, City of Lynwood, City of South Gate, and the County of Los Angeles. It is anticipated that these projects would be designed to include high-quality architectural and landscape design features in accordance with the standards and design guidelines set forth in each respective jurisdiction. Therefore, these related projects, individually, would not degrade the visual character of the area. If a significant impact were to occur from a related project, that project would be required to mitigate the impact as appropriate. Overall, the visual character in the project vicinity would not significantly change from being a predominantly medical and an urban environment. These changes would not result in the degradation of the Martin Luther King, Jr. medical facility or the surrounding area. Therefore, the proposed project would result in a less-than-significant contribution to the cumulative visual character.

Light and Glare

Development of the proposed project in conjunction with other cumulative projects would gradually result in an increase in light in the City of Compton, City of Los Angeles, City of Lynwood, City of South Gate, and the County of Los Angeles. The proposed project's individual impacts can be reduced to less than significant with mitigation incorporated. Given that the proposed project would not result in a project-level significant impact, the proposed project would not contribute to a significant cumulative impact related to nighttime views in the area or light intrusion.

Shade and Shadow

The proposed project would not be expected to result in project-level significant impacts after mitigation has been incorporated. Potential shade and shadow impacts are directly related to the proximity of the project to adjacent uses. Potential shade and shadow impacts from the related projects, located up to 1 mile away from the proposed project, would not result in a cumulatively considerable impact. Each project would be required to mitigate any project-level impacts in accordance with the standards and design guidelines set forth in each respective jurisdiction. Therefore, the proposed project would result in a less than significant contribution to significant impacts related to cumulative shade and shadow.

Therefore, implementation of the proposed project would not be expected to result in significant cumulative impacts when considered with the related past, present, or reasonably foreseeable, probable future projects.

3.1.5 Mitigation Measures

Tier I

Measure Aesthetics-1

All exterior lighting proposed for building and on-site security lighting shall be shielded and directed downward to minimize the impacts on the surrounding land uses. No large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) would be included within the building components or materials.

Tier II

Measure Aesthetics-1

All exterior lighting proposed for building and on-site security lighting shall be shielded and directed downward to minimize the impacts on the surrounding land uses. No large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) would be included within the building components or materials.

Measure Aesthetics-2

The County of Los Angeles shall review all plans for the Tier II development. Contractors shall conform with all design features described in the Campus Planning and Programming Report, which is intended to serve as a guide for development at the project site to ensure visual consistency and continuity at the project site and within the surrounding area.

Measure Aesthetics-3

All development shall be limited to three stories in height if the proposed structure is located along the western or eastern edge of the property. The existing setback includes the pediatric modular building/ oasis clinic located approximately 14 feet from the property line along the eastern boundary at Wilmington Avenue, the Interns and Physicians Building at approximately 20 feet from the property line along the western boundary at Compton Avenue, the Hawkin's Building located at approximately 30 feet from the property line along the northern boundary at 120th Street, and the Cooling Tower located at 44 feet from the property line along the south. Alternatively, if a structure exceeds three stories in height along the perimeter of the property (western or eastern perimeter only), at a minimum, the building shall be required to stay within the approximately 20-foot and for 14-foot existing campus respective western and eastern boundary setbacks to reduce shade and shadow impacts to adjacent land uses along Compton Avenue and Wilmington Avenue.

Measure Aesthetics-4

Where parking lots or structures are adjacent to residential areas or near other sensitive light receptors along the southern portion of the campus, Compton Avenue, and Wilmington Avenue, retaining walls and/or landscaping of sufficient height shall be incorporated into the design of the project to shield vehicle headlights (which typically sit at a minimum of 3 feet in height above ground). These project features shall be included in the landscape plans and final project design plans (to avoid and reduce potential light and glare obstructions that could impact residential areas).

3.1.6 Level of Significance after Mitigation

Tier I

The recommended mitigation measure Aesthetics-1 would be able to reduce project-specific impacts related to light and glare to below the level of significance.

Tier II

Implementation of mitigation measure Aesthetics-1 and Aesthetics-4 would be expected to prevent security lighting and building lighting from causing significant levels of light spillover or light trespass. Implementation of mitigation measure Aesthetics-4 would be expected to prevent vehicle highlights from causing significant levels of light intrusion. Finally, implementation of mitigation measure Aesthetics-3 and Aesthetics-4 would be expected to reduce impacts related to a new source of light and glare to below the level of significance.

Implementation of mitigation measures Aesthetics-2 and Aesthetics-3 would be expected to prevent potential building shadows from Tier II from causing significant levels of shade to spillover onto adjacent land uses including residences. Therefore, implementation of mitigation measures Aesthetics-2 and Aesthetics-3 would be expected to reduce impacts related to a new source of shadow to below the level of significance for the proposed Tier II project components.

Implementation of mitigation measure Aesthetics-2 would be expected to ensure consistency within the medical campus and with the surrounding area. As supported by project design guidelines listed in mitigation measure Aesthetics-1, the materials used to construct Tier II of proposed project would be consistent with existing visual quality conditions at the proposed project site and within the surrounding area, and would reduce potential impacts to visual character to below the level of significance.

3.2 AIR QUALITY

As a result of the Initial Study,[1] the County of Los Angeles (County) determined that the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in significant impacts to air quality. Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts from air quality.

The analysis of air quality consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions at the proposed project area, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to air quality has been analyzed in accordance with Appendix G of the State California Environmental Quality Act (CEQA) Guidelines[2] and the methodologies and significance thresholds provided by the County General Plan,[3] the National Ambient Air Quality Standards (NAAQS),[4] the California Ambient Air Quality Standards (CAAQS),[5] the Clean Air Act (CAA),[6] and the Air Quality Technical Impact Report prepared for the proposed project (Appendix C, *Air Quality and Greenhouse Gas Emissions Technical Impact Report*).[7]

Data on existing air quality in the South Coast Air Basin (Basin), in which the proposed project site is located, is monitored by a network of air monitoring stations operated by the California Environmental Protection Agency (Cal/EPA), the California Air Resources Board (CARB), and the South Coast Air Quality Management District (SCAQMD). The air quality assessment considers all phases of project planning, construction, and operation. The analysis of construction impacts was based on the construction scenario as described in Section 2.0, *Project Description*, of this EIR, as well as on a construction scenario for a project of comparable size and a construction schedule of comparable duration. The conclusions in this section reflect guidelines established by SCAQMD's *CEQA Air Quality Handbook* and guidance provided on the SCAQMD Web site.[8, 9]

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[2] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[3] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[4] U.S. Environmental Protection Agency. Updated 14 July 2009. *National Ambient Air Quality Standards (NAAQS)*. Available at: http://www.epa.gov/air/criteria.html.

[5] Air Resources Board. Reviewed 24 November 2009. *California Ambient Air Quality Standards (CAAQS)*. Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm.

[6] U.S. Environmental Protection Agency. 2005. Federal Clean Air Act, Title I, Air Pollution Prevention and Control. Available at: http://www.epa.gov/oar/caa/contents.html

[7] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[8] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[9] South Coast Air Quality Management District. Accessed 6 July 2010. *Air Quality Analysis Guidance Handbook*. Web site. Available at: http://www.aqmd.gov/ceqa/hdbk.html

3.2.1 Regulatory Framework

This regulatory framework identifies the federal, state, regional, and local laws that govern the regulation of air quality and must be considered by the County regarding decisions on projects that involve construction, operation, or maintenance activities that would result in air emissions.

Responsibility for attaining and maintaining ambient air quality standards in California is divided between CARB and regional air pollution control or air quality management districts. Areas of control for the regional districts are set by CARB, which divides the state into air basins. These air basins are based largely on topography that limits air flow access, or by county boundaries. The proposed project area is located in the unincorporated area of Willowbrook, California, within the SCAQMD portion of the South Coast Air Basin.

Federal

Federal Clean Air Act

The Federal Clean Air Act (Federal CAA) requires that federally supported activities must conform to the State Implementation Plan (SIP), whose purpose is that of attaining and maintaining the NAAQS. Section 176 (c) of the Clean Air Act as amended in 1990, established the criteria and procedures by which the Federal Highway Administration (FHWA) (Title 23 USC), the Federal Transit Administrations (FTA),[10] and metropolitan planning organizations (MPOs) determine the conformity of federally funded or approved highway and transit plans, programs, and projects to SIPs. The provisions of 40 CFR Parts 51 and 93[11] apply in all non-attainment and maintenance areas for transportation-related criteria pollutants for which the area is designated non-attainment or has a maintenance plan.

The U.S. EPA sets NAAQS. Existing national standards are shown in Table 3.2.1-1, *Ambient Air Quality Standards,* together with state standards. Primary standards are designed to protect public health, including sensitive individuals such as the children and the elderly, whereas secondary standards are designed to protect public welfare, such as visibility and crop or material damage. The Clean Air Act requires the EPA to routinely review and update the NAAQS in accordance with the latest available scientific evidence. For example, the EPA revoked the annual PM_{10} standard in 2006 due to a lack of evidence linking health problems to long-term exposure to PM_{10} emissions. The 1-hour standard for O_3 was revoked in 2005 in favor of a new 8-hour standard that is intended to be more protective of public health.

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[10] U.S. Environmental Protection Agency. 26 September 1996. "Approval and Promulgation of Implementation Plans and Redesignation of Puget Sound, Washington for Air Quality Planning Purposes: Ozone." In *Federal Register*, Volume 61, No. 188. Available at: http://yosemite.epa.gov/r10/airpage.nsf/283d45bd5bb068e68825650f0064cdc2/e1f3db8b006eff1a88256dcf007885c6/$FILE/61%20FR%2050438%20Seattle%20Tacoma%20Ozone%20MP.pdf

[11] U.S. Environmental Protection Agency. 15 August 1997. Transportation Conformity Rule Amendments: Flexibility and Streamlining. Available at: http://www.epa.gov/EPA-AIR/1997/August/Day-15/a20968.htm

TABLE 3.2.1-1
AMBIENT AIR QUALITY STANDARDS

	National		State
Air Pollutant	**Primary**	**Secondary**	**Standard**
Ozone (O_3)[1]	0.08 ppm, 8-hr avg. (1997) 0.075 ppm, 8-hr avg. (2008)	0.08 ppm, 8-hr avg. (1997) 0.075 ppm, 8-hr avg. (2008)	0.09 ppm, 1-hr avg. 0.07 ppm, 8-hr avg.
Carbon Monoxide (CO)	9 ppm, 8-hr avg. 35 ppm, 1-hr avg.	None	9 ppm, 8-hr avg. 20 ppm, 1-hr avg.
Nitrogen Dioxide (NO_2)	0.053 ppm, annual avg.	0.053 ppm, annual avg.	0.03 ppm, annual avg. 0.18 ppm, 1-hr avg.
Sulfur Dioxide (SO_2)	0.03 ppm, annual avg. 0.14 ppm, 24-hr avg.	0.5 ppm, 3-hr avg.	0.25 ppm, 1-hr 0.04 ppm, 24-hr avg.
Suspended Particulate Matter (PM_{10})	150 $\mu g/m^3$, 24-hr avg.	150 $\mu g/m^3$, 24-hr avg.	50 $\mu g/m^3$, 24-hr avg. 20 $\mu g/m^3$, annual avg.
Fine Particulate Matter ($PM_{2.5}$)	35 $\mu g/m^3$, 24-hr avg. 15 $\mu g/m^3$, annual avg.	35 $\mu g/m^3$, 24-hr avg. 15 $\mu g/m^3$, annual avg.	12 $\mu g/m^3$, annual avg.
Sulfates (SO_4)	—	—	25 $\mu g/m^3$, 24-hr avg.
Lead (Pb)	1.5 $\mu g/m^3$, calendar quarter 0.15 $\mu g/m^3$, rolling 3-month avg.	1.5 $\mu g/m^3$, calendar quarter 0.15 $\mu g/m^3$, rolling 3-month avg.	1.5 $\mu g/m^3$, 30-day avg.
Hydrogen Sulfide (H_2S)	—	—	0.03 ppm, 1-hr avg.
Vinyl Chloride	—	—	0.01 ppm, 24-hr avg.
Visibility-Reducing Particles	—	—	Extinction coefficient of 0.23 per kilometer — visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. (8-hr avg.)

NOTES:

1. The 1997 standard of 0.08 ppm will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition to the 2008 ozone standard of 0.075 ppm.
2. ppm = parts per million by volume
3. avg. = average
4. µg/m3 = micrograms per cubic meter

SOURCES:

1. U.S. Environmental Protection Agency. Updated 14 July 2009. *National Ambient Air Quality Standards (NAAQS)*. Available at: http://www.epa.gov/air/criteria.html
2. California Air Resources Board. Reviewed 24 November 2009. *California Ambient Air Quality Standards (CAAQS)*. Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm

The 1990 Amendments to the CAA divide the nation into five categories of planning regions depending on the severity of their pollution and set new timetables for attaining the NAAQS. The categories range from "marginal" to "extreme." Attainment deadlines are from 3 to 20 years, depending on the category. The Basin as a whole is an extreme non-attainment area for ozone. The County is currently designated as a Severe-17 non-attainment area for O_3, a non-attainment area for $PM_{2.5}$, and a Serious non-attainment area for PM_{10},[12] but the Basin has achieved the federal 1-hour and 8-hour carbon monoxide (CO) air quality standards since 1990 and 2002, respectively, and the County has met the federal air quality standards for nitrogen dioxide (NO_2) since 1992.[13] Although the Basin as a whole is designated as a non-attainment area for particulate matter (PM_{10}), federal PM_{10} standards in the County are currently being met at all monitoring stations.[14]

Areas designated as Severe-17 for non-attainment of the federal 8-hour O_3 standard, such as the County, are required to reach attainment levels within 17 years after designation. Areas designated as "serious" for non-attainment of the federal PM_{10} air quality standard have a maximum of 10 years to reduce PM_{10} emissions to attainment levels. All non-attainment areas for $PM_{2.5}$ have 3 years after designation to meet the $PM_{2.5}$ standards. The Basin has until 2021 to achieve the 8-hour O_3 standards and 2010 to achieve the $PM_{2.5}$ air quality standards.[15] Section 182(e)(5) of the Federal CAA allows the EPA administrator to approve provisions of an attainment strategy in an "extreme" area that anticipates development of new control techniques or improvement of existing control technologies if the state has submitted enforceable commitments to develop and adopt contingency measures to be implemented if the anticipated technologies do not achieve planned reductions.

Non-attainment areas that are classified as "serious" or "worse" are required to revise their air quality management plans to include specific emission reduction strategies in order to meet interim milestones in implementing emission controls and improving air quality. The EPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the CAA. If a state fails to correct these planning deficiencies within two years of federal notification, the EPA is required to develop a federal implementation plan (FIP) for the identified non-attainment area or areas.

State

California Clean Air Act

The California CAA of 1988 requires all air-pollution control districts in the state to work to achieve and maintain state ambient air quality standards for O_3, CO, and NO_2 by the earliest practicable date and to develop plans and regulations specifying how they will meet this goal. There are no planning requirements for the state PM_{10} standard. The CARB, which became part of the Cal/EPA in 1991, is responsible for meeting state requirements of the Federal CAA, administrating the California CAA, and establishing the CAAQS. The California CAA, amended in 1992, requires all air districts in the state to endeavor to achieve and maintain the CAAQS. The CAAQS are generally stricter than national standards for the same pollutants, but there is no penalty for non-attainment. California has also established state standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles, for which there are no national standards (Table 3.2.1.1-1).

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[12] U.S. Environmental Protection Agency. 15 August 2008. *The Green Book Nonattainment Areas for Criteria Pollutants*. Available at: http://www.epa.gov/oar/oaqps/greenbk/

[13] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

[14] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

[15] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

Regional

South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD), which monitors air quality within the proposed project area, has jurisdiction over an area of approximately 10,743 square miles and a population of over 16 million. The 1977 Lewis Air Quality Management Act created SCAQMD to coordinate air quality planning efforts throughout Southern California. This Act merged four (4) county air pollution agencies into one regional district to improve air quality in Southern California. SCAQMD is responsible for monitoring air quality as well as planning, implementing, and enforcing programs designed to attain and maintain Federal and State Ambient Air Quality Standards in the district. In addition, SCAQMD is responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or related stationary sources do not create net emission increases.

SCAQMD Rule 402, Nuisance, states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of Rule 402 do not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

It is mandatory for all construction projects in the South Coast Air Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Amended on June 3, 2005, the Fugitive Dust Rule 403 requires actions to prevent, reduce, or mitigate fugitive dust emissions of particulate matter in the ambient air as a result of any anthropogenic activities that are capable of generating fugitive dusts.

On a regional level, SCAQMD and the Southern California Association of Governments (SCAG) have responsibility under state law to prepare the Air Quality Management Plan (AQMP), which contains measures to meet state and federal requirements. When approved by CARB and the U.S. EPA, the AQMP becomes part of the SIP.

The most recent update to the SCAQMD Air Quality Management Plan (AQMP) was prepared in order for air quality improvements to meet both state and federal CAA planning requirements for all areas under AQMP jurisdiction. This update was adopted by CARB for inclusion in the SIP on September 27, 2007. The AQMP sets forth strategies for attaining the federal PM_{10} and $PM_{2.5}$ air quality standards and the federal 8-hour O_3 air quality standard, as well as meeting state standards at the earliest practicable date. With the incorporation of new scientific data, emission inventories, ambient measurements, control strategies, and air quality modeling, the 2007 AQMP focuses on O_3 and $PM_{2.5}$ attainments.

Local

County of Los Angeles General Plan

The proposed project site is located within and owned by the County; therefore, development in the area is governed by the policies, procedures, and standards set forth in the County General Plan. The proposed project is considered as a capital facility for the County; therefore, pursuant to the Office of Planning and Research (OPR's) guidelines for a general plan related to capital facilities, the proposed project must be consistent with the County General Plan.[16] In addition, the County is required to review the capital improvement programs to ensure their consistency with the General Plan.[17] The proposed project would be expected to be consistent with the County General Plan governing air quality and would not be expected to result in a change to the population growth assumption used by the SCAG for attainment planning. The County General Plan has developed goals and policies for improving air quality in the County. Many policies are transportation-based because of the direct link between air quality and the circulation element. The objectives and policies relevant to the proposed project and capable of contributing toward avoiding and reducing the generation of air pollutants include the following:[18]

- **Objective:** To support local efforts to improve air quality.
- **Policy:** Actively support strict air quality regulations for mobile and stationary sources, and continued research to improve air quality. Promote vanpooling, carpooling, and improved public transportation.

- **Objective:** To conserve energy resources and develop alternative energy sources.
- **Policy:** Support the conservation of energy and encourage the development and utilization of new energy sources including geothermal, thermal waste, solar, wind, and ocean-related sources.

3.2.2 Existing Conditions

3.2.2.1 South Coast Air Basin

The proposed project area is located in the South Coast Air Basin, which is composed of a 6,745-square-mile area encompassing all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The analysis of existing conditions related to air quality includes a summary of pollutant levels prior to implementation of each component of the proposed project. All of the proposed project components are located within the Basin; therefore, all air quality data and analysis are presented as an aggregate of the entire proposed project area.

The Basin is the subregion of SCAQMD and is in an area of high air pollution potentials due to its climate and topography. The climate of the proposed project area (i.e., the Basin) is characterized by warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This mild climatological pattern is interrupted infrequently by extremely hot summers, winter storms, or Santa Ana winds. The Basin is a coastal plain bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and the San Diego County line to the south. During the dry season, the Eastern Pacific High-Pressure Area (a semi-permanent feature of the general hemispheric circulation pattern) dominates the weather over much of Southern California, resulting in a mild climate tempered by cool sea breezes with light average wind speed. High mountains surround the rest of the Basin's perimeter, contributing to the variation of rainfall, temperature, and winds in the Basin.

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[16] California Governor's Office of Planning and Research. October 2003. *General Plan Guidelines*. Available at: http://www.opr.ca.gov/planning/publications/General_Plan_Guidelines_2003.pdf

[17] California Governor's Office of Planning and Research. October 2003. *General Plan Guidelines*. Available at: http://www.opr.ca.gov/planning/publications/General_Plan_Guidelines_2003.pdf

[18] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

3.2.2.2 Temperature Inversions

The Basin frequently experiences temperature inversions, a condition characterized by an increase in temperature with an increase in altitude. In a normal atmosphere, temperature decreases with altitude. In a temperature inversion condition, as the pollution rises, it reaches an area where the ambient temperature exceeds the temperature of the pollution, thereby limiting vertical dispersion of air pollutants and causing the pollution to sink back to the surface, trapping it close to the ground. During the summer, the interaction between the ocean surface and the low layer of the atmosphere creates a marine layer. With an upper layer of warm air mass over the cool marine layer, air pollutants are prevented from dispersing upward. Additional air quality problems in the Basin can be attributed to the bright sunshine, which causes a reaction between hydrocarbons and oxides of nitrogen to form ozone. Peak ozone concentrations in the Basin over the past two decades have occurred at the base of the mountains around Azusa and Glendora in the County and at the crestline in the mountain area above the City of San Bernardino. Both the peak ozone concentrations and the number of days the standards were exceeded decreased everywhere in the Basin throughout the 1990s. During the fall and winter, the greatest pollution problems are CO and NO_x emissions, which are trapped and concentrated by the inversion layer. CO concentrations are generally worse in the morning and late evening (around 10:00 p.m.). In the morning, CO levels are relatively high due to cold temperatures and the large number of cars traveling. High CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the Basin are associated with heavy traffic. However, CO concentrations have also dropped significantly throughout the Basin as a result of strict new emission controls and reformulated gasoline sold in winter months. NO_2 levels are also generally higher during fall and winter days.

3.2.2.3 Climatic Conditions

The annual average temperature, as recorded at the Los Angeles Civic Center (8.6 miles north of the proposed project site at 34° 03′ N, 118° 14′ W), is 65 degrees Fahrenheit (°F) with an average winter (December, January, and February) temperature of approximately 58°F and an average summer (June, July, and August) temperature of approximately 72°F. The average maximum recorded temperatures are 81°F during the summer and 67°F during the winter.[19] The annual average of total precipitation in the proposed project area is approximately 15 inches, which occurs mostly during the winter and relatively infrequently during the summer. Precipitation averages approximately 9.0 inches during the winter, approximately 3.7 inches during the spring (March, April, and May), approximately 2.0 inch during the fall (September, October, and November), and approximately 0.1 inch during the summer.[20] The average wind speed within the proposed project area and its vicinity, as recorded in 1981 at the Lynwood Wind Monitoring Station (1.7 miles east northeast of the proposed project site at 11220 Long Beach Boulevard in the City of Lynwood), is approximately 4.1 miles per hour (MPH), which blows predominantly from the southwest direction.[21] Calm winds occur approximately 17 percent of the time.[22] Winds in the Basin are generally light, tempered by afternoon sea breezes.

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[19] Western Regional Climate Center. Updated 12 November 2009. "Western U.S. Climate Historical Summaries." Web site. Available at: http://www.wrcc.dri.edu/Climsum.html

[20] Western Regional Climate Center. Updated 12 November 2009. "Western U.S. Climate Historical Summaries." Web site. Available at: http://www.wrcc.dri.edu/Climsum.html

[21] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[22] South Coast Air Quality Management District. Updated 21 May 2009. AQMD Meteorological Data for Dispersion Model

Severe weather is uncommon in the Basin, but strong easterly winds known as the Santa Ana winds can reach 25 to 35 MPH below the passes and canyons. During the spring and summer months, air pollution is carried out of the region through mountain passes in wind currents or is lifted by the warm vertical currents produced by the heating of the mountain slopes. From the late summer through the winter months, because of the average lower wind speeds and temperatures in the proposed project area and its vicinity, air contaminants do not readily disburse, thus trapping air pollution in the area.

3.2.2.4 Emission Sources

The proposed project area currently contains buildings, structures, and other built features. Emissions are generated daily from the hospital facilities by landscape maintenance equipment, campus operations including but not limited to space and water heating, and vehicle trips to and from the proposed project site.

3.2.2.5 Community of Willowbrook Air Quality

Existing air quality within the unincorporated area of Willowbrook and its vicinity is characterized by a mix of local emission sources that include stationary activities, such as space and water heating, landscape maintenance, consumer products, and mobile sources, which includes primarily automobile and truck traffic. Motor vehicles are the primary source of pollutants within the proposed project vicinity, because they have the potential to generate localized levels of CO, termed as CO "hotspots." Section 9.4 of SCAQMD's *CEQA Air Quality Handbook* identifies CO as a localized problem requiring additional analysis when a proposed project is likely to expose sensitive receptors to CO hotspots.[23]

3.2.2.6 Source Receptor Area

The SCAQMD has divided the Basin into source receptor areas (SRAs), based on similar meteorological and topographical features. The proposed project site is located in SCAQMD's Southeast Los Angeles County SRA 12, which is served by the Lynwood Monitoring Station, which is located 1.7 miles east northeast of the proposed project site at 11220 Long Beach Boulevard in the City of Lynwood. Criteria pollutants monitored at the Lynwood Monitoring Station include O_3, CO, $PM_{2.5}$, and NO_2. This station does not monitor PM_{10} or SO_2. The nearest, most representative monitoring station that gathers PM_{10} and SO_2 data is located approximately 9.6 miles north of the proposed project site in the Central Los Angeles County Subregion (No. 1) at 1630 North Main Street, Los Angeles. The ambient air quality data in the proposed project vicinity as recorded at the Lynwood and Los Angeles-North Main Street Monitoring Stations from 2006 to 2008 and the applicable state standards are shown in Table 3.2.2.6-1, *Summary of 2006–2008 Ambient Air Quality Data in the Project Vicinity*.

Application. Available at: http://www.aqmd.gov/smog/metdata/MeteorologicalData.html

[23] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

TABLE 3.2.2.6-1
SUMMARY OF 2006–2008 AMBIENT AIR QUALITY DATA IN THE PROJECT VICINITY

Pollutants	Pollutant Concentration & Standards	Number of Days Above State Standard		
		2006	2007	2008
Ozone	Maximum 1-hr Concentration (ppm)	0.09	0.10	0.08
	Days > 0.09 ppm (State 1-hr standard)	0	1	0
	Maximum 8-hr Concentration (ppm)	0.07	0.08	0.06
	Days > 0.07 ppm (State 8-hr standard)	0	2	0
Carbon Monoxide	Maximum 1-hr Concentration (ppm)	8	8	6
	Days > 20 ppm (State 1-hour standard)	0	0	0
	Maximum 8-hr Concentration (ppm)	6.4	5.1	4.3
	Days > 9.0 ppm (State 8-hr standard)	0	0	0
Nitrogen Dioxide	Maximum 1-hr Concentration (ppm)	0.14	0.10	0.12
	Days > 0.18 ppm (State 1-hr standard_	0	0	0
PM_{10}	Maximum 24-hr Concentration ($\mu g/m^3$)	59	78	66
	Days > 50 $\mu g/m^3$ (State 24-hr standard)	3	5	2
$PM_{2.5}$	Maximum 24-hr Concentration ($\mu g/m^3$)	55.0	49.0	44.2
	Exceed State Standard (12 $\mu g/m^3$ Annual Arithmetic Mean)?	Yes	Yes	Yes
Sulfur Dioxide	Maximum 24-hr Concentration (ppm)	0.006	0.003	0.002
	Days > 0.25 ppm (State 24-hr standard)	0	0	0

SOURCE: South Coast Air Quality Management District. Accessed on 4 December 2009. *Historical Data by Year*. Available at: http://www.aqmd.gov/smog/historicaldata.htm

Background CO concentration in the proposed project area is established because CO concentrations are typically used as an indicator of the conformity with CAAQS, and estimated changes in CO concentrations generally reflect operational air quality impacts associated with the project. The highest reading of the CO concentrations over the past three years is defined by SCAQMD as the background level. A review of data from the Lynwood Monitoring Station from the 2006 to 2008 period indicates that the maximum 1- and 8-hour background concentrations are approximately 8 and 6.4 parts per million (ppm), respectively. The existing 1- and 8-hour background concentrations do not exceed the State CO standards of 20 ppm and 9.0 ppm, respectively.

3.2.2.7 Sensitive Receptors

Some people, such as individuals with respiratory illnesses or impaired lung function because of other illnesses, the elderly over 65 years of age, and children under 14, are particularly sensitive to certain pollutants. Facilities and structures where these sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses identified to be sensitive receptors by SCAQMD in the CEQA Handbook include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive receptors may be at risk of being affected by air emissions released from the construction and operation of the proposed project. The greatest potential for exposure of sensitive receptors to air contaminants would occur during the temporary construction phase, when potentially contaminated soil would be uncovered and equipment would be used for site grading, materials delivery, and building construction.

The proposed project would be located in the unincorporated area of Willowbrook, near existing residences and commercial facilities. Exposure to potential emissions would vary substantially from day to day, depending on the amount of work being conducted, the weather conditions, the location of receptors, and the length of time that receptors would be exposed to air emissions. The construction phase emissions estimated in this analysis are based on conservative estimates and worst-case conditions, with maximum levels of construction activity occurring simultaneously within a short period of time. The nearest sensitive receptors, located within a 0.5-mile radius of the proposed project site consisting of school land uses, with the highest potential to be impacted by the proposed project are listed below in Table 3.2.2.7-1, *Sensitive Receptor Locations*.

TABLE 3.2.2.7-1
SENSITIVE RECEPTOR LOCATIONS

	Receptor Name	Location	Distance from Site
1	King Drew Magnet High School	1601 East 120th Street, Los Angeles 90059	Adjacent to the northwest boundary
2	Lincoln Drew Elementary and Headstart	1667 East 118th Street, Los Angeles 90059	0.10 mile north
3	Carver Elementary	1425 East 120th Street, Los Angeles 90059	0.21 mile west
4	Harriet Tubman High School	12501 South Wilmington Avenue, Compton 90222	0.25 mile south
5	Cesar Chavez Alternative School and Compton Community Day Middle School	12051 South Wilmington Avenue, Compton 90222	0.25 mile south
6	New Designs Charter School	1339 East 120th Street, Los Angeles 90059	0.28 mile northwest
7	Los Angeles Computer Science Academy	2209 East 118th Street, Los Angeles 90059	0.36 mile northeast
8	Ronald E. Mc Nair Elementary	1450 West El Segundo Boulevard, Compton, 90222	0.41 mile south
9	Martin Luther King Elementary	2270 East 122nd Street, Compton 90222	0.43 mile east
10	Willowbrook Middle School	2601 North Wilmington Avenue, Compton 90222	0.47 mile south

Additional single-family and multi-family residences are located in the surrounding community, within 0.25 mile (1,320 feet) of the proposed project site.

3.2.3 Significance Thresholds

The proposed project's air quality impacts can be separated into short-term impacts due to construction and long-term or permanent impacts from project operation. Both types of impacts may occur on a local or regional scale. The potential for the proposed project to result in impacts related to air quality was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. Would the proposed project:

- Conflict with or obstruct implementation of the applicable air quality plan;

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including release in emissions which exceed quantitative thresholds for ozone precursor);

- Expose sensitive receptors to substantial pollutant concentrations; or

- Create objectionable odors affecting a substantial number of people.

The County relies on significance thresholds recommended by the SCAQMD in its *CEQA Air Quality Handbook*, as revised in November 1993 and approved by the SCAQMD's Board of Directors in order to determine whether projects will have significant impacts to air quality.[24] The SCAQMD's emission thresholds apply to all federally regulated air pollutants except lead, which is not exceeded in the Basin.

The SCAQMD is currently in the process of preparing a new air quality handbook, *AQMD Air Quality Analysis Guidance Handbook*. Supplemental details related to air quality analysis are available online at SCAQMD's Web site.[25] Proposed chapters will be posted there as they become available. The revisions completed to date make no change in significance thresholds or analysis methodology.

3.2.3.1 Construction Phase Significance Criteria

The significance criteria for the construction phase of the proposed project include the following:

- SCAQMD regional construction emission thresholds for CO, volatile organic compounds (VOCs), NO_x, SO_x, $PM_{2.5}$, and PM_{10} as presented in Table 3.2.3.1-1, *SCAQMD Daily Construction Emission Thresholds of Significance*;

- Emissions of Toxic Air Contaminants (TACs) including carcinogens and non-carcinogens - Maximum Incremental Cancer Risk $\geq$ 10 in 1 million; Hazard Index $\geq$1.0 (project increment); and

- Odor nuisance pursuant to SCAQMD's Rule 402.

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[24] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[25] South Coast Air Quality Management District. Accessed 6 July 2010. *Air Quality Analysis Guidance Handbook*. Web site. Available at: http://www.aqmd.gov/ceqa/hdbk.html

TABLE 3.2.3.1-1
SCAQMD DAILY CONSTRUCTION EMISSION THRESHOLDS OF SIGNIFICANCE

Criteria Air Pollutant	Project Construction (lbs/day)
Carbon monoxide (CO)	550
Volatile organic compounds (VOCs)	75
Nitrogen oxides (NO_x)	100
Sulfur oxides (SO_x)	150
Fine particulates ($PM_{2.5}$)	55
Particulates (PM_{10})	150

SOURCES: South Coast Air Quality Management District, 1993.
South Coast Air Quality Management District. Accessed July 6, 2010. Air Quality Analysis Guidance Handbook. Web site. Available at: http://www.aqmd.gov/ceqa/hdbk.html

3.2.3.2 Operational Phase Significance Criteria

The significance criteria for the operational phase of Tier I and Tier II of the proposed project include the following:

- Daily SCAQMD operational emissions thresholds for CO, VOCs, NO_x, SO_x, $PM_{2.5}$, and PM_{10} as presented in Table 3.2.3.2-1, *SCAQMD Daily Operational Emission Thresholds of Significance*;

- The CAAQS for the 1- and 8-hour periods of CO concentrations of 20 ppm and 9.0 ppm, respectively. If CO concentrations currently exceed the CAAQS, then an incremental increase of 1.0 ppm over "no project" conditions for the 1-hour period would be considered a significant impact. An incremental increase of 0.45 ppm over the "no project" conditions for the 8-hour period would be considered significant;

- Emissions of TACs; and

- Odor nuisance pursuant to SCAQMD's Rule 402.

TABLE 3.2.3.2-1
SCAQMD DAILY OPERATIONAL EMISSION THRESHOLDS OF SIGNIFICANCE

Criteria Air Pollutant	Project Operation (lbs/day)
Carbon monoxide (CO)	550
Volatile organic compounds (VOCs)	55
Nitrogen oxides (NO_x)	55
Sulfur oxides (SO_x)	150
Fine particulates ($PM_{2.5}$)	55
Particulates (PM_{10})	150

SOURCES: South Coast Air Quality Management District, 1993.
South Coast Air Quality Management District. Accessed July 6, 2010. Air Quality Analysis Guidance Handbook. Web site. Available at: http://www.aqmd.gov/ceqa/hdbk.html

3.2.4 Impact Analysis

This section analyzes the potential for significant impacts to air quality that would occur from implementation of the proposed project. Air quality impacts of a project generally fall into four major categories:

(1) *Construction Impacts* -- temporary impacts, including airborne dust from grading, demolition, and dirt hauling and gaseous emissions from heavy equipment, delivery and dirt hauling trucks, employee vehicles, and paints and coatings.

Construction emissions vary substantially from day to day, depending on the level of construction phase and weather conditions.

(2) *Operational Regional Impacts* -- primarily gaseous emissions from natural gas and electricity usage and vehicles traveling to and from a project site.

(3) *Operational Local Impacts* -- increases in pollutant concentrations, primarily carbon monoxide, resulting from traffic increases in the immediate vicinity of a project, as well as any toxic and odor emissions generated on site.

(4) *Cumulative Impacts* -- air quality changes resulting from the incremental impact of the project when added to other projects in the vicinity

3.2.4.1 Assessment Methods and Models

Among the modeling tools recommended by SCAQMD, four (4) tools, CALINE4, URBEMIS, EMFAC, and AERMOD, were used to quantitatively evaluate the proposed project's potential impacts to criteria pollutant emission levels.

CALINE4

The SCAQMD recommends that a CO hotspots analysis with CALINE4 be performed if a project results in increasing congestion whereby the LOS of an intersection is changed from C to D or if there is a two percent increase in the volume to capacity ratio of any intersection rated D or worse. As it is anticipated that the proposed project would result in an increase in congestion that would result in a LOS of D or worse at several of the analyzed intersections prior to implementation of traffic mitigation measures, CO hotspots analysis was performed based on a simplified CALINE4 screening procedure developed by the Bay Area Air Quality Management District and accepted by the SCAQMD. This simplified procedure is intended as a screening method that identifies potential CO hotspots. The CALINE4 screening method was used for the six intersections that would experience the greatest increases in traffic volumes as a result of the proposed project. In order to obtain the most conservative results, it was assumed that sensitive receptors were located at the edge of each roadway. For each intersection analyzed, roadway-specific CO emissions calculated from peak-hour traffic volumes were added to the background CO concentrations. The emission factors used in the CALINE4 calculations were from the EMFAC 2007 model.

URBEMIS Model

The methodology used to analyze construction and operational air quality impacts is consistent with the methods described in the 1993 *CEQA Air Quality Handbook*.[26] The CARB URBEMIS 2007, version 9.2.4, was used to estimate construction emissions from the demolition of up to four buildings (the existing Multi-service Ambulatory Care Center (MACC) Building, Emergency Room, Storage Building, and Cooling Towers) and the construction of approximately 156,700 square feet of new buildings during Tier I and up to approximately 1,814,696 square feet of new buildings during Tier II, although it is understood that the net new development proposed on the campus is less than the approximately 1.8 million square feet. URBEMIS is a computer program that can be used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, and office buildings; area sources such as gas appliances, wood stoves, fireplaces, and landscape maintenance equipment; and construction projects. The URBEMIS 2007 model directly calculates VOCs, NO_x, CO, SO_2, PM_{10}, $PM_{2.5}$, and CO_2 emissions. SCAQMD regional significance thresholds were used to compare the project's regional construction emission impacts to determine project significance. URBEMIS 2007, version 9.2.4, was also used to analyze the proposed project's operational emissions, which would likely result from the vehicle trips to and from the proposed project site, and area source emissions, which would likely result from natural gas combustion and landscaping activities within the vicinity of the proposed project site. Because the proposed project site does not contain an industrial component that is considered a lead emission source, the concentrations and emissions of lead were not analyzed for the proposed project. The URBEMIS 2007 model was used for analysis of construction impacts to air quality based on the construction scenario described as an element of Section 2.0, *Project Description*, of this EIR.

EMFAC 2007 Model

The CARB Emissions Factors (EMFAC) 2007 model, version 2.3, was used to evaluate the proposed project's air pollutant emissions contributed by mobile sources, such passenger cars, based on the expected vehicle fleet mix, vehicle speeds, commute distances, and temperature conditions for the estimated start date of the proposed project. The EMFAC 2007, version 2.3, which is embedded within the URBEMIS 2007 model, includes emission factors for criteria pollutants. In this analysis, fleet mix, vehicle speeds, commute distances, and temperature conditions were based on the default values in the URBEMIS 2007 and EMFAC 2007 models.[27]

AERMOD

According to SCAQMD's localized significance threshold (LST) methodology, projects greater than 5 acres in size require air quality dispersion modeling to determine whether construction activities would cause or contribute to adverse localized air quality impacts. The criteria pollutants that are required to be analyzed are NO_x, CO, and PM. The two principal components of NO_X are NO_2 and NO, with the vast majority of NO_x emissions existing as NO. However, due to the adverse health effects that are associated with NO_2, the analysis of air quality impacts assumes all NO_X emissions are NO_2 for the purpose of modeling a worst-case scenario.

AMS/EPA Regulatory Model Improvement Committee, AERMIC Model (AERMOD) atmospheric dispersion model can be used for modeling the potential impacts of point, area, or volume sources

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[26] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[27] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

in simple (i.e., flat) and complex (i.e., hilly) terrain. This program uses Gaussian dispersion to determine concentration of pollutants from sources based on available meteorological data. It is an accepted mathematical estimate of pollutant levels based on distance from a point source and physical conditions of equipment, site, and weather conditions. The model is limited to an approximate 50 kilometer radius, and the units of output are micrograms per cubic meter. This model was used to analyze the proposed project's short term construction emission impacts on sensitive receptors.

Development of Tier II of the proposed project would occur over the course of 10 years. Construction activities would either occur within localized areas or concurrently at more than one development area within the 38-acre site. For the purposes of conducting conservative air quality dispersion modeling, it was assumed that the proposed project site would consist of 8 separate, approximately 5-acre development areas for Tier II, as well as the specific, known area for Tier I development within the proposed project site.[28] Each development area was modeled based on the worst-case daily emission scenario for each pollutant.[29]

In accordance with SCAQMD's LST methodology, volume sources were set up to model the combustion emissions from construction equipment and area sources were set up to model the fugitive dust emissions from grading activities. Meteorological data provided by SCAQMD for the Lynwood monitoring station was used to run the dispersion model for the proposed project.

Estimated peak concentrations of NO_2 and CO generated by construction activities were added to the respective ambient concentrations to determine significance. The current peak background concentrations for NO_2, 1-hour CO, and 8-hour CO are 0.12, 6, and 4.3, respectively. Consistent with SCAQMD LST methodology, due to the fact that the Basin is currently in non-attainment for $PM_{2.5}$ and PM_{10}, the peak concentrations of $PM_{2.5}$ and PM_{10} generated by AERMOD were not added to the existing background concentrations, but instead were compared directly to the SCAQMD thresholds of significance.

Dispersion modeling was not required for the operational phase of the proposed project as the main source of criteria pollutants during operation is expected to be mobile source emissions, which would not be considered to be localized impacts as they would be spread out along roadways throughout the area. SCAQMD recommends applying the LST methodology to the operational phase of a project, only if a project includes mobile sources that would spend long periods of time idling at the site, such as warehouse/transfer facilities, or stationary sources, such as boilers or combustion units.[30]

Although the campus currently contains an existing Central Plant, the proposed project would not increase the capacity of the Central Plant and would not add additional components or equipment. The proposed project does include improvements to the Central Plant, including replacing certain components with more efficient equipment that would be expect to reduce water and salt use. The existing Central Plant currently uses and would continue to use Refrigerant-134, but there would be no anticipated increases in emissions as a result of the proposed project. Due to the fact that the emissions of the Central Plant are an existing condition, no dispersion modeling is required for the proposed project.

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[28] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[29] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[30] SCAQMD. February 2005. Final Sample Construction Scenario Report.

3.2.4.2 Construction Impacts

During construction of the proposed project, there is a potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the proposed project site. The proposed project is anticipated to be developed as described in Section 2.0, *Project Description*, of this EIR. The timeline for construction of the different buildings at the proposed project site would result in the likelihood of overlapping construction activities. Potential emission estimates from construction activities are based on emission factors and construction scenario information for development at the proposed project site. The total amount of construction, including duration and level of construction activity occurring at the proposed project site, would influence the estimated construction emissions and resulting potential impacts. The emission forecasts are therefore based on conservative assumptions about the construction scenario, with a large amount of construction activity occurring in a relatively short time frame. In addition, worker commute trips would vary throughout the construction period. Estimates included in this analysis include the highest potential worker commute trips. Due to the conservative nature of these assumptions, actual emissions from the individual construction projects would most likely be less than the estimates forecasted.

Construction emissions are expected to result from the following activities:

- Demolition of existing structures
- Site grading
- Soil removal
- Delivery and hauling of construction materials and equipment
- Fuel combustion by on-site construction equipment
- Construction worker commute trips
- Application of architectural coatings
- Asphalt operations

The proposed project would include the demolition of up to four buildings. The primary air pollutants emitted during demolition of existing structures and site preparation (i.e., site excavation, grading, and soil removal) activities would be fugitive dust emissions. The delivery and hauling of construction materials and equipment, the use of heavy-duty construction equipment, and the construction workers' commute trips from and to the proposed project site would primarily result in NO_x emissions. During the application of architectural coating and asphalt paving operations, VOCs would likely be released. The construction air impacts assessment considers each of these potential emission sources; however, the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions can contribute to substantial variations in daily construction emissions.

The demolition of the structures shall be preceded by asbestos abatement, as necessary. The contractor shall comply with requirements of SCAQMD Rule 1403 regarding asbestos control during demolition. This rule ensures that if there is any asbestos present in the buildings scheduled for demolition, it is removed and encapsulated prior to demolition so that no asbestos fibers are released. The SCAQMD *CEQA Air Quality Handbook* (1993 edition) states that asbestos emissions from a project are fully mitigated and do not present a significant impact when the project is in compliance with Rule 1403. In addition, should any contamination be found to be present in the soils in the area exposed after demolition, construction shall stop and appropriate health and safety procedures and agency coordination shall be undertaken prior to continuing work on site.

Tier I

Daily regional construction emissions were estimated by using the URBEMIS 2007 emissions model for the construction scenario for Tier I (Table 3.2.4.2-1, *Tier I: Unmitigated Estimated Daily Regional Construction Emissions).*[31] The daily regional construction emissions associated with the proposed project's construction activities for Tier I would not be expected to exceed the SCAQMD regional significance thresholds. Construction of Tier I is currently projected to take approximately 37 months in total. Therefore, regional construction impacts related to the emission of criteria pollutants would be expected to be below the level of significance.

TABLE 3.2.4.2-1
TIER I: UNMITIGATED
ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

Construction Phase	**Construction Emissions (Pounds/Day)**					
	VOCs	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
Demolition	3	21	13	0	1	1
Mass Site Grading	7	79	33	<1	9	29
Trenching	4	31	20	0	2	2
Building Construction[1]	10	81	42	<1	3	3
Paving	2	14	11	0	1	1
Architectural Coating	74	<1	0	0	<1	0
90 worker trips	<1	1	6	<1	<1	1
Maximum Regional Total	**74**	**82**	**48**	**<1**	**9**	**30**
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

It is mandatory for all construction projects in the South Coast Air Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Amended on June 3, 2005, the Fugitive Dust Rule 403 requires actions to prevent, reduce, or mitigate fugitive dust emissions of particulate matter in the ambient air as a result of any anthropogenic activities that are capable of generating fugitive dusts. Compliance with Rule 403 would reduce regional PM_{10} emissions associated with grading activities by at least 60 percent.[32]

Toxic air contaminant (TAC) impacts at the proposed project site would primarily result from diesel particulate emissions associated with heavy-duty equipment operations and have been analyzed by using the standard health risks assessment methodology to determine "Individual Cancer Risk" of a person continuously exposed to TACs over a 70-year lifetime. Due to the relatively short-term construction schedule of approximately 37 months, construction-related TAC emissions due to construction of Tier I of the proposed project would be expected to be below the level of significance.

Odor impacts at the proposed project site would primarily result from equipment exhaust, application of architectural coatings, and asphalt operation. However, since odors are normally localized and would be confined to the proposed project site, an odor nuisance is not likely to happen. The

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[31] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[32] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

construction of the proposed project would use typical construction equipment, and odors at the proposed project site would be typical for most construction sites. In addition, construction of the proposed project is required to comply with SCAQMD Rule 402; therefore, odor impacts resulting from construction activities for Tier I of the proposed project would be expected to be below the level of significance.

In order to determine impacts upon sensitive receptors, SCAQMD Sample LST Spreadsheets were used for the daily maximum emissions generated by a construction worst-case scenario for each phase of construction. The maximum localized emissions were then inputted into AEMOD for dispersion modeling.[33] The results of the dispersion modeling indicated the unmitigated construction-related air quality emissions of CO and $PM_{2.5}$ would be below the level of significance at the nearest sensitive receptors to the proposed project, but that emissions of NO_x would have the potential to be above the level of significance at the nearest sensitive receptors prior to implementation of mitigation measures.[34] Based on the dispersion modeling results, PM_{10} emissions at all sensitive receptors would be below the level of significance.

Tier II

Daily regional construction emissions were estimated by using the URBEMIS 2007 emissions model for the construction scenario for Tier II (Table 3.2.4.2-2, *Tier II: Unmitigated Estimated Daily Regional Construction Emissions)*.[35] The daily regional construction emissions associated with the proposed project's construction activities for Tier II would be expected to exceed the SCAQMD regional significance thresholds for VOCs and NO_x due to the potential for overlap of the construction phases. Therefore, regional construction impacts related to the emission of criteria pollutants would be expected to be above the level of significance.

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[33] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[34] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[35] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

TABLE 3.2.4.2-2
TIER II: UNMITIGATED
ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

Year	Maximum Construction Emissions (Pounds/Day)					
	VOCs	NO_x	CO	SO_x	$PM_{2.5}$	PM_{10}
2010	7	79	34	<1	9	29
2011	16	156	75	<1	11	32
2012	25	217	111	<1	14	34
2013	94	207	116	<1	13	34
2014	94	185	112	<1	12	33
2015	93	166	108	<1	11	32
2016	90	148	105	<1	10	31
2017	88	131	102	<1	10	31
2018	85	118	99	<1	4	5
2019	80	70	65	<1	3	3
2020	76	31	32	<1	1	1
150 worker trips	1	1	7	<1	<1	2
Maximum Regional Total	95	218	123	<1	14	36
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

It is mandatory for all construction projects in the South Coast Air Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Amended on June 3, 2005, the Fugitive Dust Rule 403 requires actions to prevent, reduce, or mitigate fugitive dust emissions of particulate matter in the ambient air as a result of any anthropogenic activities that are capable of generating fugitive dusts. Compliance with Rule 403 would reduce regional PM_{10} emissions associated with grading activities by at least 60 percent.[36]

Toxic air contaminant impacts at the proposed project site would primarily result from diesel particulate emissions associated with heavy-duty equipment operations and have been analyzed by using the standard health risks assessment methodology to determine "Individual Cancer Risk" of a person continuously exposed to TACs over a 70-year lifetime. Construction of the proposed project is anticipated to occur within a 10-year time period. Despite the relatively long time frame currently set for construction activities for Tier II, construction equipment would not be anticipated to operate every day throughout the 10-year timeframe. It is anticipated that construction would occur in distinct phases, between which would be periods of inactivity. In addition, the USEPA adopted low sulfur diesel fuel standards in 2006, which reduce the TAC emissions from diesel engines. Therefore, construction-related TAC emissions of the proposed project would be expected to be below the level of significance.

Odor impacts at the proposed project site would primarily result from equipment exhaust, application of architectural coatings, and asphalt operation. However, since odors are normally localized and would be confined to the proposed project site, an odor nuisance is not likely to happen. The construction of the proposed project would use typical construction equipment, and odors at the

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[36] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

proposed project site would be typical for most construction sites. In addition, construction of the proposed project is required to comply with SCAQMD Rule 402; therefore, odor impacts resulting from construction activities of the proposed project would be expected to be below the level of significance.

Due to the large amount of construction activities required for complete build-out of Tier II of the proposed project, sensitive receptors would have the potential be expected to be significantly affected by emissions of criteria pollutants. SCAQMD Sample LST Spreadsheets were used for the daily maximum emissions generated by a construction worst-case scenario for each phase of construction that were inputted into AEMOD for dispersion modeling.[37] The results of the dispersion modeling indicated the unmitigated construction-related air quality emissions of CO would be below the level of significance at the nearest sensitive receptors to the proposed project, but that emissions of NO_x, $PM_{2.5}$, and PM_{10} would be above the level of significance at the nearest sensitive receptors.[38]

In order to determine impacts upon sensitive receptors, SCAQMD Sample LST Spreadsheets were used for the daily maximum emissions generated by a construction worst-case scenario for each phase of construction. The maximum localized emissions were then inputted into AEMOD for dispersion modeling.[39] The results of the dispersion modeling indicated the unmitigated construction-related air quality emissions of CO and would be below the level of significance at the nearest sensitive receptors to the proposed project, but that emissions of NO_x, $PM_{2.5}$, and PM_{10} would have the potential to be above the level of significance at the nearest sensitive receptors prior to implementation of mitigation measures.[40]

3.2.4.3 Operational Impacts

Operational Regional Impacts

The URBEMIS 2007 model was used to calculate emissions from mobile and area sources. Mobile source emissions in the URBEMIS 2007 emissions model are based on the EMFAC 2007, version 2.3, emission inventory model, which projects emission estimates based upon the expected vehicle fleet mix for the estimated start date of the project, the vehicle speed and distance assumptions, and temperature conditions.

Tier I

Tier I of the proposed project would not be anticipated to have significant impacts to air quality during operation. Completion of Tier I of the proposed project would result in a decrease in square footage of facilities on the campus compared to existing conditions and a corresponding reduction in vehicle trips to and from the site.[41] Therefore, Tier I of the proposed project would be responsible for a

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[37] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[38] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[39] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[40] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[41] Raju Associates, Inc. July 2010. *Traffic Study for Martin Luther King, Jr. Medical Center Campus Redevelopment Project*. Pasadena, CA.

reduction in emissions related to mobile source emissions (Table 3.2.4.3-1, *Estimated Daily Operational Emissions*). Therefore, there would be no expected significant regional impacts due to operation of Tier I of the proposed project.

TABLE 3.2.4.3-1
ESTIMATED DAILY OPERATIONAL EMISSIONS

Emission Sources	**Air Pollutants (Pounds/Day)**					
	VOCs	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
Tier I Mobile Sources	-27	-34	-308	0	-13	-68
Tier II Mobile Sources	93	105	1,020	2	66	339
Total Mobile Sources	**66**	**71**	**712**	**2**	**53**	**271**
Area Sources	9	10	10	0	<1	<1
Total Emissions	**75**	**81**	**722**	**2**	**53**	**271**
SCAQMD Threshold	**55**	**55**	**550**	**150**	**55**	**150**
Exceedance of Significance?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**

Tier II

Tier II of the proposed project would be anticipated to have significant impacts to air quality during operation. Long-term operational air emissions at the proposed project site are likely to result from both stationary sources (i.e., area sources from natural gas combustion, central plant, and landscape maintenance equipment) and mobile sources. It is anticipated that Tier II of the proposed project would generate approximately 24,582 net daily vehicle trips.[42]

Daily operational emissions of SO_x and $PM_{2.5}$ would not exceed SCAQMD thresholds; however, daily operational emissions of CO, VOCs, NO_X, and PM_{10} would exceed SCAQMD thresholds (Table 3.2.4.3-1). Thus, the operational impacts of Tier II of the proposed project would be expected to be above the level of significance for these four criteria pollutants.

Operational Local Impacts

Tier I

As noted previously, completion of Tier I of the proposed project would result in a decrease in square footage of facilities on the campus compared to existing conditions and a corresponding reduction in vehicle trips to and from the site. Therefore, localized daily operational emissions, TAC levels, and odor impacts would be expected to be below the level of significance. In addition, implementation of mitigation measures, such as carpooling and the use of public transportation, would reduce NO_x emissions from mobile sources, as well as the overall NO_x emission levels, from the proposed project. Therefore, the long-term exposure of sensitive receptors to Tier I's operational NO_x emissions would be expected to be below the level of significance.

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[42] Raju Associates, Inc. July 2010. *Traffic Study for Martin Luther King, Jr. Medical Center Campus Redevelopment Project*. Pasadena, CA.

Tier II

Carbon monoxide is considered a localized problem under Section 9.4 of SCAQMD's *CEQA Air Quality Handbook*; thus, additional analysis when a proposed project is likely to expose sensitive receptors to CO hotspots is required. Localized levels of CO concentrations from vehicles termed as CO hotspots were analyzed for Tier II of the proposed project as additional number of peak hour vehicle trips that would be added to the intersections under the existing congested condition without the proposed project. Results of the CALINE4 screening method indicated that impacts of localized concentrations of CO at sensitive receptors would be below the CAAQS and NAAQS for 1-hour and 8-hour CO concentrations.[43] The CALINE4 calculations do not indicate the potential for CO hotspots. Therefore, local impacts of CO as a result of Tier II of the proposed project would be expected to be below the level of significance.

Toxic air contaminants impacts at the proposed project site would primarily result from diesel particulate emissions associated with heavy-duty equipment operations. The operation of Tier II of the proposed project would not generate a substantial number of heavy-duty equipment operations or daily truck trips. Delivery truck trips, during project operation, would be the only primary source contributing to the TAC level at the proposed project site. However, the number of heavy-duty delivery trucks accessing the proposed project site on a daily basis would be minimal due to the application of the proposed project as a medical and mixed use facility. In addition, other sources including manufacturing industries and automobile repair facilities are typical sources of acute and chronically hazardous TACs. Because the proposed project site does not contain manufacturing industries or automobile repair facilities, additional amounts of TACs would be less likely to be contributed to the proposed project site. Therefore, operation-related TAC emissions due to Tier II of the proposed project would be below the level of significance, and, consequently, would have a less than significant impact on human health.

According to SCAQMD's *CEQA Air Quality Handbook*,[44] odor nuisance is associated with land uses and industrial operations including agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Since the proposed project development does not include any land uses or industrial operations that are typically associated with odor nuisance, Tier II of the proposed project would cause less than significant odor impacts. Furthermore, although on-site trash receptacles have the potential to create odors, they would be maintained and controlled in a manner that controls adverse odors and complies with SCAQMD Rule 402. Therefore, operational odor impacts due to Tier II of the proposed project would be below the level of significance.

Localized daily operational emissions, TAC levels, and odor impacts as a result of Tier II would be expected to be below the level of significance. In addition, implementation of mitigation measures, such as carpooling and the use of public transportation, would reduce NO_x emissions from mobile sources, as well as the overall NO_x emission levels, from the proposed project. Therefore, although there may be short-term related impacts, the long-term exposure of sensitive receptors to the proposed project's operational NO_x emissions would be expected to be below the level of significance.

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[43] Sapphos Environmental, Inc. July 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[44] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

3.2.4.4 Cumulative Impacts

SCAQMD's methodological framework was used to assess the proposed project's cumulative impacts for both Tier I and Tier II. In order to assess cumulative impacts based on the AQMP's forecasts of attainment of ambient air quality standards set forth in the Federal and State Clean Air Acts, this methodological framework takes into account forecasted regional growth projections from SCAG. Cumulative development can affect implementation of the AQMP. The 2007 AQMP was prepared to accommodate growth, to reduce pollutants within the SCAQMD portion of the SCAB, and to minimize the impact on the economy. Growth considered to be consistent with the 2007 AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Consequently, as long as growth in the SCAB is within the projections for growth identified by SCAG, implementation of the 2007 AQMP would not be obstructed by such growth and cumulative impacts would be less than significant.

Tier I

Since the proposed project would not induce substantial population growth and would be consistent with the growth projections anticipated by SCAG (as further discussed in Section 3.9, *Population and Housing,* of this EIR), Tier I of the proposed project would be expected to cause a less than significant cumulative air quality impact in relation to consistency with the AQMP.

However, it was determined that there are forty-two (42) projects that could affect the cumulative impact analysis of the proposed project that are anticipated to be implemented within construction period for both tiers of the proposed project occurring within an approximate 3-mile radius of the proposed project site (Section 2.0, *Project Description,* Table 2.6-1, *List of Related Projects*). According to the SCAQMD, individual construction projects that exceed the SCAQMD recommended daily thresholds for project-specific impacts would cause a cumulatively considerable increase in emissions for those pollutants for which the basin is a non-attainment area. As discussed previously, construction and operational air quality emissions from Tier I of the proposed project as analyzed in this EIR would not have the potential to be above the level of significance. Therefore, implementation of Tier I of the proposed project would not be expected to result in cumulative impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects.

Tier II

Since the proposed project would not induce substantial population growth and would be consistent with the growth projections anticipated by SCAG (as further discussed in Section 3.9, *Population and Housing,* of this EIR), Tier II of the proposed project would be expected to cause a less than significant cumulative air quality impact in relation to consistency with the AQMP.

However, it was determined that there are forty-two (42) projects that could affect the cumulative impact analysis of the proposed project that are anticipated to be implemented construction period for both tiers of the proposed project occurring within an approximate 3-mile radius of the proposed project site (Section 2.0, *Project Description,* Table 2.6-1). According to the SCAQMD, individual construction projects that exceed the SCAQMD recommended daily thresholds for project-specific impacts would cause a cumulatively considerable increase in emissions for those pollutants for which the basin is a non-attainment area. As discussed previously, construction and operational air quality emissions from Tier II of the proposed project as analyzed in this EIR may have the potential to be above the level of significance. Therefore, implementation of Tier II of the proposed project would be expected to result in cumulative impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects.

3.2.5 Mitigation Measures

Air quality mitigation measures are provided to reduce construction-phase criteria pollutant emissions to the maximum extent feasible and to ensure compliance with SCAQMD Rule 403 Fugitive Dust in order to reduce, prevent, or mitigate particulate matter emissions from the proposed project's construction phase. There are no feasible mitigation measures that can be implemented to reduce the mobile source-related operational impacts of Tier II of the proposed project.

Tier I

Measure Air-1

Water or a stabilizing agent shall be applied during Tier I to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the lead agency to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the lead agency. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation.

Measure Air-2

Moistening or covering of excavated soil piles shall be required during Tier I to treat grading areas during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.

Measure Air-3

Discontinuing Tier I construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour) shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour.

Measure Air-4

Track-out during Tier I shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Track-out is defined by the South Coast Air Quality Management District as any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday.

Measure Air-5

A wheel washing system shall be installed during Tier I, and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site. Washing of wheels leaving the construction site during construction of each element shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities.

Measure Air-6

All haul trucks hauling soil, sand, and other loose materials during Tier I shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). All transport of soils to and from the project site for each element shall be conducted in a manner that avoids fugitive dust emissions and ensures compliance with current air quality standards. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site.

Measure Air-7

Traffic speeds on unpaved roads during Tier I shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour.

Measure Air-8

Heavy-equipment Tier I operations shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure heavy-equipment operations be suspended during first- and second-stage smog alerts.

Measure Air-9

All diesel engines used during Tier I for construction activities for the project that are not registered under California Air Resources Board's Statewide Portable Equipment Registration Program and have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any diesel engine larger than 50 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxide and particulate matter emissions that are equivalent to a Tier 2 engine. All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria.

Tier II

Measure Air-1

Water or a stabilizing agent shall be applied during Tier II to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the lead agency to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the lead agency. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation.

Measure Air-2

Moistening or covering of excavated soil piles shall be required during Tier II to treat grading areas during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.

Measure Air-3

Discontinuing Tier II construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour) shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour.

Measure Air-4

Track-out during Tier II shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Track-out is defined by the South Coast Air Quality Management District as any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday.

Measure Air-5

A wheel washing system shall be installed during Tier II, and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site. Washing of wheels leaving the construction site during construction of each element shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities.

Measure Air-6

All haul trucks hauling soil, sand, and other loose materials during Tier II shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). All transport of soils to and from the project site for each element shall be conducted in a manner that avoids fugitive dust emissions and ensures compliance with current air quality standards. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site.

Measure Air-7

Traffic speeds on unpaved roads during Tier II shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour.

Measure Air-8

Heavy-equipment Tier II operations shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure heavy-equipment operations be suspended during first- and second-stage smog alerts.

Measure Air-9

All diesel engines used during Tier II for construction activities for the project that are not registered under California Air Resources Board's Statewide Portable Equipment Registration Program and have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any diesel engine larger than 50 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxide and particulate matter emissions that are equivalent to a Tier 2 engine. All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria.

3.2.6 Level of Significance after Mitigation

Tier I

Implementation of air quality mitigation measures Air-1 through Air-8 would reduce fugitive dust emissions associated with construction activities, which would cause daily $PM_{2.5}$ and PM_{10} emissions to remain at below the SCAQMD thresholds of significance (Table 3.2.6-1, *Tier I: Mitigated Estimated Daily Regional Construction Emissions*).[45]

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[45] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

TABLE 3.2.6-1
TIER I: MITIGATED
ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

	Construction Emissions (Pounds/Day)					
Construction Phase	**VOCs**	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
Demolition	3	21	13	0	1	1
Mass Site Grading	7	79	34	<1	5	10
Trenching	4	31	20	0	2	2
Building Construction[1]	10	81	42	<1	3	3
Paving	2	14	11	0	1	1
Architectural Coating	74	<1	0	0	<1	0
90 worker trips	<1	1	6	<1	<1	1
Maximum Regional Total	**74**	**82**	**48**	<1	**5**	**11**
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Implementation of mitigation measure Air-9 would ensure that criteria pollutant emissions associated with the use of construction equipment would be reduced to the maximum extent feasible. As such, criteria pollutant emissions during construction would remain below the level of significance, and would therefore not be significant.

Mitigation measures Air-1 through Air-9 would also ensure that cumulative air quality impacts during construction would remain at below the level of significance and that construction-related impacts to sensitive receptors would be reduced to below the level of significance.

Tier II

Implementation of air quality mitigation measures Air-1 through Air-8 would reduce fugitive dust emissions associated with construction activities, which would cause daily $PM_{2.5}$ and PM_{10} emissions to remain at below the SCAQMD thresholds of significance (Table 3.2.6-2, *Tier II: Mitigated Estimated Daily Regional Construction Emissions*).[46]

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[46] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

TABLE 3.2.6-2
TIER II: MITIGATED
ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

Year	**Maximum Construction Emissions (Pounds/Day)**					
	VOCs	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
2010	7	79	34	<1	5	10
2011	16	156	75	<1	8	13
2012	25	217	111	<1	10	16
2013	94	207	116	<1	9	15
2014	94	185	112	<1	8	14
2015	93	166	108	<1	7	13
2016	90	148	105	<1	7	13
2017	88	131	102	<1	6	12
2018	85	118	99	<1	4	5
2019	80	70	65	<1	3	3
2020	76	31	32	<1	1	1
150 worker trips	1	1	7	<1	<1	2
Maximum Regional Total	95	218	123	<1	10	18
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Implementation of mitigation measure Air-9 would ensure that criteria pollutants emissions associated with the use of construction equipment would be reduced to the maximum extent feasible. However, VOCs and NO_x emissions during construction would still result in temporary significant and unavoidable impacts.

Mitigation measures Air-1 through Air-9 would also ensure that air quality impacts on sensitive receptors during construction would be reduced to the maximum extent feasible. However, implementation of Tier II of the proposed project would still have the potential to result in significant impacts to sensitive receptors related to emissions of NO_x, $PM_{2.5}$, and PM_{10}.

Mitigation measures Air-1 through Air-9 would also ensure that cumulative air quality impacts during construction would be reduced to the maximum extent feasible. However, implementation of Tier II of the proposed project would still be expected to result in cumulative construction-related impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects.

As there are no feasible mitigation measures for operation of Tier II; therefore, criteria pollutant emissions from mobile sources during operation of Tier II would remain at above the level of significance.

3.3 CULTURAL RESOURCES

As a result of the Initial Study, the County of Los Angeles determined that the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in impacts to cultural resources.[1] Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts to cultural resources and to identify alternatives.

The analysis of cultural resources consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions at the proposed project area, thresholds for assessing the level of significance of impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. Potential impacts to cultural resources at the proposed project site were evaluated based on queries at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton, and corresponding review of the information center's U.S. Geological Survey (USGS) 7.5-minute series South Gate and Inglewood topographic quadrangle maps.[2] Additional research was conducted at the Los Angeles Public Library, Natural History Museum of Los Angeles County, and with the Native American Heritage Commission. Published and unpublished literature was reviewed, including the 2009 editions of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Historic Resources Inventory (HRI), the listing of California Historic Landmarks (CHL), and the California Points of Historical Interest (CPHI), to ascertain the presence of archaeological and historic resources that could potentially be affected as a result of the proposed project. In addition, an intensive-level historical resource evaluation was conducted for the proposed project site by Sapphos Environmental, Inc. (Appendix E, *Cultural Resources Technical Report*).

3.3.1 Regulatory Framework

Federal

National Historic Preservation Act[3]

Enacted in 1966, the National Historic Preservation Act (NHPA) declared a national policy of historic preservation and instituted a multifaceted program, administered by the Secretary of the Interior, to encourage the achievement of preservation goals at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the National Register of Historic Places (NRHP), established the position of State Historic Preservation Officer (SHPO) and provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHRA, assisted Native American tribes to preserve their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP).

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[2] U.S. Geological Survey. 1964. 7.5-Minute Series South Gate, California, Topographic Quadrangle. Reston, VA.

U.S. Geological Survey. 1964. 7.5-Minute Series Inglewood, California, Topographic Quadrangle. Reston, VA.

[3] *United States Code*. Title 16, Section 470.

Section 106

Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any historic property that is included in or eligible for inclusion in the NRHP and that the ACHP must be afforded an opportunity to comment—through a process outlined in the ACHP regulations, in Title 36 of the Code of Federal Regulations (CFR) Part 800—on such undertakings. The Section 106 process involves identification of significant historic resources within an "area of potential effect," determination if the undertaking will cause an adverse effect on historic resources, and resolution of those adverse effects through execution of a Memorandum of Agreement. In addition to the ACHP, interested members of the public, including individuals, organizations, and agencies (such as the California Office of Historic Preservation), are provided with opportunities to participate in the process.

The proposed project is financed in part by federally funded Build America Bonds issued under the American Reinvestment and Recovery Act of 2009. The issuance of these federal bonds has been determined by the ACHP to constitute a ministerial action on the part of the US Treasury or Internal Revenue Service.[4] Ministerial acts are not subject to Section 106 review. The County of Los Angeles General Counsel concurs with this interpretation of Build America Bonds as a ministerial action.[5] The project does not meet the definition of a federal undertaking; therefore, Section 106 of the NHPA is not applicable.

National Register of Historic Places

The NRHP was established by the NHPA of 1966 as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment."[6] The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American or regional/local history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance also must possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if it is significant under one or more of the four established criteria:[7]

Criterion A: It is associated with events that have made a significant contribution to the broad patterns of our history;

Criterion B: It is associated with the lives of persons who are significant in our past;

Criterion C: It embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or

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[4] Advisory Council on Historic Preservation. 9 October 2009. "Build America Bonds and Section 106." http://www.achp.gov/news091009.html

[5] Hawkins, Delafield, and Wood (Mr. Arto C. Becker and Mr. Russell Miller). 7 April 2010. Memorandum: Various Questions Regarding the American Recovery and Reinvestment Act of 2009. Submitted to the County of Los Angeles (Mr. Glenn Byers, Mr. Douglas Baron, Ms. Cammy DuPont).

[6] *Code of Federal Regulations*. Title 36, Section 60.2.

[7] *Code of Federal Regulations*. Title 36, Section 60.4.

represents a significant and distinguishable entity whose components may lack individual distinction; and/or

Criterion D: It has yielded, or may be likely to yield, information important in prehistory or history.

Ordinarily cemeteries, birthplaces, or graves of historic figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, and properties that are primarily commemorative in nature are not considered eligible for the NRHP, unless they satisfy certain conditions. In general, a resource must be 50 years old to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

No properties within the proposed project site are listed in or have been formally determined eligible for listing in the NRHP.

Secretary of the Interior's Standards for the Treatment of Historic Properties

Evolving from the *Secretary of the Interior's Standards for Historic Preservation Projects with Guidelines for Applying the Standards* that were developed in 1976, the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings* was published in 1995 and codified as 36 CFR 67. Neither technical nor prescriptive, these standards are "intended to promote responsible preservation practices that help protect our Nation's irreplaceable cultural resources."[8] *Preservation* acknowledges a resource as a document of its history over time and emphasizes stabilization, maintenance, and repair of existing historic fabric. *Rehabilitation* not only incorporates the retention of features that convey historic character but also accommodates alterations and additions to facilitate continuing or new uses. *Restoration* involves the retention and replacement of features from a specific period of significance. *Reconstruction*, the least used treatment, provides a basis for recreating a missing resource. These standards have been adopted, or are used informally, by many agencies at all levels of government to review projects that affect historic resources.

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

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[8] Weeks, Kay D., and Anne E. Grimmer. 1995. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstruction Historic Buildings*. Washington, DC: U.S. Department of the Interior, National Park Service.

State of California

California Environmental Quality Act[9]

Pursuant to the California Environmental Quality Act (CEQA), an historical resource is a resource listed in, or eligible for listing in, the California Register of Historical Resources (CRHR). In addition, resources included in a local register of historical resources or identified as significant in a local survey conducted in accordance with state guidelines also are considered historical resources under CEQA, unless a preponderance of evidence demonstrates otherwise. According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude a Lead Agency, as defined by CEQA, from determining that the resource may be an historical resource as defined in California Public Resources Code (PRC) Section 5024.1.[10] Pursuant to CEQA, a project with an effect that may cause a substantial adverse change in the significance of an historical resource may have a significant effect on the environment.[11]

CEQA also applies to effects on archaeological sites. Archaeological sites may be eligible for the CRHR and thus would qualify as historical resources under CEQA. If an archaeological site does not satisfy the criteria as an historical resource but does meet the definition of a "unique archaeological resource," it is also subject to CEQA. A unique archaeological resource is defined as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:[12]

(1) It contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information

(2) It has a special and particular quality such as being the oldest of its type or the best available example of its type

(3) It is directly associated with a scientifically recognized important prehistoric or historic event or person

California Register of Historical Resources

Created in 1992 and implemented in 1998, CRHR is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change."[13] Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys or

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[9] *California Public Resources Code*. Division Thirteen, Statutes 21083.2, 21084.1.

[10] *California Code of Regulations*. Title 14, Chapter 3. CEQA Guidelines, Section 15064.5(a).

[11] *California Code of Regulations*. Title 14, Chapter 3. CEQA Guidelines, Section 15064.5(b).

[12] *California Public Resources Code*. Section 21083.2(g).

[13] *California Public Resources Code*. Section 5024.1(a).

designated by local landmarks programs, may be nominated for inclusion in the CRHR. A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:[14]

Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Criterion 2: It is associated with the lives of persons important in our past.

Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.

Criterion 4: It has yielded, or may be likely yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance.[15] It is possible that a resource whose integrity does not satisfy NRHP criteria still may be eligible for listing in the CRHR. Similarly, resources that have achieved significance within the past 50 years may be eligible for inclusion in the CRHR if enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource.[16]

No properties within the proposed project site are listed in or have been formally determined eligible for listing in the CRHR.

California Historical Landmarks[17]

California Historical Landmarks are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the County Board of Supervisors or be recommended by the State Historical Resources Commission, and be officially designated by the Director of California State Parks. The specific standards now in use first were applied in the designation of CHL 770. CHLs 770 and above are automatically listed in the CRHR.

To be eligible for designation as a *landmark*, a resource must meet at least one of the following criteria:

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[14] *California Public Resources Code*. Section 5024.1(c).

[15] Office of Historic Preservation. n.d. "Technical Assistance Bulletin 6: California Register and National Register, A Comparison (for purposes of determining eligibility for the California Register)." Available at: http://www.ohp.parks.ca.gov

[16] Office of Historic Preservation. n.d. "Technical Assistance Bulletin 6: California Register and National Register, A Comparison (for purposes of determining eligibility for the California Register)." Available at: http://www.ohp.parks.ca.gov

[17] Office of Historic Preservation. Accessed 17 July 2006. "California Historical Landmarks Registration Program." Available at: http://ohp.parks.ca.gov

- Be the first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California)

- Be associated with an individual or group having a profound influence on the history of California

- Be a prototype of, or an outstanding example of, a period, style, architectural movement, or construction, or be one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder

The proposed project site does not include any California Historical Landmarks.

California Points of Historical Interest[18]

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of Historical Interest designated after December 1997 and recommended by the State Historical Resources Commission also are listed in the CRHR. No historical resource may be designated as both a landmark and a *point*. If a point is subsequently granted status as a landmark, the point designation will be retired.

To be eligible for designation as a Point of Historical Interest, a resource must meet at least one of the following criteria:

- Be the first, last, only, or most significant of its type within the local geographic region (city or county)

- Be associated with an individual or group having a profound influence on the history of the local area

- Be a prototype of, or an outstanding example of, a period, style, architectural movement, or construction, or be one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder

The proposed project site does not include any California Points of Historical Interest.

State Historical Building Code[19]

Created in 1975, the State Historical Building Code (SHBC) provides regulations and standards for the preservation, restoration, rehabilitation, or relocation of historic buildings, structures, and properties that have been determined by an appropriate local or state governmental jurisdiction to be significant in the history, architecture, or culture of an area. Rather than being prescriptive, the SHBC constitutes a set of performance criteria. The SHBC is designed to help facilitate restoration

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[18] Office of Historic Preservation. Accessed 17 July 2006. "California Points of Historical Interest, Registrations Programs." Available at: http://ohp.parks.ca.gov

[19] California State Historical Building Safety Board, Division of the State Architect. 2 June 2006. "California's State Historical Building Code and State Historical Building Safety Board." Sacramento, CA. Available at: http://www.dsa.dgs.ca.gov/StateHistoricalBuildingSafetyBoard/default.htm

or change of occupancy in such a way as to preserve original or restored elements and features of a resource; to encourage energy conservation and a cost-effective approach to preservation; and to provide for reasonable safety from earthquake, fire, or other hazards for occupants and users of such buildings, structures, and properties." The SHBC also serves as a guide for providing reasonable availability, access, and usability by the physically disabled.

Native American Heritage Commission

Section 5097.91 of the Public Resources Code established the Native American Heritage Commission (NAHC), whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Section 5097.98 of the Public Resources Code specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

There are no listed Native American Sacred Sites within the proposed project site.

Government Code, Sections 6254(r) and 6254.10

These sections of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the NAHC." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the NAHC, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency."

Health and Safety Code, Sections 7050 and 7052

Health and Safety Code, Section 7050.5 declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground-disturbing activities must cease and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

Penal Code, Section 622.5

Penal Code, Section 622.5 provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands, but specifically excludes the landowner.

Public Resources Code, Section 5097.5

Public Resources Code, Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

Local

Southern California Association of Governments

The Southern California Association of Governments (SCAG) Growth Management Chapter (GMC) has instituted policies regarding the protection of cultural resources. SCAG GMC Policy No. 3.21 "encourages the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites."[20]

County of Los Angeles General Plan

The Conservation, Open Space, and Recreation element of the General Plan[21] establishes goals and policies for conservation of cultural resources in the unincorporated territory of County of Los Angeles. The General Plan recognizes that the County has numerous archaeological and historical sites from the Native American, Hispanic, and American periods of California's history, as well as paleontological sites and important geological formations that predate man's occupation and that such cultural resources are nonrenewable and irreplaceable. Policy 20 states the County's intention to "protect cultural heritage resources, including historical, archaeological, paleontological, and geological sites, and significant architectural structures."[22]

Los Angeles County Historical Landmarks and Records Commission

The Los Angeles County Historical Landmarks and Records Commission (Commission) considers and recommends to the Board of Supervisors local historical landmarks defined to be worthy of registration by the State of California, either as California Historical Landmarks or as Points of Historical Interest. The Commission also may comment for the Board on applications relating to the NRHP. The Commission also is charged with fostering and promoting the preservation of historical records. In its capacity as the memorial plaque review committee of the County of Los Angeles, the Commission screens applications for donations of historical memorial plaques and recommends to the Board plaques worthy of installation as County property.[23]

3.3.2 Existing Conditions

The existing conditions for paleontological, archaeological, and historical resources, and human remains are characterized at the project level of detail.

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[20] Southern California Association of Governments. 2001. *SCAG Growth Management Chapter (GMC) Policy No. 3.21*. Los Angeles, CA.

[21] County of Los Angeles, Department of Regional Planning. January 1993. *County of Los Angeles Streamlined General Plan*. Los Angeles, CA, p. CA2.

[22] County of Los Angeles, Department of Regional Planning. January 1993. *County of Los Angeles Streamlined General Plan*. Los Angeles, CA, p. OS-11.

[23] County of Los Angeles Department of Auditor-Controller (J. Tyler McCauley, Auditor-Controller). 21 October 2002. "Sunset Review for the Los Angeles County Historical Landmarks and Records Commission." Accessed 17 July 2006. Available at: http://auditor.co.la.ca.us/cms1_003345.pdf

3.3.2.1 Paleontological Resources

Record search results indicate that the proposed project site is located within an area with a moderate level of sensitivity to contain unique paleontological resources and is not in the vicinity of recognized unique geologic features. The geology of the proposed project site is composed of surficial deposits of younger Quaternary Alluvium (Holocene) as a result of deposition from the Los Angeles River, which currently flows through a concrete channel just east of the proposed project site, and Compton Creek nearby to the west.[24] These younger deposits are underlain by older Quaternary Alluvium, which has the potential to contain significant fossil vertebrates[25] and a moderate level of sensitivity to contain unique paleontological resources.

The closest known fossil localities, identified as LACM 1295, 1344, 3266, and 4206, were recovered from these older Quaternary deposits. They are situated west of the proposed project site in the Athens vicinity around the Harbor Freeway [State Route (SR) 110], from south of Imperial Highway to near El Segundo Boulevard. These localities produced specimens of fossil pond turtle (Clemmys), puffin (Mancalla), turkey (Parapova), ground sloth (Paramylodon), mammoth (Mammuthus), dire wolf (Canis dirus), rabbit (Sylvilagus), squirrel (Sciuridae), deer mouse (Microtus), pocket gopher (Thomomys), horse (Equus), deer (Cervus), pronghorn antelope (Capromeryx), and bison (Bison), at depths as shallow as 15 feet below the surface. Therefore, extant, undisturbed deposits of older Quaternary Alluvium have a moderate level of sensitivity to produce unique paleontological resources. While the proposed project site has been substantially disturbed, it is anticipated that excavation at the proposed project site has the potential to exceed 15 feet in depth, and based on previous findings, the excavation activities would have the potential to impact native soils, underlying extant rock units, and potentially the older Quaternary deposits that have a higher likelihood of containing vertebrate fossil localities.

These findings are the result of an assessment of in-house data from the Natural History Museum of Los Angeles County[26] and the USGS 7.5-minute series South Gate topographic quadrangle[27] to ascertain the potential for paleontological resources at the proposed project site. The results of the records search indicate that there are no known vertebrate fossil localities recorded within the proposed project site.

3.3.2.2 Archaeological Resources

On October 20, 2009, a records search was conducted at the SCCIC, located at California State University, Fullerton. The USGS 7.5-minute Series South Gate and Inglewood, California, topographic quadrangles[28] were reviewed for previously recorded archaeological resources within

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[24] Dibblee, T.W., Jr. 1989. USGS 7.5-Minute Series Los Angeles Topographic Quadrangle. (Map No. DF-59.) Contact: Dibblee Geologic Foundation, P.O. Box 60560, Santa Barbara, CA 93160.

[25] McLeod, Samuel A. 21 November 2009. "Vertebrate Paleontology Section, Natural History Museum of Los Angeles County, Los Angeles, California." Letter response to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

[26] McLeod, Samuel A. 21 November 2009. "Vertebrate Paleontology Section, Natural History Museum of Los Angeles County, Los Angeles, California." Letter response to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

[27] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[28] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.; U.S. Geological Survey. 1964. 7.5-Minute Series Inglewood, California, Topographic Quadrangle. Reston, VA.

the proposed project area and within a 1.0-mile radius of the Martin Luther King, Jr. Medical Center Campus. Coordination was also undertaken with the NAHC to ascertain the presence of known Native American sacred sites. According to NAHC,[29] no Native American cultural resources have been recorded in the Sacred Lands File on or within 1 mile of the proposed project site.

The results of the records search indicate that all, or portions of, 28 previous archaeological and/or historic architectural surveys have been conducted within 1 mile from the proposed project area. No archaeological surveys have been conducted on the proposed project site. Two prehistoric burials and two historic archaeological sites have been recorded within 1 mile of the proposed project site (Table 3.3.2.2-1, *Previously Recorded Prehistoric and Historic Archaeological Sites located within 1.0 Mile of Martin Luther King, Jr. Medical Center Campus*). No known prehistoric or historic archaeological sites have been recorded on the proposed project site.

TABLE 3.3.2.2-1
PREVIOUSLY RECORDED PREHISTORIC AND HISTORIC ARCHAEOLOGICAL SITES LOCATED WITHIN 1.0 MILE OF MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS

Primary No.	Description	Prehistoric	Historic
P-19-002757	Human burial, Native American	×	
P-19-002792	Human burial, Native American	×	
P-19-002848	Refuse deposit		×
P-19-100585	Foundation and collection of artifacts, possibly associated with Watts Towers		×

3.3.2.3 Historical Resources

Five historical resources, the Martin Luther King, Jr. Medical Center Campus Historic District and four contributing buildings, are located on the proposed project site.[30] This determination resulted from an intensive-level survey of the proposed project site. A total of 21 buildings that occupy the proposed project site were evaluated as potential historical resources as defined by CEQA (Table 3.3.2.3-1, *Historic Resources Survey Results*, and Figure 3.3.2.3.-1, *Martin Luther King, Jr. Medical Center Campus Historic District*). Four buildings, of the total of 21 buildings, appear to meet the criteria for listing in the NRHP and CRHR as contributors to a potential Martin Luther King, Jr. Medical Center Campus Historic District (California Historical Resources Status Code [CHR] 3D): Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building and Dr. H. Claude Hudson Auditorium. Contributing features to the potential historic district also include seven appurtenant elements. The remaining 17 buildings and structures do not contribute to the historic district and are not considered to be historical resources.

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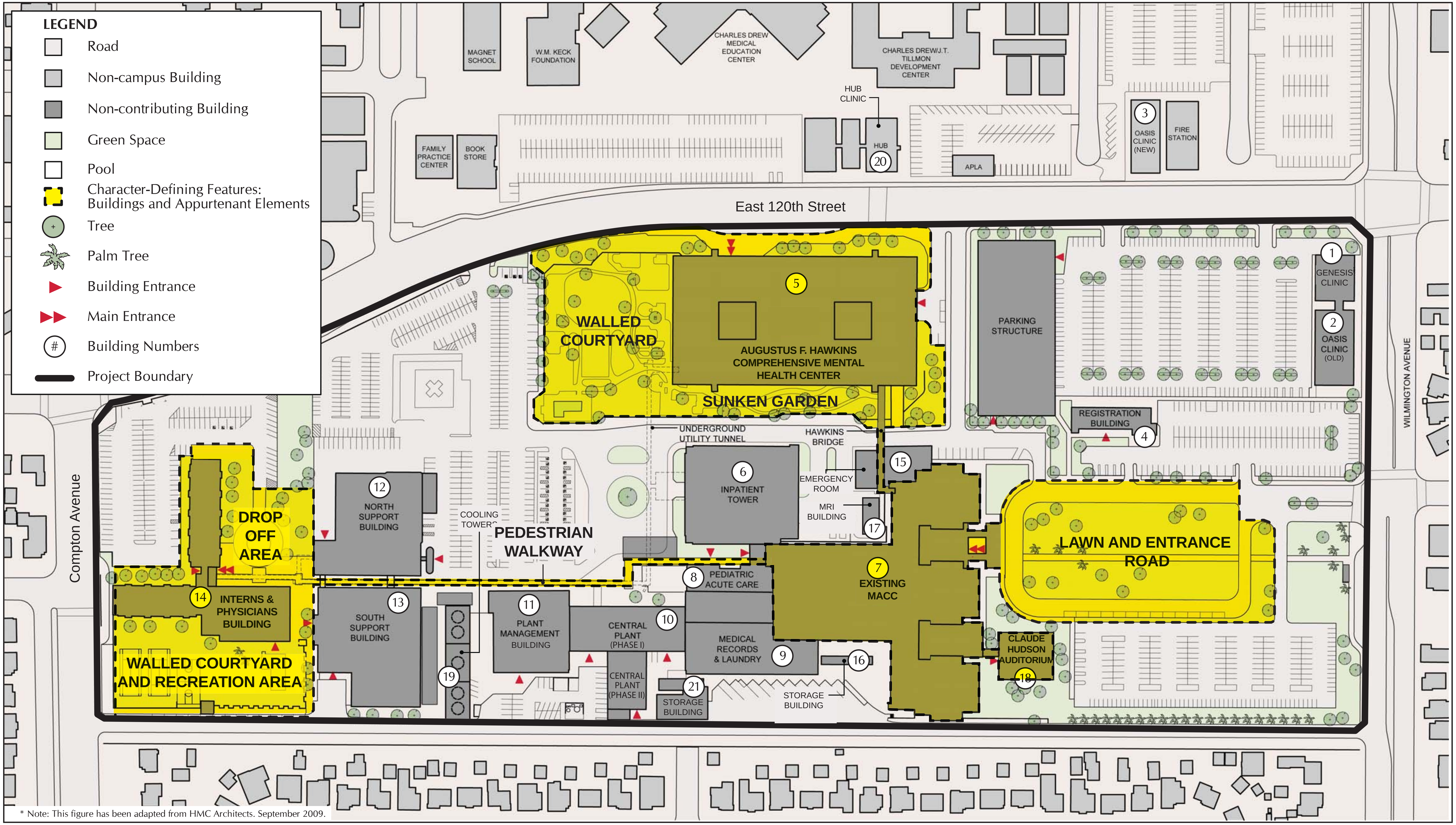
[29] Singleton, Dave, Native American Heritage Commission, Sacramento, California. 2 November 2009. Letter to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

[30] Historical resources in a historic district consist of individual contributors to the district plus the district itself. Four historic district contributors have been identified in a potential historic district, for a total of five historical resources.



* Note: This figure has been adapted from HMC Architects. September 2009.

FIGURE 3.3.2.3-1
Martin Luther King, Jr. Medical Center Campus Historic District

TABLE 3.3.2.3-1
HISTORIC RESOURCES SURVEY RESULTS

	Name[31]	Date of Construction[32]	General Description	Treatment Under Project	Recommended CHR Status Code
1	Genesis Clinic	ca. 1979	One story	Tiers 1&2: To remain	6Z
2	Oasis Clinic (old)	ca. 1979	One story	Tiers 1&2: To remain	6Z
3	Oasis Clinic (new)	ca. 1995	One story	Tiers 1&2: To remain	6Z
4	Registration Building	ca. 1990	Two stories	Tiers 1&2: To remain	6Z (1)
5	Augustus F. Hawkins Comprehensive Mental Health Center	1979	Three stories plus a basement	Tiers 1&2:To remain	3D
6	Inpatient Tower	1993	Five stories plus basement	Tiers 1&2:To remain	6Z (1)
7	Multi-Service Ambulatory Care Center (MACC) (aka, King/Drew Hospital or Main Hospital Building)	1968-1972	Five stories plus a basement and penthouse	Tier I: To remain; Tier II: Reuse, Replace, or Remove	3D
8	Pediatric Acute Care	1992	One story	Tiers 1&2:To remain	6Z (1)
9	Medical Records and Laundry	1972	One story plus basement	Tiers 1&2:To remain	6Z
10	Central Plant	Phase I: late1960s; Phase II: 1975	Phase I: one story with partial mezzanine floor Phase II: one story	Tiers 1&2:To remain	6Z
11	Plant Management Building	1979	One story	Tier I: To remain, with tenant improvements	6Z
12	North Support Building	1973	Two stories	Tier I: To remain, with tenant improvements	6Z
13	South Support Building	ca. 1973	One story	Tier I: To remain, with tenant improvements	6Z
14	Interns and Physicians Building	ca. 1974	Six stories	Tier I: To remain, with tenant improvements	3D
15	Emergency Room	ca. 1985	One story	Tier I: To remain; Tier II: Reuse, Replace, or Remove	6Z
16	Storage Building (1,060 sq. ft)	ca. 1980	One story	Tier I: To remain; Tier II: Reuse, Replace, or Remove	6Z (1)

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[31] Names used in this report to identify contributing resources are based on the results of the current survey and correlate with the buildings' historic use and name and may contradict previously used resource names.

[32] Construction dates used in this report to calculate the age of contributing resources are based on the results of the current survey and were calculated using building materials and historical newspaper records. The date of construction may contradict previously estimated construction years.

TABLE 3.3.2.3-1
HISTORIC RESOURCES SURVEY RESULTS, Continued

	Name[31]	Date of Construction[32]	General Description	Treatment Under Project	Recommended CHR Status Code
17	MRI Building	ca. 1980	One story	Tier I: potentially moved	6Z (1)
18	Dr. H. Claude Hudson Auditorium	ca. 1973	One story	Tiers 1&2:To remain	3D
19	Cooling Towers	ca. 1979	One story	Tier I: To remain; Tier II: Reuse, Replace, or Remove	6Z (1)
20	Hub Clinic	ca. 1980	One story	Tiers 1&2:To remain	6Z
21	Storage Building (2,533 sq. ft.)	ca. 1980	One story	Tiers 1&2:To remain	6Z

KEY:

CHR Status Code: California Historical Resources Status Code, adopted by the Office of Historic Preservation in August 2003

3D:	Appears eligible for NR as a contributor to a NR eligible district through survey evaluation.
6Z:	Found ineligible for NRHP, CRHR, or local designation through survey evaluation
6Z (1)	Less than 50 years old and not of exceptional significance
ca.	Circa

NOTE:

Unless indicated within parentheses, the names used for the buildings / structures are the same as noted in this table.

Martin Luther King, Jr. Medical Center Campus Historic District

The Martin Luther King, Jr. Medical Center Campus Historic District appears eligible for listing in the NRHP and CRHR under Criteria A/1 for its exceptional importance in relation to the history and development of the Willowbrook area and direct linkage with the McCone Commission's recommendation for a new hospital in South Los Angeles in the wake of the 1965 civil unrest centered in the Watts community. The Martin Luther King, Jr. Medical Center, the Willowbrook area's largest construction project in the years following the 1965 civil unrest, was constructed on the recommendation of the McCone Commission, which identified the lack of access to health care as one of the contributing factors that culminated in the civil unrest. With a period of significance of 1966–1979, the Martin Luther King, Jr. Medical Center originated during a turbulent era in the history of the County and the nation, and represented the hopes and aspirations of South Central Los Angeles residents and County officials in the wake of the 1965 civil disturbances. The new medical campus was intended to serve multiple roles as a health care facility and economic engine, rectifying past inequalities regarding medical services, employment, and educational facilities in South Central Los Angeles. It was designed, constructed, and staffed by a deliberately multi-ethnic team. As part of the national civil rights movement that culminated in the 1960s, the civil disturbances in and around Watts in 1965 were a pivotal moment in the history of Los Angeles County. The McCone Commission and its recommendations represented a turning point in local governance, when the County made a concerted effort to redress the inequalities that the McCone Commission identified as some of the underlying causes of the upheaval. The Martin Luther King, Jr. Medical Center was a centerpiece of the County's response and, as such, has exceptional importance as a physical manifestation of significant historical events of the 1960s in Los Angeles. Furthermore, the name it bears represents one of the most visible local efforts to commemorate a leader of the national civil rights movement, Dr. Martin Luther King, Jr.

The development of the Martin Luther King, Jr. Medical Center represented a major shift in the history and development of the Willowbrook area, which, prior to the project, was a relatively undistinguished community that still retained substantial vestiges of its original rural uses. The new hospital inspired high hopes as an economic generator and top-notch medical facility that would provide abundant opportunities in an area of considerable need, or, as stated by Martin Luther King, Jr. Medical Center Administrator Charles E. Windsor in 1972,

> This multimillion dollar project is being set in the middle of desert of deprivation offering hope and light where there has been none, offering opportunities in fields heretofore unknown to the residents in this area, and offering medical services of a quality which would be desirable even in the most prosperous of communities.[33]

In ensuing years, the presence of a Los Angeles County hospital employed approximately 3,000 workers, provided opportunities for medical professional training and development, and spurred numerous additional development projects in Willowbrook, which included a large-scale redevelopment plan, dozens of new homes, the Kenneth Hahn Shopping Plaza and a new water system.

Related by function, period of construction, physical placement, and complementary architectural styles, the four buildings (Augustus F. Hawkins Comprehensive Mental Health Center, MACC, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium) that comprise the historic district convey intentionality as the key buildings of the Martin Luther King, Jr. Medical Center. The campus function of the property is most evident in the design of its appurtenant landscaped areas, which include the large lawn to the east of the MACC, gardens, courtyards, and circulation routes for pedestrians and vehicles. There are several pedestrian walkways that connect the four historic district contributors. The walkways enabled medical personnel and students to travel expeditiously around the campus. The MACC, for example, is connected to the Dr. H. Claude Hudson Auditorium via a low covered walkway that extends from the MACC's east façade, which provides a physical link between the medical (MACC) and assembly (Auditorium) uses. Existing gardens and courtyards, particularly those associated with the Augusts F. Hawkins Comprehensive Mental Health Center and the Interns and Physicians Building, provided recreational facilities for medical students and expressed the property's historic function as a medical center campus.

Three of the four contributing buildings (Augustus F. Hawkins Comprehensive Mental Health Center, MACC, and Interns and Physicians Building) are influenced by the Brutalism style of architecture. Brutalist buildings, considered easy to construct and maintain, were widely popular for government, civic and institutional buildings built during the 1960s and 1970s. Examples of Brutalist elements include unusual massing, typically weighted upwards, ample use of reinforced concrete with striated unfinished detailing, small recessed fixed tinted windows, general appearance of solidity, and lack of ornamentation. The fourth building (Dr. H. Claude Hudson Auditorium) marries Brutalism with "New Formalism," which represented a return to classical symmetry and post and beam construction, albeit filtered through a modern lens.

Character-defining features of the Martin Luther King, Jr. Medical Center Campus Historic District convey its historical function as a medical center campus. The character-defining features include four buildings and seven appurtenant elements:[34]

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[33] Windsor, Charles E. November 1972, "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." *Journal of the National Medical Association*, Vol. 64, No. 6, p. 544-547.

[34] The character-defining features of the district are divided up between buildings and appurtenant ("landscape") elements of the district. The character-defining features of the individual buildings are listed below in the section for each building. Table 3.3.4.3-1, *Project Impact to Historical Resources* below project impacts and how the proposed project will impact the district's character-defining features (buildings & appurtenant elements).

Buildings
- MACC
- Augustus F. Hawkins Comprehensive Mental Health Center
- Interns and Physicians Building
- Dr. H. Claude Hudson Auditorium

Appurtenant Elements
- Elongated lawn located east of the MACC, which is bounded by a primary entrance road
- Sunken garden and walled courtyard located south and west of the Augustus F. Hawkins Comprehensive Mental Health Center
- Walled courtyard and recreation area located south of the Interns and Physicians Building
- Drop-off area located north of the Interns and Physicians Building and west of the North Support Building
- Pedestrian walkway extending from the MACC's east façade to the Dr. H. Claude Hudson Auditorium
- Pedestrian walkway extending from the north elevation of the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center
- Pedestrian walkway extending from the east façade of the Interns and Physicians Building to the MACC

Multi-Service Ambulatory Care Center

Planning for a new hospital in South Los Angeles began in 1966, after the Los Angeles County Board of Supervisors unanimously approved the project. Construction of the 5-story (plus basement and penthouse) MACC began in 1968. The facility accepted its first patient in 1972. Character-defining features of the MACC are consistent with the Brutalism style:

- Ample use of concrete (e.g., vertically striated concrete supports and exterior framing)
- Monolithic massing
- Geometric repetition (e.g., the plan configuration consisting of three identical towers, repetitive bands of windows, and a series of balconies located on the building's façade)
- Recessed primary entrance with deeply cantilevered canopy
- Minimal ornamentation
- Overall simplicity of form
- Original landscaping (elongated central lawn crossed by a single path)

The MACC is a significant contributing building of the Martin Luther King, Jr. Medical Center Campus Historic District. The MACC was constructed as the primary component of the Martin Luther King, Jr. Medical Center Campus, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of health care services between South Los Angeles and the rest of the City of Los Angeles. Located at the far west end of a large grassy lawn, the MACC occupies a commanding location within the site, conveying the prominence of its hospital function to visitors entering the facility from the property's main entrance at Wilmington Avenue. The building is a highly characteristic example of the Brutalism style. The Brutalism style, considered easy to construct and maintain, was a popular choice for government, civic and institutional buildings during the 1960s and 1970s and thus use of Brutalist architecture reflects the building's public function and era of construction. Landscape elements, including the central lawn crossed by a single paved sidewalk, an allée of tall palms to the south of the property, and ornamental trees and shrubs located along the building's primary façade, serve to further emphasize the building's role as the primary care facility of the Martin Luther King, Jr. Medical Center Campus. The three pedestrian walkways associated with the MACC (consisting of a low-covered walkway extending from the MACC's east façade to the Dr. H. Claude Hudson Auditorium, an elevated walkway constructed of reinforced concrete, providing pedestrian access from the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center, and a walkway extending from the west elevation of the MACC, constructed of reinforced concrete columns, and traversing past several medical campus buildings before terminating at the Dr. Julius W. Hill Interns and Physicians Building), contribute to the property's architectural and functional character. The MACC exhibits few exterior alterations since its construction; its character-defining features are intact; and it retains integrity in its location, design, setting, materials, workmanship, feeling and association. As a hospital, the MACC is a key property type associated with the property's overall function as a medical care facility and postgraduate medical teaching facility.

The MACC satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Campus Historic District, the MACC meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional importance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest.

Augustus F. Hawkins Comprehensive Mental Health Center

The 3-story Augustus F. Hawkins Comprehensive Mental Health Center was built in 1979. Character-defining features of the Mental Health Center are consistent with the Brutalism style:

- Ample use of concrete with vertically striated, unfinished detailing
- Monumental horizontal massing with overhanging upper floor
- Small, recessed, fixed, tinted windows
- Recessed primary entrance
- Elevated pedestrian walkway extending from south elevation to the MACC
- Original landscaping (walled courtyard with pathways, sunken garden along south elevation, low planter wall along north facade)

The Mental Health Center is a significant contributing building of the Martin Luther King, Jr. Medical Center Campus Historic District. The Mental Health Center was constructed as a component of the Martin Luther King, Jr. Medical Center Campus, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of health care services between South Los Angeles and the rest of the City of Los Angeles. Located south of 120th Street, the Mental Health Center's monolithic north façade is a prominent feature of the medical center campus. The building is a highly characteristic example of the Brutalism style. Brutalism style buildings, considered easy to construct and maintain, were widely popular for government, civic and institutional buildings built during the 1960s and 1970s, and thus use of Brutalist architecture reflects the building's public function. The building's unusual massing, weighted upwards, incorporates elements of the Brutalism style in its ample use of reinforced concrete with striated unfinished detailing, small recessed fixed tinted windows, general appearance of solidity, and lack of ornamentation. Landscape elements include a low planter wall that extends along the building's north facade and continues beyond the building to the west, consisting of a thickly planted assortment of compact trees, ornamental shrubs, and landscape plantings, which contribute to the architectural and functional character of the property. An entrance located on the building's south elevation is accessed via a pedestrian bridge that passes over a sunken garden containing numerous examples of evergreens and ornamental vegetation. To the west, the sunken garden transitions into a landscaped recreational area with a swimming pool, handball courts, and a small playground. The Mental Health Center exhibits few exterior and interior alterations since its construction and retains integrity in its location, design, setting, materials, workmanship, feeling and association. The Mental Health Center is associated with the function of the Martin Luther King, Jr. Medical Center Campus as a medical care and postgraduate medical teaching facility.

The Augustus F. Hawkins Comprehensive Mental Health Center satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Campus Historic District, the Mental Health Center meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional significance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest. In addition, the Mental Health Center may become eligible for listing in the NHRP/CRHR under Criterion C/3 when it reaches 50 years of age as a good example of a Brutalism style building.

Interns and Physicians Building

The 6-story Interns and Physicians Building was constructed circa 1975. Character-defining features of the Interns and Physicians Building are consistent with the Brutalism style:

- Ample use of concrete with vertically striated, unfinished detailing
- Small, recessed, fixed, tinted windows
- Flat roof
- Geometric repetition in fenestration
- Monumental window above primary entrance
- Concrete colonnade extending from east facade
- Original landscaping (walled courtyard and drop-off area)

The Interns and Physicians Building is a significant contributing building of the Martin Luther King, Jr. Medical Center Campus Historic District. The Interns and Physicians Building was constructed as a component of the Martin Luther King, Jr. Medical Center Campus, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of healthcare services between South Los Angeles and the rest of the City of Los Angeles. Dedicated in 1974, the building was named for Dr. Julius Wanser Hill, the first African-American physician to complete his internship and residency at the Los Angeles County/University of Southern California Medical Center, Los Angeles. In 1961, Dr. Hill was appointed to the Los Angeles County Health Commission, where he served until his death in 1983.[35] Located at the southwest portion of the medical center campus near the intersection of 120th Street and Compton Avenue, the Physicians Building consists of two towers, perpendicular in plan, which point to the north and west. Constructed to house the interns and physicians involved with the Physician Assistant Program of the Charles R. Drew Postgraduate Medical School, the building incorporates elements of the Brutalism style in its ample use of reinforced concrete with striated unfinished detailing, small recessed fixed tinted windows, the geometric repetition in its fenestration, and square monumental window located above the building's primary entrance. Landscape elements include a concrete block retaining wall that bounds a courtyard, which contains a swimming pool, game courts for tennis and basketball, and a grass lawn. A long concrete colonnade extends from the building's east facade, traverses numerous buildings, and terminates at the MACC. The Interns and Physicians Building exhibits few exterior and interior alterations since its construction and retains integrity in its location, design, setting, materials, workmanship, feeling and association. The Interns and Physicians Building is a key property type associated with the function of the Martin Luther King, Jr. Medical Center Campus as a medical care and postgraduate medical teaching facility.

The Interns and Physicians Building satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Campus Historic District, the Interns and Physicians Building meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional significance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest.

Dr. H. Claude Hudson Auditorium

The single-story, Dr. H. Claude Hudson Auditorium, circa 1973, is located directly along the east façade of the MACC building. It departed somewhat from the emphatically Brutalist architecture of the other three district contributors by merging the Brutalism inspired use of concrete and solid, enclosed volumes with elements associated with the "New Formalism" style of the 1960s and 1970s. Character-defining features of the Auditorium representative of New Formalism include:

- Single, freestanding block with square plan and low massing
- Heavy, flat overhanging roof, with cantilevered eaves, extended beams, and coffer-like treatment of soffits
- Raised piers suggestive of columns
- Symmetrical facade
- Smooth concrete walls and brick panel detailing

The Auditorium is a significant contributing building of the Martin Luther King, Jr. Medical Center Campus Historic District. The Auditorium was constructed as a component of the Martin Luther King, Jr. Medical Center, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in

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[35] Jack L. Moore, MD. 1984 "In Memoriam. Julius Wanser Hill." *Journal of the National Medical Association*. Vol. 76, No. 4.

access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of healthcare services between South Los Angeles and the rest of the City of Los Angeles. Located directly adjacent to a secondary entrance on the MACC's east façade, the Auditorium's west-facing entrance is oriented towards the MACC and connected to the MACC by a covered walkway, which reinforces the spatial relationship between the Auditorium and the MACC. The east end of the building is located on the edge of a small hill, where an angular concrete stairway with a metal railing descends into a parking lot located at the foot of the hill. The Auditorium's New Formalism style elements (square plan, low massing, brick panel detailing, flat roof with cantilevered eaves, oversized beams and soffit detailing) complement the Brutalism-inspired design of the MACC. Landscape elements associated with the Auditorium include the covered walkway, landscape plantings, original outdoor lighting, and concrete stairway at the east end of the building. The Auditorium exhibits few exterior and interior alterations since its construction and retains integrity in its location, design, setting, materials, workmanship, feeling and association. The Auditorium is a key property type associated with the postgraduate medical teaching function of the Martin Luther King, Jr. Medical Center Campus.

The Dr. H. Claude Hudson Auditorium satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Campus Historic District, the Auditorium meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional significance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest.

3.3.2.4 Human Remains

Reviews of historic maps[36,37] along with the results of the records search with the NAHC,[38] indicate that there are no known Native American or historic period cemeteries, nor known informal Native American burials, within the proposed project site. However, monitoring for the construction of the Alameda Corridor Project within the cultural resources study area did result in the discovery of two human burial sites, both of which are located approximately 0.85 mile east of the proposed project site.

3.3.3 Significance Thresholds

With respect to paleontological resources, CEQA does not specifically establish thresholds for significant impacts; however, Appendix G of the CEQA Guidelines indicates that a project may have a significant effect on the environment if it would directly or indirectly destroy a unique paleontological resource or a unique geological feature.

Archaeological resources under CEQA may meet the definition of either a historical resource or unique archaeological resource. The significance of a historical resource would be significantly impaired when a project demolishes or materially alters in an adverse manner those physical

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[36] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[37] U.S. Geological Survey. 1964. 7.5-Minute Series Inglewood, California, Topographic Quadrangle. Reston, VA.

[38] Singleton, Dave, Native American Heritage Commission, Sacramento, California. 02 November 2009. Letter to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the California Register of Historical Resources, a local register of historic resources pursuant to Section 5020.1(k) of the Public Resources Code, or a historic resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code. With regard to unique archaeological resources, CEQA states that when a project will cause damage to a unique archaeological resource, reasonable efforts must be made to preserve the resource in place or left in an undisturbed state. Mitigation measures and alternatives are required to be considered when a historical resource or unique archaeological resource would potentially be damaged or destroyed by a project.

Also, under CEQA, a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. Substantial adverse change in the significance of an historical resource is defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired. The significance of an historical resource would be significantly impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR, a local register of historic resources pursuant to Section 5020.1(k) of the Public Resources Code, or historic resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code.

While a significance threshold for impacts to human remains is not explicitly stated in CEQA, Appendix G of the State CEQA Guidelines indicates that any disturbance of human remains could potentially be considered an impact to cultural resources, particularly with respect to Native American graves and burials.

3.3.4 Impact Analysis

3.3.4.1 Paleontological Resources

Tier I

Tier I of the proposed project has the potential to result in significant impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource. The geology of the proposed project site is composed of surficial deposits of younger Quaternary Alluvium underlain by older Quaternary Alluvium. The older Quaternary Alluvium deposits have moderate sensitivity for paleontological resources and, therefore, have the potential to reveal important vertebrate fossils that can contribute to the life history of the area. Excavations may be up to 45 feet and may encounter previously undisturbed native soils and thus would have the potential to encounter paleontological resources in these older deposits. As a result, the proposed project has the potential to result in significant impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource, therefore requiring the consideration of mitigation measures (Cultural-1) to reduce impacts to below the level of significance.

There are no unique geological features currently identified within the proposed project boundary; therefore, there would be no expected impacts to cultural resources related to the destruction of a unique geologic feature.

Tier II

Tier II of the proposed project has the potential to result in significant impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource. The geology of the proposed project site is composed of surficial deposits of younger Quaternary Alluvium underlain by older Quaternary Alluvium. The older Quaternary Alluvium deposits have moderate sensitivity for paleontological resources and, therefore, have the potential to reveal important vertebrate fossils that can contribute to the life history of the area. Excavations are expected to be up to 45 feet and may encounter previously undisturbed native soils and thus would have the potential to encounter paleontological resources in these older deposits. As a result, the proposed project has the potential to result in significant impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource, therefore requiring the consideration of mitigation measures (Cultural-1) to reduce impacts to below the level of significance.

There are no unique geological features currently identified within the proposed project boundary; therefore, there would be no expected impacts to cultural resources related to the destruction of a unique geologic feature.

3.3.4.2 Archaeological Resources

Tier I

Tier I of the proposed project would not result in significant impacts to cultural resources related to a substantial adverse change in the significance of prehistoric or historic archeological resources. There are no known prehistoric or historic archaeological resources within the proposed project area. Although it is not certain whether the proposed project site has the potential to yield archaeological resources, it is unlikely due to the area's historical development. The existing campus ground has been substantially disturbed for the construction of the Martin Luther King, Jr. Medical Center Campus. Construction of the Martin Luther King, Jr. Medical Center Campus involved excavation of native soils and the underlying geologic units to an estimated depth that exceeded 15 feet below the ground surface. Due to the level of disturbance that has occurred within the proposed project area in conjunction with construction of the Martin Luther King, Jr. Medical Center Campus in 1972 and subsequent years, extant archaeological resources would not likely be present.

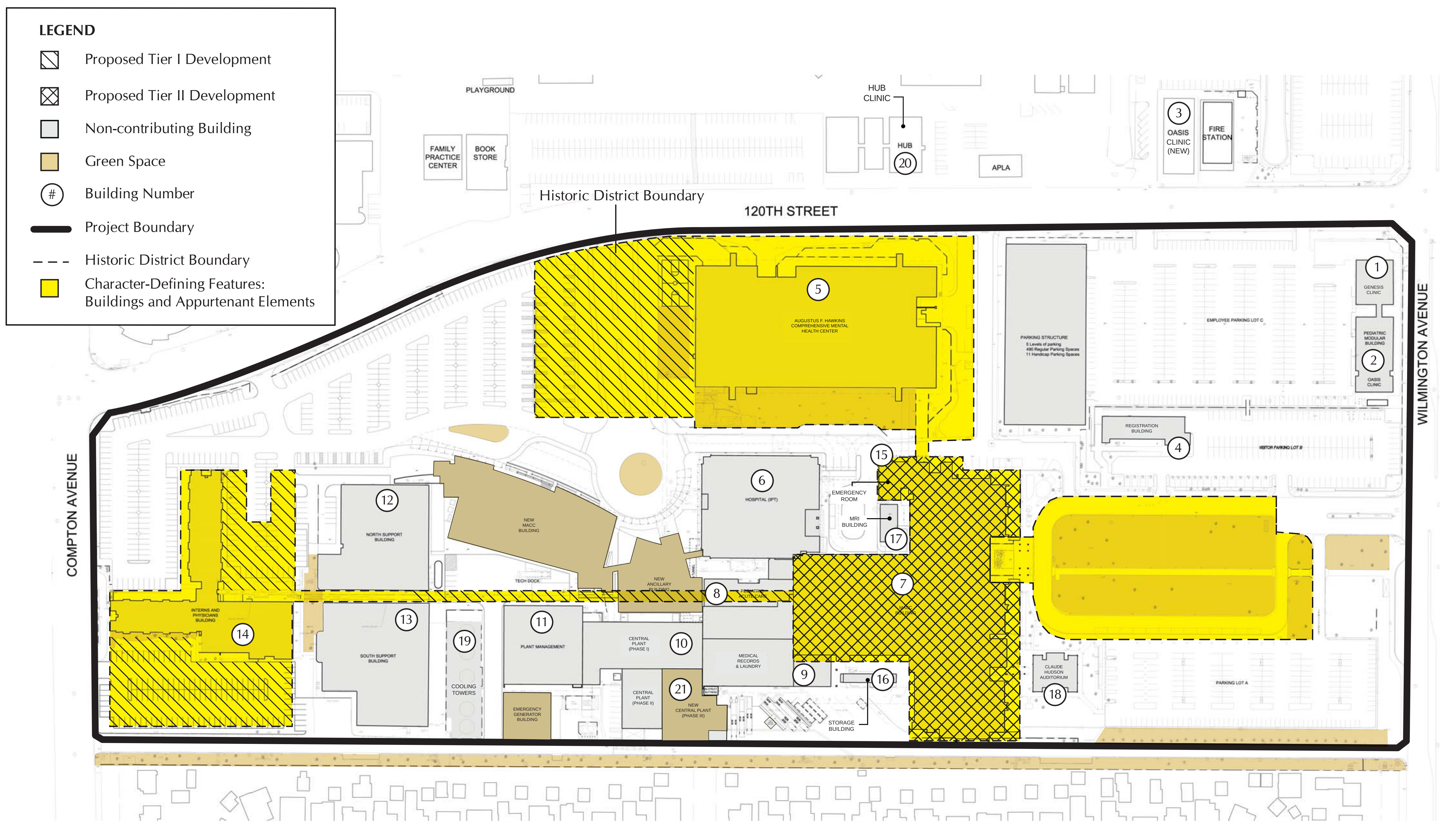
Tier II

Tier II of the proposed project would not result in significant impacts to cultural resources related to a substantial adverse change in the significance of prehistoric or historic archeological resources. There are no known prehistoric or historic archaeological resources within the proposed project area. Although it is not certain whether the proposed project site has the potential to yield archaeological resources, it is unlikely due to the historical development of the area. The existing campus ground has been substantially disturbed for the construction of the Martin Luther King, Jr. Medical Center Campus. Construction of the Martin Luther King, Jr. Medical Center Campus involved excavation of native soils and the underlying geologic units to an estimated depth that exceeded 15 feet below the ground surface. Due to the level of disturbance that has occurred within the proposed project area in conjunction with construction of the Martin Luther King, Jr. Medical Center Campus in 1972 and subsequent years, extant archaeological resources would not likely be present.

3.3.4.3 Historical Resources

The proposed project entails two tiers: Tier I and Tier II. Both tiers involve modifications that will impact character-defining features of the Martin Luther King, Jr. Medical Center Campus Historic District and its four contributing buildings (Table 3.3.4.3-1, *Project Impacts to Historical Resources*; and Figure 3.3.4.3-1, *Project Impacts to the Martin Luther King, Jr. Medical Center Campus Historic District)*. Construction of the Tier I improvements would affect character-defining features of three historical resources: appurtenant elements of the Martin Luther King, Jr. Medical Center Campus Historic District, specifically those associated with the Augustus F. Hawkins Comprehensive Mental Health Center and the Interns and Physicians Building. However, the Tier I project would not result in substantial adverse changes in the significance of historical resources such that the historic district or its contributors would no longer be eligible for inclusion in the CRHR.

Construction of the Tier II improvements would be expected to affect two historical resources, appurtenant elements of the Martin Luther King, Jr. Medical Center Campus Historic District and the MACC building. If Tier II improvements include the demolition and replacement of the MACC, a significant adverse change in the significance of the Martin Luther King, Jr. Medical Center Campus Historic District and the MACC would occur and neither resource would continue to be eligible for inclusion in the CRHR. If Tier II improvements include rehabilitation and reuse of the MACC (in a manner that would not significantly alter character-defining features), impacts to cultural resources would be reduced to below the level of significance with the implementation of mitigation measures. Due to the conceptual and evolving nature of the proposed project regarding the reuse or replacement of the MACC building, modification assumptions for this analysis assume that the master planning and comprehensive redevelopment of the campus under Tier II has the potential to result in identified project impacts as well as additional alterations to the character-defining features (buildings and appurtenant elements) of the Martin Luther King, Jr. Medical Center Campus Historic District.



* Note: This figure has been adapted from HMC Architects. July 2010.

FIGURE 3.3.4.3-1
Project Impacts to Martin Luther King, Jr. Medical Center Campus Historic District

TABLE 3.3.4.3-1
PROJECT IMPACTS TO HISTORICAL RESOURCES

Historical Resource	Impacted by Tier I	Impacted by Tier 2
Martin Luther King, Jr. Medical Center Campus Historic District	• Removal of portion of covered corridor/colonnade extending from the east facade of the Interns and Physicians Building to the MACC • Removal of landscaped open spaces, pedestrian walkways, walled courtyards	• Reuse/redevelopment of MACC • Mixed use site development • Master Plan is assumed (for the purposes of this analysis) to result in modifications, alterations, and other impacts to character-defining features
Multi-Service Ambulatory Care Center (MACC)	• N/A	• Reuse/removal/replacement/redevelopment of MACC • Removal of pedestrian walkway extending from the north elevation of the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center • Removal of pedestrian walkway extending from the MACC's east façade to the Dr. H. Claude Hudson Auditorium
Augustus F. Hawkins Comprehensive Mental Health Center	• Reduction of courtyard size and partial replacement of walled courtyard, located south and west of the Augustus F. Hawkins Comprehensive Mental Health Center, with entry drive and parking	• Removal of pedestrian walkway extending from the north elevation of the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center • Master Plan is assumed (for the purposes of this analysis) to result in modifications, alterations, and other impacts to character-defining features
Interns and Physicians Building	• Replacement of landscaped drop-off area, located north of the Interns and Physicians Building and west of the North Support Building, with parking • Replacement of walled courtyard, located south of the building, with parking	• Master Plan is assumed (for the purposes of this analysis) to result in modifications, alterations, and other impacts to character-defining features
Dr. H. Claude Hudson Auditorium	• N/A	• Removal of pedestrian walkway extending from the MACC's east façade to the Dr. H. Claude Hudson Auditorium • Master Plan is assumed (for the purposes of this analysis) to result in modifications, alterations, and other impacts to character-defining features

Tier I

Tier I involves construction of two new buildings, the new MACC and the Ancillary Building, vacation of the existing MACC building, tenant improvements in existing buildings, and site improvements. These modifications would affect the historic district and its contributors but would leave the majority of the character-defining features intact:

- **Martin Luther King, Jr. Medical Center Campus Historic District**. The historic district would be affected by the demolition of a portion of the covered walkway that extends west from the MACC, replacement of walled courtyards and gardens at the Augustus F. Hawkins Comprehensive Mental Health Center and the Interns and Physicians Building, construction of two new buildings, and vacation of the MACC. However, the character-defining features of the four contributing buildings would be left intact, and the majority of the covered walkways would remain in situ. Original landscaping would be retained at the historic campus entrance east of the MACC along Willowbrook Avenue and south of the Augustus F. Hawkins Comprehensive Mental Health Center. The new construction would occur in the interior of the campus, which already hosts several non-contributing buildings and structures. Although these changes are not negligible, they do not compromise the physical features of the historic district to the extent that the district would lose its eligibility for inclusion in the CRHR.

- **Multi-Service Ambulatory Care Center (MACC).** The MACC will remain in situ but would be vacated. No changes to the exterior of this building are proposed; therefore, other than the colonnaded walkway extending west from the building, the character-defining features itemized in Appendix E, Section 5.3.2.2.2, *Martin Luther King, Jr. Medical Center Campus Historic District*, would remain intact. The building will retain sufficient integrity to convey its significance as a contributor the historic district.

- **Augustus F. Hawkins Comprehensive Mental Health Center.** No changes to the exterior of this building are proposed; therefore the majority of the character-defining features itemized in Appendix E, Section 5.3.2.2.2, *Martin Luther King, Jr. Medical Center Campus Historic District*, would remain intact. Replacement of the adjacent walled courtyard would negatively affect the integrity of the setting of the building. However, the building would retain sufficient integrity to convey its significance as a contributor to the historic district.

- **Interns and Physicians Building.** Tenant improvements would be performed in the Interns and Physicians Building. No changes to the exterior of this building are proposed; therefore the majority of the character-defining features itemized in Appendix E, Section 5.3.2.2.2, *Martin Luther King, Jr. Medical Center Campus Historic District*, would remain intact. Replacement of the adjacent walled courtyard would negatively affect the integrity of the setting of the building. However, the building would retain sufficient integrity to convey its significance as a contributor to the historic district.

- **Dr. H. Claude Hudson Auditorium**. No changes to the exterior of this building are proposed; therefore the character-defining features itemized in Appendix E, Section 5.3.2.2.2, *Martin Luther King, Jr. Medical Center Campus Historic District*, would remain intact. The building would retain its integrity and will continue to convey its significance as a contributor to the historic district.

Tier II

Tier II entails the development of a campus-wide master plan, the components of which are conceptual at this time. Tier II would have the potential to build out approximately 1,814,696 square feet of development on the proposed project site with mixed uses including medical office, commercial, retail, office space, recreation, and other development in support of the medical center. In addition, up to 100 residential units, to be developed at a multi-family density consistent with surrounding residential area multi-family development densities, are proposed in Tier II. Tier II components would also entail the reuse or replacement of the existing MACC building. Tier II may result in substantial adverse impacts to at least two historical resources, the Martin Luther King, Jr. Medical Center Campus Historic District and the MACC:

- **Martin Luther King, Jr. Medical Center Campus Historic District**. Redevelopment of the Martin Luther King, Jr. Medical Center Campus has the potential to result in demolition or alteration of the four contributing buildings and the remaining appurtenant features that contribute to the historic district to the extent that the significance of the district would be materially impaired. No plans for the Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. Claude H. Hudson Auditorium are known at this time. The MACC may be reused or demolished and replaced with other development. In association with the demolition of the MACC, the covered walkways connecting it to the Augustus F. Hawkins Comprehensive Mental Health Center and the Dr. H. Claude Hudson Auditorium would also be demolished. The MACC is the focal point of the historic district. It is the largest building on the campus and the one most closely associated with the historic function of the campus. Demolition of the MACC would result in a loss of integrity of the historic district and it would no longer be eligible for inclusion in the CRHR.

- **Multi-Service Ambulatory Care Center (MACC).** The MACC may be reused, removed, or replaced (demolished) as a result of Tier II. If the MACC is retained and reused, impacts to this historical resource would be less than significant if any modifications to character-defining features conformed to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and associated guidelines. Demolition or alterations not in conformance with the Standards would result in substantial adverse impacts to this historical resource. If the MACC building is not removed, this impact would be anticipated to be less than significant with respect to this building.

- **Augustus F. Hawkins Comprehensive Mental Health Center.** No plans for this historical resource have been formulated under Tier II; however, the master plan and comprehensive redevelopment of the campus have the potential to result in alterations to the existing building. In addition, if the MACC is demolished, the covered walkway that links it to this building would also be demolished. Impacts to this historical resource would be less than significant if any modifications to character-defining features conformed to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and associated guidelines. Alterations not in conformance with the Standards would result in substantial adverse impacts to this historical resource.

- **Interns and Physicians Building.** No plans for this historical resource have been formulated under Tier II; however, the master plan and comprehensive redevelopment of the campus have the potential to result in alterations to the existing building. Impacts to this historical resource would be less than significant if any modifications to character-defining features conformed to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and associated guidelines. Alterations not in conformance with the Standards would result in substantial adverse impacts to this historical resource.

- **Dr. H. Claude Hudson Auditorium**. No plans for this historical resource have been formulated under Tier II; however, the master plan and comprehensive redevelopment of the campus have the potential to result in alterations to the existing building. In addition, if the MACC is demolished, the covered walkway that links it to this building would also be demolished. Impacts to this historical resource would be less than significant if any modifications to character-defining features conformed to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and associated guidelines. Alterations not in conformance with the Standards would result in substantial adverse impacts to this historical resource.

In the event that the five historical resources are not removed or otherwise impacted through significant modifications or alterations to the character-defining features of these resources, this impact would be less than significant and would not require mitigation.

3.3.4.4 Human Remains

Tier I

Tier I of the proposed project would not be expected to directly or indirectly disturb human remains, including those interred outside of formal cemeteries. There are no formal cemeteries on the property, and the ground has been substantially disturbed for the construction of the Martin Luther King, Jr. Medical Center Campus. The results of the archaeological record search, review of historic maps,[39,40] and the NAHC Sacred Lands File search,[41] indicate that no historic period or Native American burial grounds are located within the proposed project site. However, monitoring for the construction of the Alameda Corridor Project within the cultural resources study area did result in the discovery of two human burials located approximately 0.85 miles east of the proposed project site. It is anticipated that ground-disturbing activities, which would include, but are not limited to, drilling, excavation, trenching, and grading, for the proposed project may be up to 45 feet. Although there are no known burial sites within the proposed project site, the potential disruption of human remains from of an unanticipated discovery during ground-disturbing activities constitutes a significant impact requiring the consideration of mitigation measures.

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[39] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[40] U.S. Geological Survey. 1964. 7.5-Minute Series Inglewood, California, Topographic Quadrangle. Reston, VA.

[41] Singleton, Dave, Native American Heritage Commission, Sacramento, California. 02 November 2009. Letter to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

Tier II

Tier II of the proposed project would not be expected to directly or indirectly disturb human remains, including those interred outside of formal cemeteries. There are no formal cemeteries on the property, and the ground has been substantially disturbed for the construction of the Martin Luther King, Jr. Medical Center Campus. The results of the archaeological record search, review of historic maps,[42,43] and the NAHC Sacred Lands File search,[44] indicate that no historic period or Native American burial grounds are located within the proposed project site. However, monitoring for the construction of the Alameda Corridor Project within the cultural resources study area did result in the discovery of two human burials, both of which are located approximately 0.85 mile east of the proposed project site. It is anticipated that ground-disturbing activities, which would include, but are not limited to, drilling, excavation, trenching, and grading, for the proposed project may be up to 45 feet. Although there are no known burial sites within the proposed project site, the potential disruption of human remains from of an unanticipated discovery during ground-disturbing activities constitutes a significant impact requiring the consideration of mitigation measures.

3.3.4.5 Cumulative Impacts

Under Tier I, the incremental impact of the proposed project would be less than significant for cultural resources. The impact of Tier II of the proposed project when evaluated in relation to the closely related past, present, or reasonably foreseeable probable future projects would be expected to contribute to cumulative impacts to cultural resources related to the loss of historical resources. There are few extant properties that are associated with the development of Willowbrook and the McCone Commission's recommendation for a new hospital in south Los Angeles in the wake of the 1965 civil unrest and the proposed project would therefore result in the loss of limited resources with similar historic contexts. However, none of the forty-two (42) related projects that are anticipated to be implemented within the construction period for both tiers of the proposed project within an approximate 3-mile radius of the proposed project site are associated with the historic context of the Martin Luther King, Jr. Medical Center Campus Historic District.

Tier I

Under Tier I, the incremental impact of the proposed project on paleontological resources, archaeological resources, historical resources, and human remains would be less than significant. There are no expected impacts to paleontological resources, as mitigation measures are required to reduce impacts to the older Quaternary Alluvium deposits present at the Tier I project site to below the level of significance. There are no unique geological features on the proposed site for Tier I and therefore, there would be no expected impacts to cultural resources related to the destruction of a unique geologic feature. Although it is not certain whether the proposed project site has the potential to yield archaeological resources, it is unlikely due to the historical development of the area and therefore there are no expected impacts to archaeological resources. The construction of the two new buildings, the new MACC and the Ancillary Building, in Tier I would affect several

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[42] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[43] U.S. Geological Survey. 1964. 7.5-Minute Series Inglewood, California, Topographic Quadrangle. Reston, VA.

[44] Singleton, Dave, Native American Heritage Commission, Sacramento, California. 02 November 2009. Letter to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

appurtenant elements and the spatial relationship of the historic district and its contributors but would otherwise leave the majority of the character-defining features of the historic district intact to the extent that the district would retain sufficient integrity for inclusion in the CRHR. There are no known burial sites within the proposed project site for Tier I; however, the potential disruption of human remains from an unanticipated discovery during ground-disturbing activities constitutes a significant impact requiring the consideration of mitigation measures to reduce any impacts to below the level of significance.

Tier II

Tier II entails the development of a campus-wide master plan, the components of which are conceptual at this time; however, the incremental impacts of Tier II may be significant for historical resources. Tier II may result in substantial adverse impacts to at least two historical resources, the Martin Luther King, Jr. Medical Center Campus Historic District and the MACC building. Specifically, Tier II would entail the reuse or replacement of the existing MACC building. The incorporation of mitigation measures would reduce the cumulative significant impact regarding the demolition of a historical resource; however, the demolition would still remain a significant adverse impact as it would result in the loss of limited resources with similar historic contexts regarding the history of Willowbrook and the direct linkage with the McCone Commission's recommendation for a new hospital in south Los Angeles in the wake of the 1965 civil unrest. Implementation of Tier II of the proposed project would cause an incremental impact to a finite and nonrenewable resource base with a connection to the history of Willowbrook and the McCone Commission's recommendation when considered with the related past, present, or reasonably foreseeable, probable future project.

Under Tier II, there are no expected incremental impacts to paleontological resources, archaeological resources, and human remains. Regarding paleontological resources, mitigation measures are required to reduce impacts to the older Quaternary Alluvium deposits present at the Tier II project site to below the level of significance. There are no unique geological features on the proposed site for Tier II and therefore, there would be no expected impacts to cultural resources related to the destruction of a unique geologic feature. Due to the level of disturbance that has occurred within the proposed project area of Tier II in conjunction with construction of the Martin Luther King, Jr. Medical Center Campus in 1972 and subsequent years, extant archaeological resources would not likely be present and therefore there are no expected impacts to archaeological resources under Tier II. There are no known burial sites within the proposed project site for Tier II; however, the potential disruption of human remains from an unanticipated discovery during ground-disturbing activities constitutes a significant impact requiring the consideration of mitigation measures to reduce any impacts to below the level of significance.

3.3.5 Mitigation Measures

Tier I

Paleontological Resources

Measure Cultural-1

The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the proposed project shall be reduced to below the level of significance by monitoring, salvage, and curation of unanticipated paleontological resources discovered during ground-disturbing activities in previously undisturbed native soils located 15 or more feet below the ground surface that would have the potential to contact extant older Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology:

- Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found.

- Prior to any ground-disturbing activities, the County of Los Angeles shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium.

- A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources.

- Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find.

- If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing.

- Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored, the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered, fossil specimens recovered, and associated specimen data.

- All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository, regarding the final disposition, permanent storage, and maintenance of any significant fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written agreement shall specify the level of treatment (i.e., preparation, identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed.

- Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended, itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, signify the completion of the program to mitigate impacts to paleontological resources.

Human Remains

Measure Cultural-2

Although the discovery of human remains is not anticipated during ground-disturbing activities for the proposed project, a process has been delineated for addressing the unanticipated discovery of human remains:

- Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met:

    - The Los Angeles County Coroner has determined that no investigation of the cause of death is required, and
    - Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences in writing to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

Tier II

Paleontological Resources

Measure Cultural-1

The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the proposed project shall be reduced to below the level of significance by monitoring, salvage, and curation of unanticipated paleontological resources discovered during ground-disturbing activities in previously undisturbed native soils located 15 or more feet below the ground surface that would have the potential to contact extant older Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology:

- Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found.

- Prior to any ground-disturbing activities, the County of Los Angeles shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium.

- A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources.

- Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find.

- If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing.

- Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored, the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered, fossil specimens recovered, and associated specimen data.

- All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository, regarding the final disposition, permanent storage, and maintenance of any significant fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written agreement shall specify the level of treatment (i.e., preparation, identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed.

- Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended, itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, signify the completion of the program to mitigate impacts to paleontological resources.

Human Remains

Measure Cultural-2

Although the discovery of human remains is not anticipated during ground-disturbing activities for the proposed project, a process has been delineated for addressing the unanticipated discovery of human remains:

- Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met:
  - The Los Angeles County Coroner has determined that no investigation of the cause of death is required, and
  - Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences in writing to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

Historical Resources

Potentially significant adverse impacts to historical resources have been identified in relation to five historical resources as a result of implementation of the Tier II project:, the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium. Three mitigation measures have been identified in association with Tier II to reduce impacts to the maximum extent practicable. In the event that the five historical resources are not removed or otherwise impacted through significant modifications or alterations to the character-defining features of these resources, this impact would be less than significant and would not require mitigation.

Measure Cultural-3

Tier II impacts to four significant historical resources (Multi-Service Ambulatory Care Center [MACC], Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium) and the integrity of the Martin Luther King, Jr. Medical Center Campus Historic District (a fifth historic resource) shall be reduced to below the level of significance through utilization of the *Secretary of the Interior's Standards for the*

Treatment of Historic Properties with Guidelines of Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings for any proposed alterations, including all site work, structural upgrades, architectural, and mechanical systems improvements and repairs. The work shall conform to the standards and guidelines for "rehabilitation." Conformance with the Secretary of the Interior's Standards shall be monitored by an architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualification Standards. Completion of this mitigation measure shall be monitored and enforced by the County of Los Angeles.

Measure Cultural-4

Tier II impacts resulting from demolition or substantial alteration of significant historical resources not in conformance with the Secretary of the Interior's Standards shall be reduced to the maximum extent feasible through archival documentation of as-found condition. Prior to the initiation of construction activities, the County of Los Angeles shall ensure that documentation of the Martin Luther King, Jr. Medical Center Campus Historic District, Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and/or Dr. H. Claude Hudson Auditorium is completed in accordance with Historic American Buildings Survey (HABS) requirements for donated material. The documentation shall be in the form of a Historic American Building Survey and shall comply with the *Secretary of the Interior's Standards for Architectural and Engineering Documentation*. The documentation shall include large-format photographic recordation, detailed historic narrative report, measured architectural drawings, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be offered as donated material to Historic American Building Survey for inclusion in the Library of Congress. Archival copies of the documentation also would be available at the Martin Luther King, Jr. Medical Center campus and maintained by the County of Los Angeles.

Measure Cultural-5

Impacts resulting from the loss of integrity of the Martin Luther King, Jr. Medical Center Campus Historic District such that its significance is materially impaired will be reduced to the maximum extent feasible through the development of a retrospective exhibit detailing the history of the Martin Luther King, Jr. Medical Center Campus Historic District, its significance, and its important details and features. The retrospective exhibit shall be in the form of a physical exhibit installed on the Martin Luther King, Jr. Medical Center Campus, which is located either within a building or on a freestanding kiosk or comparable structure or installation on the property. The exhibit should commemorate the historic appearance of the district and provide the public with sufficient information to understand its historic significance.

The exhibit shall be prepared by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The exhibit should be completed within a period of no more than two years from the date of completion of Tier II of the proposed project.

3.3.6 Level of Significance after Mitigation

Tier I

Implementation of mitigation measure Cultural-1 would reduce any potential significant impacts to cultural resources related to an adverse change in the significance of a unique paleontological resource discovered under Tier I to below the level of significance.

Implementation of mitigation measure Cultural-2 would reduce any potential significant impacts to human remains discovered under Tier I to below the level of significance.

Tier II

Implementation of mitigation measure Cultural-1 would reduce any potential significant impacts to cultural resources related to an adverse change in the significance of a unique paleontological resource discovered under Tier II to below the level of significance.

Implementation of mitigation measure Cultural-2 would reduce any potential significant impacts to human remains discovered under Tier II to below the level of significance.

Implementation of mitigation measure Cultural-3 would reduce Tier II impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium as a result of Tier II of the proposed project to below the level of significance.

Implementation of mitigation measures Cultural-4 and Cultural-5 would reduce Tier II impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium as a result of Tier II of the proposed project to the maximum extent feasible. However, the demolition of a historical resource still would remain a significant adverse impact.

3.4 GEOLOGY AND SOILS

As a result of the Initial Study,[1] the County of Los Angeles (County) has determined that the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in impacts to geology and soils. Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potentially significant impacts from geology and soils.

The analysis of geology and soils consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions at the proposed project area, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to geology and soils has been analyzed in accordance with the methodologies and information provided by the Safety element of the County of Los Angeles General Plan,[2] publications of the California Geological Society (formerly known as California Division of Mines and Geology), geotechnical reports,[3,4] and published maps.

3.4.1 Regulatory Framework

This regulatory framework identifies the state and local statutes and policies that relate to geology and soils and must be considered by the County during the decision-making process for projects that involve grading (excavation or fill), modification of existing structures, or construction of new structures.

State

State of California Geological Survey

The State of California Geological Survey (CGS; formerly CDMG, California Division of Mines and Geology) identifies several earth resource issues that should be taken into consideration when evaluating whether the proposed project would likely be subject to geologic hazards, particularly related to earthquake damage. These considerations include both the potential for existing geologic and soil conditions to pose a risk to the project and the potential for the proposed project to result in an impact to the existing geologic and soil conditions by creating or exacerbating a geologic hazard.

The CGS establishes regulations related to geologic hazards (e.g., faulting, liquefaction, seismically induced landslides, and ground shaking) as they impact people and structures. These regulations include the Alquist-Priolo Earthquake Fault Zone (APEFZ) Act and Seismic Hazards Mapping Program

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[2] County of Los Angeles Department of Regional Planning. December 1990. *County of Los Angeles General Plan, Safety Element*. Los Angeles, CA.

[3] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[4] URS. 14 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed ED/Ancillary Building and Central Plant Expansion, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

(SHMP), described below. The CGS also issues guidelines for the evaluation of geologic and seismic factors that may impact a project or that may be impacted by a project. The guidelines that are most applicable are the following:

- CDMG Special Publication 42, Guidelines to Geologic/Seismic Reports[5]
- CDMG Special Publication 46, Guidelines for Geologic/Seismic Considerations in Environmental Impact Reports[6]
- CDMG Note 49, Guidelines for Evaluating the Hazard of Surface Fault Rupture[7]

Each guideline provides checklists and outlines to help ensure a comprehensive report of geologic and seismic conditions. Although not mandatory in all their detail, these guidelines provide assistance in assuring completeness of geologic and seismic studies conducted for a project.

Alquist-Priolo Earthquake Fault Zone Act of 1972

The CGS has delineated special study zones along known active or potentially active faults in California pursuant to the APEFZ Act of 1972.[8] The state delegates the authority to local government to regulate development within APEFZ. Construction of habitable structures is not permitted over potential rupture zones. The proposed project site is located approximately 1.8 miles northeast of the Newport-Inglewood Alquist-Priolo Fault Zone.[9] The proposed project site is roughly 42 miles south of the active San Andreas Fault.[10]

Alquist Hospital Seismic Safety Act of 1983

The Alquist Act establishes a seismic safety building standards program under the Office of Statewide Health Planning and Development's (OSHPD) jurisdiction for hospitals built on or after March 7, 1973.[11] The Alquist Act was initiated because of the loss of life incurred due to the collapse of hospitals during the Sylmar earthquake of 1971. The Alquist Act emphasizes that essential facilities such as hospitals should remain operational after an earthquake. Hospitals built in accordance with the standards of the Alquist Act resisted the January 1994 Northridge earthquake with minimal structural damage, while several facilities built prior to the act experienced major structural damage and had to be evacuated. The provisions and subsequent regulation language of the act were developed to address the issues of survivability of both nonstructural and structural components of hospital buildings after a seismic event. Therefore, the ultimate public safety benefit of the act is to have general acute

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[5] California Geological Survey. 1997 (Revised). *Fault-Rupture Hazard Zones in California*. Special Publication 42. Supplements 1 and 2 added 1999. Contact: 655 S. Hope Street, #700, Los Angeles, CA 90017.

[6] California Geological Survey, 1986. *Guidelines for Geologic/Seismic Considerations in Environmental Impact Reports. Special Publication No. 46*. Contact: 801 K Street, MS 14-33, Sacramento, CA 95814-3531.

[7] California Geological Survey. 1998. *Guidelines for Evaluating the Hazard of Surface Fault Rupture*. Note 49. Contact: 801 K Street, MS 14-33, Sacramento, CA 95814-3531.

[8] *California Public Resources Code*, § 2621 et. seq.: *Alquist-Priolo Earthquake Fault Zoning Act.*

[9] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[10] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[11] Office of Statewide Health Planning and Development. *Seismic Retrofit Program Overview*. Available at: http://www.oshpd.ca.gov/FDD/seismic_compliance/index.html

care hospital buildings that not only are capable of remaining intact after a seismic event, but also of continued operation and provision of acute care medical services.

OSHPD has requirements for building design and rates buildings on a number of categories according to the anticipated ability of a building to withstand seismic activity. These categories include structural performance category (SPC) ranks that are number SPC-1 through SPC-5, SPC-1 consists of buildings that pose a significant risk of collapse and pose a danger to the public; conversely, SPC-5 level buildings are in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act, and are reasonable capable of providing services to the public following "strong ground motion". OSHPD provides permits to buildings. Nonstructural performance category (NPC) ranks are also provided for buildings and range from levels 1 through 5.[12]

Seismic Hazards Act of 1990

The CGS has also identified Seismic Hazard Zones that are delineated in accordance with the SHMP of the Seismic Hazards Act (Act) of 1990.[13] The Act is "to provide for a statewide seismic hazard mapping and technical advisory program to assist cities and counties in fulfilling their responsibilities for protecting the public health and safety from the effects of strong ground shaking, liquefaction, landslides, or other ground failure and other seismic hazards caused by earthquakes." The proposed project site is depicted on the South Gate 7.5-minute Quadrangle Seismic Hazard Zone Map[14] within an area designated where the historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacement such that mitigation may be required.

State of California (Uniform) Building Code

The State of California Building Code (California Building Code) sets standards for investigation and mitigation of the site conditions related to fault movement, liquefaction, landslides, differential compaction/seismic settlement, ground rupture, ground shaking, tsunami, seiche, and seismically induced flooding.[15] Mitigation of geological (including earthquake) and soil (geotechnical) issues must be undertaken in compliance with the California Building Code (CBC). The California Building Code augments and supersedes the Uniform Building Code (UBC) with stricter requirements to reduce the risks associated with buildings in Seismic Zone 4 to the maximum extent practicable. The majority of the State of California, including the proposed project site, lies within Seismic Zone 4,[16] the highest level hazard zone designated by the current UBC.

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[12] The Office of Statewide Health Planning and Development. 23 October 2008 (Accessed August 2010). *2007 California Buildings Standards Administrative Code*, Chapter 6 *Seismic Evaluation Procedures for Hospital Buildings*. Available at: http://www.oshpd.ca.gov/FDD/seismic_compliance/SB1953/2007%20Title%2024,%20Part%201,%20Ch.%206%20with%20S&E%20thru%20Er010110.pdf

[13] *California Public Resources Code*, § 2690 et. seq.: *Seismic Hazards Mapping Act*.

[14] California Geological Survey. 25 March 1999. Seismic Hazard Zone Map, South Gate Quadrangle. Also available at: California Department of Conservation. 2006. California Geological Survey Seismic Hazard Zonation Program (SHZP) Data Access Page. Available at: http://gmw.consrv.ca.gov/shmp/MapProcessor.asp?Action=Quad&Location=SoCal

[15] *California Code of Regulations*, 1 November 2002 (Effective Date). Title 24: California Building Standards Code. Sacramento, CA: California Building Standards Commission. Available at: www.bsc.ca.gov.

[16] *California Code of Regulations*, 1 November 2002 (Effective Date). Title 24: California Building Standards Code. Sacramento, CA: California Building Standards Commission. Available at: www.bsc.ca.gov.

Local

County of Los Angeles General Plan

The Safety element of the County of Los Angeles General Plan includes additional regulations governing the proposed project related to geotechnical issues, particularly for new development.

Seismic Hazards

The overall goal in addressing seismic hazards is to minimize injury and loss of life, property damage, and the social, cultural, and economic impacts caused by earthquake hazards. The relevant policies established to attain this goal in the County of Los Angeles are as follows:

- Review projects proposing expansion of existing development and construction of new development, especially critical facilities, and encourage them to avoid localities exposed to high earthquake hazards through such techniques as cluster development and transfer of development rights.
- Continue enforcement of stringent site investigations (such as seismic, geologic, hydrologic, and soils investigations) and mitigation measures for development projects in areas of high earthquake hazard, especially those involving critical facilities. Do no approve proposals and projects that cannot mitigate safety hazards to the satisfaction of responsible agencies.
- Promote the development of seismically resistant major lifelines serving Los Angeles County and connecting it to surrounding regions and the rest of the nation.
- Promote strengthening or replacement of critical facilities; and the retrofitting or abatement of potentially hazardous buildings, highway structures, and dams and reservoirs that do not meet seismic safety standards.
- Encourage the preservation and sensitive reuse of historic buildings that need strengthening for protection from seismic hazards, in a manner that does not endanger public safety.
- Strengthen earthquake resistance standards for non-structural components, especially in critical facilities.

Geologic Hazards

The overall goal in addressing geologic hazards is to protect public safety and minimize the social and economic impacts from geologic hazards. The relevant policy established to attain this goal in the County of Los Angeles is as follows:

- Review proposals and projects proposing new development and expansion of existing development in areas susceptible to landsliding, debris flow, and rockfalls, and in areas where collapsible or expansive soils are a significant problem; and disapprove projects that cannot mitigate these hazards to the satisfaction of responsible agencies.

Los Angeles County Building Code

The County of Los Angeles has adopted the California Building Code, described above, as the means of evaluating the adequacy of geotechnical and engineering geology studies needed for design and construction in the County. Some jurisdictions have adopted local building codes that amplify the

California Building Code to reflect geotechnical conditions in that area. These building codes would usually be available as a separate ordinance, such as a Zoning or Grading Ordinance.

3.4.2 Existing Conditions

3.4.2.1 Physiography and Topography

The proposed project site is located within the northern portion of the Peninsular Ranges Geomorphic Province, which is characterized by a series of generally northwest-trending mountain ranges and intervening valleys. The northern portion of the peninsular Ranges Province, generally referred to as the Los Angeles Basin, is a broad sediment filled trough.[17]

The site lies within the central portion of the Los Angeles Basin, which is underlain by over 1,000 feet of sediments that have been deposited within this down-warped basin since Pliocene time. Underlying these alluvial deposits is Pliocene age marine sediments deposited during a time when a shallow sea covered much of southern California.

The hills bordering this area of the Los Angeles Basin are characterized by a complex sequence of Cretaceous to Pleistocene age marine and nonmarine sedimentary rocks. Localized igneous intrusive rocks attest to the complex geologic history of the area. Erosion of the hills within the Santa Monica Mountains, located to the north of the site, is the source for the broad alluvial deposits forming much of the Los Angeles Basin to the south.

The existing ground of the proposed project site has elevations ranging from approximately 86 to 88[18] feet above mean sea level (MSL). The proposed project site has the highest elevation at the eastern edge of the site; the elevation then dips towards the south and west.

3.4.2.2 Surficial Geologic Units

The proposed project site is directly underlain by artificial fill and relatively younger alluvial deposits (Qya2), overlying more consolidated older alluvium. These deposits are representative of alluvial outwash associated with transport and deposition of the ancestral Los Angeles River. These soils generally consist of medium dense interbedded clayey silts, silty clays and sandy silts, and silty sands.[19]

3.4.2.3 Faulting and Seismicity

The Los Angeles Basin, as well as most of Southern California, is located within a complex zone of faults and folds resulting from compressional forces occurring along a bend within the boundary between the Pacific and North American tectonic plates. Numerous generally east-west to northwest trending faults have formed as a result of these north-south compressional forces acting within this area. The major faults within the vicinity of the Los Angeles Basin are characterized by a combination blind thrusting, which is a rupture that is located below the uppermost layers of rock and would not be

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[17] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[18] Sapphos Environmental, Inc. 2010. Geographic Information System. Pasadena, CA.

[19] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

present on the surface; right-lateral strike-slip, a displacement in a trend or bearing where the right block moves toward you and the back block moves away; and reverse faulting, where the rock layer above the fault moves up.[20]

Most of the larger earthquakes in the region have been associated with larger faults that have been mapped at the ground surface. A number of moderate to large earthquakes in the region have also occurred on deep-seated buried thrust faults in this geological complex region of Southern California. The most recent significant (moderate to large) earthquake was the magnitude 6.7 (M) Northridge earthquake, which occurred on a shallowly south-dipping thrust fault that underlies much of the San Fernando Valley.

As previously noted, the closest active fault to site is the Newport-Inglewood fault, located approximately 1.8 miles to the southwest. The historically active San Andreas Fault is located approximately 42 miles to the north.[21]

The Richter Magnitude Scale (Richter Scale) was developed as a mathematical device to compare the size of earthquakes. The Richter Scale does not measure damage. The Richter magnitude is computed based on information gathered on seismograph instruments. Because the Richter Scale is based on a logarithmic scale, or base 10-scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude, or height, of the earthquake wave. As an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 10 times more energy than the amount associated with the preceding whole number value.

3.4.2.4 Soils

Soils at the proposed project site include fill materials consisting of sandy silt and clay ranging from zero to 15 feet below grade surface (bgs) and alluvium consisting of stiff clay ranging from 15 to 20 feet bgs, medium dense clayey sand and stiff sandy clay from 20 to 35 bgs, medium dense silty sand and sandy silt from 35 to 45 feet bgs, and very stiff silt and clay or dense sand from 45 to 55 feet bgs.[22]

3.4.2.5 Hydrology

The depth to groundwater at the proposed project site has been encountered at 38 to 52 feet below ground surface.[23] The existing use of the proposed project site does not influence the local groundwater basin. The site also does not serve as a groundwater recharge site.

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[20] USGS. Accessed 12 May 2010. *Earthquake Hazards Program: Earthquake Glossary*. Available at: http://earthquake.usgs.gov/learn/glossary/

[21] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[22] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[23] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

3.4.3 Significance Thresholds

The potential for the proposed project to result in impacts related to geology and soils was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. The proposed project would normally be considered to have a significant impact to geology and soils when the potential for any one of the following four thresholds occurs:

- Expose people or structures to potential substantial adverse effects, including the risk for loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault
  - Strong seismic ground shaking
  - Seismic-related ground failure, including liquefaction
  - Landslides
- Result in substantial soil erosion (greater than 10 percent) or the loss of topsoil
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property

3.4.4 Impact Analysis

3.4.4.1 Surface Fault Rupture

Tier I

Tier I of the proposed project would not be expected to result in significant impacts related to surface fault rupture. Faults are the planes along which earthquakes occur. Where earthquakes are large enough, or shallow enough, surface rupture can occur along the fault plane where it intersects the earth's surface. There are no known surface faults within the proposed project site, and the proposed project site does not lie within an APEFZ.[24] Therefore, Tier I of the proposed project would not be expected to result in significant impacts to geology and soils related to the risk of exposure to surface fault rupture.

Tier II

Tier II of the proposed project would not be expected to result in significant impacts related to surface fault rupture. Faults are the planes along which earthquakes occur. Where earthquakes are large enough, or shallow enough, surface rupture can occur along the fault plane where it intersects the earth's surface. There are no known surface faults within the proposed project site, and the proposed

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[24] California Geological Survey. Revised 2007. *Fault-Rupture Hazard Zones in California*. Special Publication 42. Sacramento, CA. Available at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sp/Sp42.pdf

project site does not lie within an APEFZ.[25] Therefore, Tier II of the proposed project would not be expected to result in significant impacts to geology and soils related to the risk of exposure to surface fault rupture.

3.4.4.2 Seismic Ground Shaking

Tier I

Tier I of the proposed project would not be expected to result in significant impacts from strong seismic ground shaking. The proposed project would be expected to result in less than significant impacts with regard to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. As previously mentioned, the proposed project site is located approximately 1.8 miles to the northeast of the Newport-Inglewood Fault Zone and is situated within a seismically active region (Seismic Zone 4) that could potentially result in impacts from seismic shaking. However, conforming to applicable requirements under the CBC and UBC would reduce impacts from strong seismic ground shaking to the maximum extent possible under currently accepted engineering practices. Therefore, Tier I of the proposed project would be expected to result in less than significant impacts related to exposing people or structures to strong seismic ground shaking.

The inpatient care portions of the proposed project must also be in compliance with the Alquist Act of 1983, which establishes a seismic safety building standards program under the OSHPD's jurisdiction for hospitals built on or after March 7, 1973.[26] The Act states that essential facilities such as hospitals should remain operational after an earthquake. The provisions and subsequent regulation language of the Act were developed to address the issues of survivability of both nonstructural and structural components of hospital buildings after a seismic event. The benefit of the Act is to have general acute care hospital buildings that not only are capable of remaining intact after a seismic event, but also of continued operation and provision of acute care medical services.

Tier II

Tier II of the proposed project would not be expected to result in significant impacts from strong seismic ground shaking. The proposed project would be expected to result in less than significant impacts with regard to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. As previously mentioned the proposed project site is located approximately 1.8 miles to the northeast of the Newport-Inglewood Fault Zone and is situated within a seismically active region (Seismic Zone 4) that could potentially result in impacts from seismic shaking. However, conforming to applicable requirements under the CBC and UBC would reduce impacts from strong seismic ground shaking to the maximum extent possible under currently accepted engineering practices. Therefore, Tier II of the proposed project would be expected to result in less than significant impacts related to exposing people or structures to strong seismic ground shaking.

The inpatient care portions of the proposed project must also be in compliance with the Alquist Act of 1983, which establishes a seismic safety building standards program under the OSHPD's jurisdiction

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[25] California Geological Survey. Revised 2007. *Fault-Rupture Hazard Zones in California*. Special Publication 42. Sacramento, CA. Available at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sp/Sp42.pdf

[26] Office of Statewide Health Planning and Development. *Seismic Retrofit Program Overview*. (Accessed July 2010). Available at: http://www.oshpd.ca.gov/FDD/seismic_compliance/index.html.

for hospitals built on or after March 7, 1973.[27] The Act states that essential facilities such as hospitals should remain operational after an earthquake. The provisions and subsequent regulation language of the Act were developed to address the issues of survivability of both nonstructural and structural components of hospital buildings after a seismic event. The benefit of the Act is to have general acute care hospital buildings that not only are capable of remaining intact after a seismic event, but also of continued operation and provision of acute care medical services.

3.4.4.3 Seismic-Related Ground Failure/Liquefaction

Tier I

Tier I of the proposed project would be expected to result in less than significant impacts from exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. According to the California Geological Survey,[28] the proposed project site is located within a Seismic Hazard Zone for liquefaction, which indicates a potential for permanent ground displacements such that methods, as defined in Public Resources Code Section 2693(c), would be required to be implemented into the proposed project.[29] However, the proposed project's compliance with the CBC, UBC, and OSHPD standards, which are designed to mitigate, reduce, or avoid significant seismic-related ground failure / liquefaction risks, would significantly reduce any potential for impacts resulting from liquefaction during a seismic event. Therefore, Tier I of the proposed project would be expected to result in less than significant impacts from exposing people or structures to potential substantial adverse effects involving seismic-related ground failure, including liquefaction.

Tier II

Tier II of the proposed project would be expected to result in less than significant impacts from exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. According to the California Geological Survey,[30] the proposed project site is located within a Seismic Hazard Zone for liquefaction, which indicates a potential for permanent ground displacements such that methods, as defined in Public Resources Code Section 2693(c), would be required to be implemented into the proposed project.[31] However, the proposed project's compliance with the CBC, UBC, and OSHPD standards, which are designed to mitigate, reduce, or avoid significant seismic-related ground failure / liquefaction risks, would significantly reduce any potential for impacts resulting from liquefaction during a seismic event. Therefore, Tier II of the proposed project would be expected to result in less than significant impacts from exposing people or structures to potential substantial adverse effects involving seismic-related ground failure, including liquefaction.

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[27] Office of Statewide Health Planning and Development. *Seismic Retrofit Program Overview*. (Accessed July 2010). Available at: http://www.oshpd.ca.gov/FDD/seismic_compliance/index.html.

[28] California Geological Survey. Revised February 2009. Seismic Hazards Zonation Program, Seismic Hazard Zone Map, South Gate. Available at: http://gmw.consrv.ca.gov/shmp/download/pdf/ozn_sgate.pdf

[29] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[30] California Geological Survey. Revised February 2009. Seismic Hazards Zonation Program, Seismic Hazard Zone Map, South Gate. Available at: http://gmw.consrv.ca.gov/shmp/download/pdf/ozn_sgate.pdf

[31] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

3.4.4.4 Landslides

Tier I

Tier I of the proposed project would not be expected to result in impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. The topography of the proposed project site and surrounding area can be characterized as flat, and therefore would pose no potential risk for natural landslides to occur. Should subterranean excavation be required, the proposed project development will conform to applicable requirements under the CBC and UBC (e.g., shoring), to reduce impacts from potential instability of any manmade excavations during construction to the maximum extent possible under currently accepted engineering practices. Moreover, no areas susceptible to seismic-induced landslides are shown in the proposed project vicinity on the USGS 7.5-minute series South Gate topographic quadrangle.[32] Therefore, due to the absence of steep slopes, and building code requirements for excavations, there would be no expected impacts from exposing people or structures to potentially substantial adverse effects involving landslides.

Tier II

Tier II of the proposed project would not be expected to result in impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. The topography of the proposed project site and surrounding area can be characterized as flat, and therefore would pose no potential risk for natural landslides to occur. Should subterranean excavation be required, the proposed project development will conform to applicable requirements under the CBC and UBC (e.g., shoring), to reduce impacts from potential instability of any manmade excavations during construction to the maximum extent possible under currently accepted engineering practices. Moreover, no areas susceptible to seismic-induced landslides are shown in the proposed project vicinity on the USGS 7.5-minute series South Gate topographic quadrangle.[33] Therefore, due to the absence of steep slopes, and building code requirements for excavations, there would be no expected impacts from exposing people or structures to potentially substantial adverse effects involving landslides.

3.4.4.5 Soil Erosion

Tier I

Tier I of the proposed project would be expected to result in potentially significant impacts related to substantial soil erosion or loss of topsoil that would be reduced to below the level of significance with the incorporation of mitigation measures. It is anticipated that there would be grading associated with the reuse or replacement of the existing Multi-Service Ambulatory Care Center (MACC) and construction of the new MACC, Ancillary Building, and other site improvements. It is anticipated that the construction contractor would incorporate best management practices (BMPs) consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks:*

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[32] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[33] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

Construction.[34] As discussed in the Geotechnical Engineering Investigation that was prepared for the proposed project site,[35] earthwork at the proposed project site should be performed in conformance with the Los Angeles County Building Code, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills.[36] However, mitigation would be required to ensure that these and other procedures applicable during construction of Tier I of the proposed project would be implemented where required. Therefore, impacts related to substantial soil erosion or the loss of topsoil would be reduced to below the level of significance by the incorporation of the specified mitigation measures.

Tier II

Tier II of the proposed project would be expected to result in potentially significant impacts related to substantial soil erosion or loss of topsoil that would be reduced to below the level of significance with the incorporation of mitigation measures. It is anticipated that there would be grading associated with the construction and development related to the campus-wide Master Plan. It is anticipated that the construction contractor would incorporate BMPs consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[37] As discussed in the Geotechnical Engineering Investigation that was prepared for the proposed project site,[38] earthwork at the proposed project site should be performed in conformance with the Los Angeles County Building Code, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills.[39] However, mitigation would be required to ensure that these and other procedures applicable during construction of Tier II of the proposed project would be implemented where required. Therefore, impacts related to substantial soil erosion or the loss of topsoil would be reduced to below the level of significance by the incorporation of the specified mitigation measures.

3.4.4.6 Stability of Geology and Soils

Tier I

Tier I of the proposed project would be expected to result in potentially significant impacts related to being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed project, and potentially result in on- or off-site landslide, lateral spreading, subsidence,

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[34] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

[35] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[36] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[37] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

[38] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[39] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

liquefaction, or collapse, that would be reduced to below the level of significance with the incorporation of mitigation measures. According to the California Geological Survey,[40] the proposed project site is located within a Seismic Hazard Zone for liquefaction,[41] which indicates a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required. It is anticipated that due to seismic compliance standards established by the OSHPD, the proposed project would incorporate project design elements consistent with OSHPD standards, and that this, in addition to adherence to applicable requirements of the CBC, UBC, and the methods and specifications of the project geotechnical report(s), would further reduce any potential for impacts resulting from unstable geologic units and soils. However, the County's conformance with guidelines described in the geotechnical study would need to be verified to ensure compliance throughout the construction and development of the proposed project. Therefore, impacts related to being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse would be expected to be reduced to below the level of significance with the incorporation of mitigation measures.

Tier II

Tier II of the proposed project would be expected to result in potentially significant impacts related to being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, that would be reduced to below the level of significance with the incorporation of mitigation measures. According to the California Geological Survey,[42] the proposed project site is located within a Seismic Hazard Zone for liquefaction,[43] which indicates a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required. It is anticipated that due to seismic compliance standards established by the OSHPD, the proposed project would incorporate project design elements consistent with OSHPD standards, and that this, in addition to adherence to applicable requirements of the CBC, UBC, and the methods and specifications of the project geotechnical report(s), would further reduce any potential for impacts resulting from unstable geologic units and soils. However, the County's conformance with guidelines described in the geotechnical study would need to be verified to ensure compliance throughout the construction and development of the proposed project. Therefore, impacts related to being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse would be expected to be reduced to below the level of significance with the incorporation of mitigation measures.

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[40] California Geological Survey. Revised February 2009. Seismic Hazards Zonation Program, Seismic Hazard Zone Map, South Gate. Available at: http://gmw.consrv.ca.gov/shmp/download/pdf/ozn_sgate.pdf

[41] URS. 14 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed ED/Ancillary Building and Central Plant Expansion, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[42] California Geological Survey. Revised February 2009. Seismic Hazards Zonation Program, Seismic Hazard Zone Map, South Gate. Available at: http://gmw.consrv.ca.gov/shmp/download/pdf/ozn_sgate.pdf

[43] URS. 14 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed ED/Ancillary Building and Central Plant Expansion, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

3.4.4.7 Expansive Soil

Tier I

Tier I of the proposed project would be expected to result in potentially significant impacts related to being located on expansive soil, creating substantial risks to life or property that would be reduced to below the level of significance with the incorporation of mitigation measures. It is anticipated that there would be grading and earthwork performed under construction, improvements, and renovations to Tier I the proposed project. Where any grading-related work is required, a geotechnical engineer should be available for observation of these tasks to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered would be evaluated by the proposed project engineering geologist and the soil engineer. Mitigation would be required to ensure that these and other methods and specifications of the project geotechnical report are implemented during construction of the proposed project. Therefore, impacts related to being located on expansive soil and thereby creating substantial risks to life or property would be reduced to below the level of significance by the incorporation of the specified mitigation measures.

Tier II

Tier II of the proposed project would be expected to result in potentially significant impacts related to being located on expansive soil, creating substantial risks to life or property that would be reduced to below the level of significance with the incorporation of mitigation measures. It is anticipated that there would be grading and earthwork performed under construction, improvements, and renovations to Tier II of the proposed project. Where any grading-related work is required, a geotechnical engineer should be available for observation of these tasks to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered would be evaluated by the proposed project engineering geologist and the soil engineer. Mitigation would be required to ensure that these and other methods and specifications of the project geotechnical report are implemented during construction of the proposed project. Therefore, impacts related to being located on expansive soil and thereby creating substantial risks to life or property would be reduced to below the level of significance by the incorporation of the specified mitigation measures.

3.4.4.8 Septic Tanks or Alternative Wastewater Disposal Systems

Tier I

Tier I of the proposed project would not be expected to result in impacts to geology and soils in relation to being located on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. The proposed project would not require the use of septic tanks or alternative wastewater disposal systems. Sewers are available for wastewater disposal at the proposed project site. Furthermore, wastewater generated at the proposed project would be treated at the Hyperion Treatment Plant.[44] The Hyperion Treatment Plant currently supports wastewater leaving the proposed project site and would continue to do so following the development of the proposed project. The Hyperion Treatment Plant is anticipated to have the capacity to support the proposed project (see Section 3.16, *Utilities and Service*

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[44] Sanitation Districts of Los Angeles County. Accessed 7 October 2009. Web site. *Joint Water Pollution Control Plant.* Available at: http://www.lacsd.org/about/wastewater_facilities/jwpcp/default.asp

Systems). Therefore, Tier I of the proposed project would not be expected to result in impacts to geology and soils related to the adequate use of septic tanks or alternative wastewater disposal systems.

Tier II

Tier II of the proposed project would not be expected to result in impacts to geology and soils in relation to being located on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. The proposed project would not require the use of septic tanks or alternative wastewater disposal systems. Sewers are available for wastewater disposal at the proposed project site. Furthermore, wastewater generated at the proposed project would be treated at the Hyperion Treatment Plant.[45] The Hyperion Treatment Plant currently supports wastewater leaving the proposed project site and would continue to do so following the development of the proposed project. The Hyperion Treatment Plant is anticipated to have the capacity to support the proposed project (see Section 3.16). Therefore, Tier II of the proposed project would not be expected to result in impacts to geology and soils related to the adequate use of septic tanks or alternative wastewater disposal systems.

3.4.4.9 Cumulative Impacts

The incremental impacts of the proposed project to geology and soils, when added to the related past, present, or reasonably foreseeable, probable future projects listed in Section 2.0, *Project Description*, would not be expected to be significant. Because the geology and soils impacts expected from the implementation of the proposed project do not affect lands outside the boundaries of the proposed project site, these impacts do not create any cumulative impacts on the environment outside of the proposed project boundaries.

Tier I

It is anticipated that development of the proposed project would be completed in compliance with required guidelines. Additionally, the forty-two (42) cumulative related projects would be subject to comparable guidelines, designed to prevent, reduce, or minimize potential geology impacts at the proposed project site and within the surrounding community. As a hospital facility, the proposed project would be designed to provide medical services in the event of a geological event and as such would not adversely contribute cumulative impacts. Additionally, Tier I of the proposed project would be limited in its site disturbance to the proposed project site and the implementation of BMPs and sustainable design measures would ensure that Tier I would not contribute to cumulative impacts.

Tier II

It is anticipated that development of the proposed project would be completed in compliance with required guidelines. Additionally, the forty-two (42) cumulative related projects would be subject to comparable guidelines, designed to prevent, reduce, or minimize potential geology impacts at the proposed project site and within the surrounding community. As a hospital facility, the proposed project would be designed to provide medical services in the event of a geological event and as such would not adversely contribute cumulative impacts. Additionally, BMPs and sustainable design measures would be instituted into the proposed project that would further reduce the potential for the

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[45] Sanitation Districts of Los Angeles County. Accessed 7 October 2009. Web site. *Joint Water Pollution Control Plant.* Available at: http://www.lacsd.org/about/wastewater_facilities/jwpcp/default.asp

proposed project to contribute to other impacts such as soil erosion and loss of topsoil at the proposed project site or the surrounding neighborhood. As such, Tier II of the proposed project would not contribute to cumulative impacts.

3.4.5 Mitigation Measures

Implementation of the following mitigation measures are recommended to avoid, reduce, or eliminate the potential impacts related to geology and soils. As described above, potential impacts to soil erosion or loss of topsoil, unstable geologic unit or soil, and expansive soil would be reduced to below the level of significance through the implementation of California Building Code and other standard design measures required for permit approval.

Tier I

Measure Geology-1

The construction contractor shall incorporate best management practices consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[46] As discussed in the Geotechnical Investigation that was prepared for the project site, earthwork at the project site should be performed in conformance with the Los Angeles County Building Code and other guidelines provided in the geotechnical study, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills.

Measure Geology-2

Due to seismic compliance standards established by the Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or as required, the construction contractor shall incorporate project design elements consistent with Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or required standards, and thus further reduce any potential for impacts resulting from unstable geologic units and soils. The County of Los Angeles shall conform to measures described in the project geotechnical study(ies) to ensure compliance throughout the construction and development of the project.

Measure Geology-3

A geotechnical engineer shall be present on site for observation of earth-moving activities (such as site preparation, excavation) to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered shall be evaluated by the project engineering geologist and the soil engineer.

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[46] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

Tier II

Measure Geology-1

The construction contractor shall incorporate best management practices consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[47] As discussed in the Geotechnical Investigation that was prepared for the project site, earthwork at the project site should be performed in conformance with the Los Angeles County Building Code and other guidelines provided in the geotechnical study, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills.

Measure Geology-2

Due to seismic compliance standards established by the Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code,, or as required, the construction contractor shall incorporate project design elements consistent with Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or required standards, and thus further reduce any potential for impacts resulting from unstable geologic units and soils. The County of Los Angeles shall conform to measures described in the project geotechnical study(ies) to ensure compliance throughout the construction and development of the project.

Measure Geology-3

A geotechnical engineer shall be present on site for observation of earth moving activities (such as site preparation, excavation) to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered shall be evaluated by the project engineering geologist and the soil engineer.

3.4.6 Level of Significance after Mitigation

Tier I

Implementation of mitigation measure Geology-1 would reduce significant impacts of Tier I related to soil erosion or loss of topsoil to below the level of significance.

Implementation of mitigation measure Geology-2 would reduce significant impacts of Tier I related to the proposed project being located on a geologic unit or soil that is unstable to below the level of significance.

Implementation of mitigation measure Geology-3 would reduce significant impacts of Tier I related to the proposed project being located on expansive soil to below the level of significance.

Tier II

Implementation of mitigation measure Geology-1 would reduce significant impacts of Tier II related to soil erosion or loss of topsoil to below the level of significance.

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[47] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

Implementation of mitigation measure Geology-2 would reduce significant impacts of Tier II related to the proposed project being located on a geologic unit or soil that is unstable to below the level of significance.

Implementation of mitigation measure Geology-3 would reduce significant impacts of Tier II related to the proposed project being located on expansive soil to below the level of significance.

3.5 GREENHOUSE GAS EMISSIONS

As a result of the Initial Study,[1] the County of Los Angeles (County) determined that the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in significant impacts to greenhouse gas (GHG) emissions. Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts from GHG emissions.

The analysis of GHG emissions consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to GHG emissions has been analyzed in accordance with Appendix G of the State California Environmental Quality Act (CEQA) Guidelines[2] and the Air Quality Technical Impact Report prepared for the proposed project (Appendix C, *Air Quality and Greenhouse Gas Emissions Technical Impact Report*).[3] Methodologies and modeling tools used to assess the proposed project's GHG emissions impacts reflect guidance provided by regulatory publications from the California Air Pollution Control Officers Association (CAPCOA),[4] the State of California Attorney General,[5] CARB;[6] and the Governor's Office of Planning and Research (OPR).[7]

The GHG emissions assessment considers all phases of project design, construction, and operation. The analysis of construction impacts was based on the construction scenario, as described in Section 2.0, *Project Description*, of this EIR, as well as on a construction scenario for a project of comparable size and a construction schedule of comparable duration.

Greenhouse Gases and Effects

The six GHGs regulated by the Kyoto Protocol and AB 32 include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). These gases trap the energy from the sun and help maintain the temperature of the Earth's surface, creating a process known as the greenhouse effect. The sun emits solar radiation and provides energy to the Earth. Six percent of the solar radiation emitted by the sun is reflected back by the atmosphere surrounding the Earth, 20 percent of the solar radiation

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[1] Sapphos Environmental, Inc. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*. Prepared for: County of Los Angeles. Pasadena, CA.

[2] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[3] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[4] California Air Pollution Control Office Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. Sacramento, CA.

[5] California Department of Justice Office of the Attorney General. Updated 9 December 2008. *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

[6] California Air Resources Board. 24 October 2008. *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. Available at: http://www.opr.ca.gov/ceqa/pdfs/Prelim_Draft_Staff_Proposal_10-24-08.pdf

[7] California Governor's Office of Planning and Research. 19 June 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Technical Advisory. Sacramento, CA.

is scattered and reflected by clouds, 19 percent of the solar radiation is absorbed by the atmosphere and clouds, 4 percent of the solar radiation is reflected back to the atmosphere by the Earth's surface, and 51 percent of the solar energy is absorbed by the Earth. GHGs such as CO_2 and CH_4 are naturally present in the atmosphere. The presence of these gases prevents outgoing infrared radiation from escaping the Earth's surface and lower atmosphere, allowing incoming solar radiation to be absorbed by living organisms on Earth. Without these GHGs, the earth would be too cold to be habitable; however, an excess of GHGs in the atmosphere can cause global climate change by raising the Earth's temperature, resulting in environmental consequences related to snowpack losses, flood hazards, sea-level rises, and fire hazards.

Global climate change results from a combination of three factors: 1) natural factors such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun; 2) natural processes within the Earth's climate system, such as changes in ocean circulation; and 3) anthropogenic activities, such as fossil fuel combustion, deforestation, reforestation, urbanization, and desertification, that change the composition of atmospheric gases. In its 2007 climate change synthesis report to policymakers, the Intergovernmental Panel on Climate Change (IPCC) concluded, "global GHG emissions due to human activities have grown since pre-industrial times, with an increase of 70 percent between 1970 and 2004."[8] Therefore, significant attention is being given to the anthropogenic causes of the increased GHG emissions level. In the review of regulatory publications from CAPCOA,[9] CARB,[10] the California Attorney General,[11] and OPR,[12] there is a consensus on the closely associated relationship between fossil fuel combustion, in conjunction with other human activities, and GHG emissions. In California, GHG emissions are largely contributed by the transportation sector, which was responsible for 35 percent and 38 percent of statewide 1990 and 2004 GHG emissions, respectively; followed by the electricity generation sector, which was responsible for 25 percent of statewide emissions in both 1990 and 2004; the industrial sector, which was responsible for 24 percent and 20 percent of statewide 1990 and 2004 GHG emissions; and the commercial sector, which was responsible for 3 percent of statewide emissions in both 1990 and 2004.[13]

The characteristics and effects of three GHGs, including carbon dioxide, methane, and nitrous oxide, and a group of fluorinated GHGs, including SF_6, HFCs, and PFCs, are described to set the context for the analysis.

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[8] Intergovernmental Panel on Climate Change. Approved 12–17 November 2007. *Climate Change 2007: Synthesis Report, Summary for Policymakers*, p. 5. Valencia, Spain. Available at: http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf

[9] California Air Pollution Control Officers Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. Sacramento, CA.

[10] California Air Resources Board. 24 October 2008. *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. Available at: http://www.opr.ca.gov/ceqa/pdfs/Prelim_Draft_Staff_Proposal_10-24-08.pdf

[11] California Department of Justice, Office of the Attorney General. Updated 9 December 2008. *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

[12] California Governor's Office of Planning and Research. 19 June 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Technical Advisory. Sacramento, CA.

[13] California Air Resources Board. 16 November 2007. *California 1990 Greenhouse Gas Emissions Level and 2020 Limit*. Sacramento, CA.

Carbon Dioxide (CO_2)

CO_2 is a colorless, odorless, and nonflammable gas that is the most abundant GHG in the Earth's atmosphere after water vapor. CO_2 enters the atmosphere through natural process such as respiration and forest fires, and through human activities such as the burning of fossil fuels (oils, natural gas, and coal) and solid waste, deforestation, and industrial processes. CO_2 absorbs terrestrial infrared radiation that would otherwise escape to space, and therefore plays an important role in warming the atmosphere. CO_2 has a long atmospheric lifetime of up to 200 years, and is therefore a more important GHG than water vapor, which has a residence time in the atmosphere of only a few days. CO_2 provides the reference point for the global warming potential (GWP) of other gases; thus, the GWP of CO_2 is equal to 1.

Methane (CH_4)

CH_4 is a principal component of natural gas and consists of a single carbon atom bonded to four hydrogen atoms. It is formed and released to the atmosphere by biological processes from livestock and other agricultural practices and by the decay of organic waste in anaerobic environments such as municipal solid waste landfills. CH_4 is also emitted during the production and transport of coal, natural gas, and oil. CH_4 is about 21 times more powerful at warming the atmosphere than CO_2 (a GWP of 21). Its chemical lifetime in the atmosphere is approximately 12 years. The relatively short atmospheric lifetime of CH_4, coupled with its potency as a GHG, makes it a candidate for mitigating global warming over the near-term. CH_4 can be removed from the atmosphere by a variety of processes such as the oxidation reaction with hydroxyl radicals (OH), microbial uptake in soils, and reaction with chlorine (Cl) atoms in the marine boundary layer.

Nitrous Oxide (N_2O)

N_2O is a clear and colorless gas with a slightly sweet odor. N_2O has a long atmospheric lifetime (approximately 120 years) and heat trapping effects about 310 times more powerful than carbon dioxide on a per molecule basis (a GWP of 310). N_2O is produced by both natural and human-related sources. The primary anthropogenic sources of N_2O are agricultural soil management such as soil cultivation practices, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, and production of adipic and nitric acids. The natural process of producing N_2O ranges from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.

Fluorinated Gases

HFCs, PFCs, and SF_6 are synthetic, powerful GHGs that are emitted from a variety of industrial processes, including aluminum production, semiconductor manufacturing, electric power transmission, magnesium production and processing, and the production of HCFC-22. Fluorinated gases lifetimes vary. Fluorinated gases are being used as substitutes for ozone-depleting chlorofluorocarbons (CFCs). Fluorinated gases are typically emitted in small quantities; however, they have high global warming potentials of between 140 and 23,900.[14]

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[14] California Climate Action Registry. January 2009. *California Climate Action Registry General Reporting Protocol, Version 3.1*. Los Angeles, CA.

3.5.1 Regulatory Framework

This regulatory framework identifies the federal, state, regional, and local laws that govern the regulation of GHG emissions and must be considered by the County when rendering decisions on projects that would have the potential to result in GHG emissions.

In October 2007, the CARB published a list of 44 early action measures to reduce GHG emissions in California.[15] This regulatory framework identifies State guidance on early GHG emissions reduction measures that warrants consideration by the County.

While the regulatory framework is discussed in detail below, it is important to note that the OPR has been tasked with developing CEQA guidelines with regard to GHG emissions. OPR has indicated that many significant questions must be answered before a consistent, effective, and workable process for completing climate change analyses can be created for use in CEQA documents. No federal or State agency (*e.g.* USEPA, CARB, or SCAQMD) responsible for managing air quality emissions has promulgated a global warming significance threshold that may be used in reviewing newly proposed projects. On a local level, the County has not adopted a climate change significance threshold. Neither the CEQA Statutes nor the CEQA Guidelines establish thresholds of significance or particular methodologies for performing an impact analysis. The determination of significance is left to the judgment and discretion of the lead agency.

Federal

Federal Clean Air Act

The federal CAA requires that federally supported activities must conform to the State Implementation Plan (SIP), whose purpose is that of attaining and maintaining the National Ambient Air Quality Standards (NAAQS). Section 176 (c) of the CAA as amended in 1990, established the criteria and procedures by which the Federal Highway Administration (United States Code, Title 23), the Federal Transit Administrations,[16] and metropolitan planning organizations (MPOs) determine the conformity of federally funded or approved highway and transit plans, programs, and projects to SIPs. The provisions of Code of Federal Regulations, Title 40, Parts 51 and 93,[17] apply in all non-attainment and maintenance areas for transportation-related criteria pollutants for which the area is designated non-attainment or has a maintenance plan.

The USEPA sets NAAQS. Primary standards are designed to protect public health, including sensitive individuals such as the children and the elderly, whereas secondary standards are designed to protect public welfare, such as visibility and crop or material damage. The CAA requires the USEPA to routinely review and update the NAAQS in accordance with the latest available scientific evidence. For example, the USEPA revoked the annual particulate matter (PM_{10}) standard in 2006 due to a lack of evidence linking health problems to long-term exposure to PM_{10}

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[15] California Air Resources Board. October 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. Available at: http://www.arb.ca.gov/cc/ccea/meetings/ea_final_report.pdf

[16] U.S. Environmental Protection Agency. 26 September 1996. "Approval and Promulgation of Implementation Plans and Redesignation of Puget Sound, Washington for Air Quality Planning Purposes: Ozone." In *Federal Register*, *61* (188). Available at: http://yosemite.epa.gov/r10/airpage.nsf/283d45bd5bb068e68825650f0064cdc2/e1f3db8b006eff1a88256dcf007885c6/$FILE/61%20FR%2050438%20Seattle%20Tacoma%20Ozone%20MP.pdf

[17] U.S. Environmental Protection Agency. 15 August 1997. "Transportation Conformity Rule Amendments: Flexibility and Streamlining." In *Federal Register, 62* (158). Available at: http://www.epa.gov/EPA-AIR/1997/August/Day-15/a20968.htm

emissions. The 1-hour standard for O_3 was revoked in 2005 in favor of a new 8-hour standard that is intended to be more protective of public health.

Areas designated as severe-17 for non-attainment of the federal 8-hour O_3 standard, such as the County, are required to reach attainment levels within 17 years after designation. Areas designated as "serious" for non-attainment of the federal PM_{10} air quality standard have a maximum of 10 years to reduce PM_{10} emissions to attainment levels. All non-attainment areas for $PM_{2.5}$ have 3 years after designation to meet the $PM_{2.5}$ standards. The SCAB has until 2021 to achieve the 8-hour O_3 standards and 2010 to achieve the $PM_{2.5}$ air quality standards.[18] Section 182(e)(5) of the federal CAA allows the USEPA administrator to approve provisions of an attainment strategy in an "extreme" area that anticipates development of new control techniques or improvement of existing control technologies if the State has submitted enforceable commitments to develop and adopt contingency measures to be implemented if the anticipated technologies do not achieve planned reductions.

Non-attainment areas that are classified as "serious" or "worse" are required to revise their air quality management plans to include specific emission reduction strategies in order to meet interim milestones in implementing emission controls and improving air quality. The USEPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the CAA. If a state fails to correct these planning deficiencies within two years of federal notification, the USEPA is required to develop a federal implementation plan for the identified non-attainment area or areas.

State

California Clean Air Act

The California CAA of 1988 requires all air-pollution control districts in the State to work to achieve and maintain State ambient air quality standards by the earliest practicable date and to develop plans and regulations specifying how they will meet this goal. On April 2, 2007, the Supreme Court ruled in *Massachusetts, et al. v. Environmental Protection Agency, et al.* (549 U.S. 1438; 127 S. Ct. 1438) that the CAA gives the USEPA the authority to regulate emissions of GHGs, including CO_2, CH_4, N_2O, and fluorinated gases, such as HFCs, PFCs, and SF_6,[19] thereby legitimizing GHGs as air pollutants under the CAA.

Executive Order S-3-05

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. Recognizing that California is particularly vulnerable to the impacts of climate change, Executive Order S-3-05 establishes statewide climate change emission reduction targets to reduce $CO_{2equivalent}$ (CO_{2e}) to the 2000 level (473 million metric tons) by 2010, to the 1990 level (427 million metric tons of CO_{2e}) by 2020, and to 80 percent below the 1990 level (85 million metric tons of CO_{2e}) by 2050 (Table 3.5.1-1, *California Greenhouse Gas Business-as-Usual Emissions and Targets*).[20,21] The executive

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[18] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

[19] U.S. Supreme Court. 2 April 2007. *Massachusetts, et al., v. Environmental Protection Agency, et al.* 549 U.S. 1438; 127 S. Ct. 1438. Washington, DC.

[20] California Governor. 2005. Executive Order S-3-05. Sacramento, CA.

[21] California Climate Action Team. 3 April 2006. *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. Sacramento, CA.

order directs the CAl/EPA Secretary to coordinate and oversee efforts from multiple agencies (i.e., Secretary of the Business, Transportation and Housing Agency; Secretary of the Department of Food and Agriculture; Secretary of the Resources Agency; Chairperson of the Air Resources Board; Chairperson of the Energy Commission; and President of the Public Utilities Commission), to reduce GHG emissions to achieve the target levels. In addition, the CAl/EPA Secretary is responsible for submitting biannual reports to the governor and state legislature that outline: (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) measures and adaptation plans to mitigate these impacts. To further ensure the accomplishment of the targets, the Secretary of CAl/EPA created a Climate Action Team made up of representatives from the agencies listed above to implement GHG emission reduction programs and report on the progress made toward meeting the statewide GHG targets established in this executive order. In 2006, the first report was released and identified that "the climate change emission reduction targets [could] be met without adversely affecting the California economy," and "when all [the] strategies are implemented, those underway and those needed to meet the Governor's targets, the economy will benefit."[22]

TABLE 3.5.1-1
CALIFORNIA GREENHOUSE GAS BUSINESS-AS-USUAL EMISSIONS AND TARGETS

California Greenhouse Gas Business-as-Usual Emissions and Targets (Million Metric Tons of $CO_{2Equivalent}$)					
Year	**1990**	**2000**	**2010**	**2020**	**2050**
Business-as-Usual Emissions[1]	427	473	532	596	762[2]
Target Emissions	—	—	473	427	85

NOTE:

1. The CARB has not yet projected 2050 emissions under a business-as-usual scenario; therefore, 2050 business-us-usual emissions were calculated assuming a linear increase of emissions from 1990 to 2050.

Assembly Bill 32: Global Warming Solutions Act of 2006

Signed by Governor Arnold Schwarzenegger in September 2006, Assembly Bill (AB) 32, Global Warming Solutions Act, requires a statewide commitment and effort to reduce GHG emissions to 1990 levels by 2020 (25 percent below business as usual).[23] This intended reduction in GHG emissions will be accomplished with an enforceable statewide cap on GHG emissions, which will be phased in 2012. To effectively implement the cap, AB 32 requires CARB to develop appropriate regulations and establish a mandatory reporting system to track and monitor GHG emissions levels from stationary sources.

This bill is the first statewide policy in the United States to mitigate GHG emissions and include penalties for non-compliance. Consistent with goals and targets set by other actions taking place at the regional and international levels, AB 32 sets precedence in inventorying and reducing GHG emissions. In passing AB 32, the State legislature has acknowledged that global warming and related effects of climate change are a significant environmental issue.

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[22] California Climate Action Team. 12 January 2006. *Final Draft of Chapter 8 on Economic Assessment of the Draft Climate Action Team Report to the Governor and Legislature*. Sacramento, CA.

[23] California Air Resources Board. Assembly Bill 32 California Climate Solutions Act of 2006. Sacramento, CA. Available at: http://www.arb.ca.gov/cc/docs/ab32text.pdf

Executive Order S-20-06

On October 17, 2006, Governor Arnold Schwarzenegger signed Executive Order S-20-06, which calls for continued efforts and coordination among state agencies on the implementation of GHG emission reduction policies, AB 32, and Health and Safety Code (Division 25.5) through the design and development of a market-based compliance program.[24] In addition, Executive Order S-20-06 requires the development of GHG reporting and reduction protocols and a multi-state registry through joint efforts among CARB, CAl/EPA, and the California Climate Action Registry (CCAR). Executive Order S-20-06 directs the Secretary for Environmental Protection to coordinate with the Climate Action Team to develop a plan to create incentives for market-based mechanisms that have the potential of reducing GHG emissions.[25]

California Senate Bill 97

Approved by Governor Arnold Schwarzenegger on August 24, 2007, Senate Bill (SB) 97 is designed to work in conjunction with the State CEQA Guidelines and AB 32. Pursuant to the State CEQA Guidelines, the OPR is required to prepare for and develop proposed guidelines for implementation of CEQA by public agencies. Pursuant to AB 32, the CARB is required to monitor and regulate emission sources of GHGs that cause global warming in order to reduce GHG emissions. "SB 97 requires OPR, by July 1, 2009, to prepare, develop, and transmit to the [CARB] guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption."[26] On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the State CEQA Guidelines.[27] The amendments became effective on March 18, 2010. OPR and CARB are required to periodically update the guidelines to incorporate new information or criteria established by CARB pursuant to AB 32. Although SB 97 exempts transportation projects funded under the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, and projects funded under the Disaster Preparedness and Flood Prevention Bond Act of 2006, it would apply to any environmental documents, including an environmental impact report, a negative declaration, a mitigated negative declaration, or other documents required by CEQA that have not been certified or adopted by the CEQA lead agency by the date of the adoption of the regulations.

California Senate Bill 375

Approved by Governor Arnold Schwarzenegger in 2008, SB 375 directs CARB to set regional targets for reducing GHG emissions. SB 375 came about out of the recognition that the single largest source of GHGs in California is passenger vehicles emissions, and that in order to reduce those emissions, vehicle-miles traveled (VMTs) must be reduced. SB 375 requires metropolitan planning organizations (MPOs) to include "sustainable communities strategies" in their regional transportation plans (RTPs) for the purpose of complying with the goal of AB 32 to reduce GHG emissions down to 1990 levels by 2020.[28] SB 375 offers CEQA streamlining incentives to

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[24] California Governor. 2006. Executive Order S-20-06. Sacramento, CA.

[25] California Governor. 2006. Executive Order S-20-06. Sacramento, CA.

[26] California Governor's Office of Planning and Research. 24 August 2007. Senate Bill No. 97, Chapter 185. Available at: http://www.opr.ca.gov/ceqa/pdfs/SB_97_bill_20070824_chaptered.pdf

[27] The Governor's Office of Planning and Research. April, 2009. *CEQA Guidelines Sections Proposed to be Added or Amended*. Available at: http://www.opr.ca.gov/ceqa/pdfs/PA_CEQA_Guidelines.pdf

[28] California Government Web site: http://gov.ca.gov/fact-sheet/10707/. October 1 2008. Viewed on August 19, 2010.

encourage projects that are consistent with a regional plan that achieves GHG emission reductions; and coordinates the regional housing needs allocation process with the regional transportation process while maintaining local authority over land use decisions.

State of California Office of the Attorney General Guidance Letter on California Environmental Quality Act, Addressing Global Warming Impacts at the Local Agency Level

In 2008, the California Office of the Attorney General provided guidance to public agencies on how to address global warming impacts in CEQA documents. In the publication entitled *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*, the Office of Attorney General directs public agencies to take a leadership role in integrating sustainability into public projects by providing 52 project-level mitigation measures for consideration in the development of projects.[29] In addition, the Office of Attorney General has negotiated four (4) settlement agreements under CEQA, all of which require the project proponents to consider sustainable design for projects and feasible mitigation measures and alternatives to substantially lessen global warming related effects.

State of California Office of Planning and Research Technical Advisory

On June 19, 2008, OPR provided guidance on how to address climate change in CEQA documents. In the technical advisory, *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*, OPR issues technical guidance on how to perform GHG analyses in the interim before further state guidelines become available.[30]

California Climate Action Registry

Established in 2001, the CCAR is a private nonprofit organization originally formed by the State of California. The CCAR serves as a voluntary GHG registry and has taken a leadership role on climate change by developing credible, accurate, and consistent GHG reporting standards and tools for businesses, government agencies, and nonprofit organizations to measure, monitor, and reduce GHG emissions. For instance, the CCAR General Reporting Protocol, version 3.1, dated January 2009, provides the principles, approach, methodology, and procedures required for voluntary GHG emissions reporting by businesses, government agencies, and nonprofit organizations. In 2007, the County became a member of the CCAR and has committed its efforts to monitor, report, and reduce GHG emissions pursuant to its participation in the CCAR.

Regional

South Coast Air Quality Management District

On September 5, 2008, the SCAQMD Governing Board approved the SCAQMD Climate Change Policy, which directs SCAQMD to assist the state, cities, local governments, businesses, and residents in areas related to reducing emissions that contribute to global warming.[31]

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[29] California Department of Justice Office of the Attorney General. Updated 9 December 2008. *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

[30] California Governor's Office of Planning and Research. 19 June 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Technical Advisory. Sacramento, CA.

[31] South Coast Air Quality Management District. 5 September 2008. *SCAQMD Climate Change Policy*. Available at: http://www.aqmd.gov/hb/2008/September/080940a.htm

Pursuant to the policy, the SCAQMD will:

a. Establish Climate Change Programs

b. Implement SCAQMD Command-and-Control and Market-Based Rules

c. Review and comment on future legislation related to climate change and GHGs

d. Prioritize projects that reduce both criteria and toxic pollutants and GHG emissions

e. Provide guidance on analyzing GHG emissions and identify mitigation measures to CEQA projects

f. Provide revisions to *SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*[32] that is consistent with the state guidance, to include information on GHG strategies as a resource for local governments

g. Update the SCAQMD's GHG inventory in conjunction with each Air Quality Management Plan and assist local governments in developing GHG inventories

h. Reduce SCAQMD climate change impacts

i. Inform the public on various aspects of climate change, including understanding impacts, technology advancement, public education, and other emerging aspects of climate change science. Therefore, the goals of the SCAQMD Climate Change Policy are to decrease SCAQMD's carbon footprint, assist businesses and local governments with implementation of climate change measures, and provide information regarding climate change to the public

Southern California Association of Governments

The proposed project site is located within the Southern California Association of Governments (SCAG) area, a six-County MPO including Los Angeles and surrounding Counties. Several planning-related efforts and responsibilities at the MPO level, while established for various purposes, work toward achieving the goals of state GHG legislation (AB 32 and SB 375). Under SB 375, the 18 MPOs in California must prepare a "sustainable communities strategy" to reduce the amount of VMT in their respective regions and demonstrate the ability for the region to attain ARB's targets.[33] In addition to SCAG's RHNA, RTP, and RCP, the Compass Growth Vision Report[34] (Compass Growth Vision), published in June 2004, presents a comprehensive growth vision for the SCAG region, which establishes the Compass Blueprint 2% Strategy. The 2% Strategy calls for modest changes to current land use and transportation trends on only two percent of the land area

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[32] South Coast Air Quality Management District. 6 May 2005. *Guidance Document for Addressing Air QualityIssues in General Plans and Local Planning.* Diamond Bar, CA.

[33] California Government. Web site. Available at: http://gov.ca.gov/fact-sheet/10707/. October 1 2010. Accessed August 19, 2010.

[34] Southern California Association of Governments. Accessed 29 June 2010. *Compass Growth Vision Report*. Available at: http://www.compassblueprint.org/files/scag-growthvision2004.pdf

of the region, known as the 2% Strategy Opportunity Areas,[35] focusing future growth in urban centers and existing cities to reduce vehicle miles traveled and preserve rural and other natural areas.[36] The 2% Strategy Opportunity Areas are key areas of the SCAG region for targeting growth, and are primarily comprised of metro center, city centers, rail transit stops, bus rapid transit corridors, airports, ports and industrial center, priority residential in-fill area and Compass Blueprint priority communities.[37] The Martin Luther King Jr. Medical Center, including the proposed project's Tier I and Tier II components, is within the 2% Strategy Opportunities Area (City of Los Angeles South Map).

County of Los Angeles General Plan

The proposed project site is located within and owned by the County; therefore, development in the area is governed by the policies, procedures, and standards set forth in the County General Plan. The proposed project is considered as a capital facility for the County; therefore, pursuant to the OPR's guidelines for a general plan related to capital facilities, the proposed project must be consistent with the County General Plan.[38] In addition, the County is required to review the capital improvement programs to ensure their consistency with the General Plan.[39] The proposed project would be expected to be consistent with the objectives of the Air Quality element of the County General Plan, which includes objectives related to GHG emissions, and would not be expected to result in a change to the population growth assumption used by the SCAG for attainment planning. The County General Plan has developed goals and policies for improving air quality in the County. Many policies are transportation-based because of the direct link between air quality and the Circulation element. The objectives and policies relevant to the proposed project and capable of contributing toward avoiding and reducing the generation of air quality emissions, which also would have the potential to avoid and reduce the generation of GHG emissions, include the following:[40]

- **Objective:** To support local efforts to improve air quality.
- **Policy:** Actively support strict air quality regulations for mobile and stationary sources, and continued research to improve air quality. Promote vanpooling, carpooling, and improved public transportation.

- **Objective:** To conserve energy resources and develop alternative energy sources.
- **Policy:** Support the conservation of energy and encourage the development and utilization of new energy sources including geothermal, thermal waste, solar, wind, and ocean-related sources.

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[35] Southern California Association of Governments. Accessed 18 June 2010. "Compass Blueprint, 2% Strategy." Available at: http://www.compassblueprint.org/about/strategy

[36] Southern California Association of Governments. Accessed 19 August 2010. "Compass Growth Vision." Web site. Available at: http://www.compassblueprint.org/about/principles

[37] Southern California Association of Governments. Accessed 18 June 2010. "Compass Blueprint, Opportunities Areas Maps." Available at: http://www.compassblueprint.org/opportunityareas

[38] California Governor's Office of Planning and Research. October 2003. *General Plan Guidelines*. Available at: http://www.opr.ca.gov/planning/publications/General_Plan_Guidelines_2003.pdf

[39] California Governor's Office of Planning and Research. October 2003. *General Plan Guidelines*. Available at: http://www.opr.ca.gov/planning/publications/General_Plan_Guidelines_2003.pdf

[40] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

The proposed project would be consistent with the above policies and objectives.

County of Los Angeles Energy and Environmental Policy

The County Board of Supervisors adopted a Countywide energy and environmental policy (Policy No. 3.045), which became effective on December 19, 2006.[41] The goal of this policy is to provide guidelines for development, implementation, and enhancement of energy conservation and environmental programs within the County. The policy established an Energy and Environmental Team to coordinate the efforts of various County departments, established a program to integrate sustainable technologies into its Capital Project Program, established an energy consumption reduction goal of 20 percent by the year 2015 in County facilities, and became a member of the California Climate Action Registry (CCAR) to assist the County in establishing goals for reducing GHG emissions. In addition, the policy included four program areas to promote green design and operation of County facilities and reduce the County's environmental footprint. Goals and initiatives for each program area are included as follows:

Energy and Water Efficiency

- Implementing and monitoring energy and water conservation practices
- Implementing energy and water efficiency projects
- Enhancing employee energy and water conservation awareness through education and promotions

Environmental Stewardship

- Investigating requirements and preferences for environmentally friendly packaging, greater emphasis on recycled products, and minimum energy efficiency standards for appliances
- Placing an emphasis on recycling and landfill volume reduction within County buildings
- Investigating the use of environmentally friendly products
- Supporting environmental initiatives through the investigation of existing resource utilization

Public Outreach and Education

- Implementing a program that provides County residents with energy-related information, including energy and water conservation practices, utility rates and rate changes, rotating power outage information, emergency power outage information, and energy efficiency incentives

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[41] County of Los Angeles Board of Supervisors Policy Manual. 19 December 2006. *Policy No. 3.045, Energy and Environmental Policy*. Available at: http://countypolicy.co.la.ca.us/

- Seeking collaboration with local governments, public agencies, and County affiliates to strengthen regional, centralized energy and environmental management resources and identify and develop opportunities for information and cost sharing in energy management and environmental activities

Sustainable Design

- Enhancing building sustainability through the integration of green, sustainable principles into the planning, design, and construction of County capital projects, which complement the functional objectives of the project, extend the life cycle / useful life of buildings and sites, optimize energy and water use efficiency, improve indoor environmental quality and provide healthy work environments, reduce ongoing building maintenance requirements, and encourage use and reuse of environmentally friendly materials and resources

- Establishing a management approach that instills and reinforces the integration of sustainable design principles into the core competency skill set of the County's planner, architects, engineers, and project managers

- Establishing practical performance measures to determine the level of sustainability achieved relative to the objectives targeted for the individual project and overall capital program

Business-as-usual Emissions and Targets

In order to establish a reference point for future GHG emissions, CO_{2e} emissions have been projected based on an unregulated, business-as-usual, GHG emissions scenario that does not take into account the reductions in GHG emissions required by Executive Order S-3-05 or AB 32. CARB has stated that California contributed 427 million metric tons of GHG emission in CO_{2e} in 1990, and under a business-as-usual development scenario, will contribute approximately 596 million metric tons of CO_{2e} emissions in 2020, presenting a linear upward trend in California's total GHG emissions levels. To characterize the GHG emissions business-as-usual conditions for the County, information on County population has been collected from SCAG. It has been projected that the County would increase its population from approximately 10.6 million in 2010 to approximately 12.0 million in 2030.[42] Using the current CO_{2e} emissions factor of 14 metric tons per capita,[43] the County would be expected to be responsible for approximately 149 million metric tons of CO_{2e} emissions in 2010 under a business-as-usual emissions scenario and 168 million metric tons of CO_{2e} emissions in 2030. Each year, more GHGs would be expected to be emitted by the County than the previous year due to the increase in population (Table 3.5.1-2, *Characterization of Business-as-Usual and Target GHG Emissions for the County*). Using the target emissions necessary for compliance with AB 32 reduction goals,[44] the County would be responsible for approximately 141 million metric tons of CO_{2e} emissions in 2010 and 70 million metric tons of CO_{2e} emissions in 2030 (Table 3.5.1-2). Therefore, the County is responsible for reducing GHG emissions from

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[42] Southern California Association of Governments. 2 June 2008. E-mail to William Meade, Sapphos Environmental, Inc. Pasadena, CA.

[43] California Air Resources Board. December 2008. *Climate Change Scoping Plan: A Framework for Change*. Available at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

[44] California Air Resources Board. December 2008. *Climate Change Scoping Plan: A Framework for Change*, p. 118 Available at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

business-as-usual by 8 million metric tons per year in 2010 and 98 million metric tons per year in 2030. The 2014 and 2020 data from Table 3.5.1-2 was used for the GHG analysis for the proposed project, because construction of Tier I is anticipated to be completed by 2014 and construction of Tier II is anticipated to be completed by 2020.

TABLE 3.5.1-2
CHARACTERIZATION OF BUSINESS-AS-USUAL AND TARGET GHG EMISSIONS FOR THE COUNTY

	Year					
	2010	**2014**	**2015**	**2020**	**2025**	**2030**
Population	10,615,700	10,900,885	10,971,589	11,329,802	11,678,528	12,015,892
CARB business-as-usual emission factor (metric tons of CO_{2e}/SP)	14	14	14	14	14	14
Total business-as-usual County GHG emissions (million metric tons of CO_{2e})	**149**	**153**	**154**	**159**	**163**	**168**
CARB target emission factors (metric tons of CO_{2e}/SP)	13.3	11.8	11.4	9.6	7.7	5.8
Total target County GHG emissions (million metric tons of CO_{2e})	**141**	**129**	**126**	**108**	**90**	**70**

SOURCES:

1. Southern California Association of Governments. 2 June 2008. E-mail to William Meade, Sapphos Environmental, Inc. Pasadena, CA.
2. California Air Resources Board. 2008. *Summary of Population, Employment, and GHG Emissions Projections Data*. Sacramento, CA.

The proposed project is not an industrial project and would not include major increases in stationary sources or significant refrigeration. Therefore, VMT and electricity consumption are the two major sources of GHG emissions for the proposed project. The other source of GHG emissions for the proposed project is area sources, such as gas appliances, wood stoves, fireplaces, and landscape maintenance equipment. In the absence of established guidelines for evaluating GHGs under CEQA, the County has decided to evaluate the efficacy of the proposed project to meet standards for CO_{2e} reduction by evaluating the forecasted electricity use of the proposed project and the number of anticipated vehicle miles travelled in both a qualitative and quantitative manner, as well as quantifying area sources.

3.5.2 Existing Conditions

The approximately 38-acre proposed project area currently contains buildings, structures, and other built features. GHG emissions are generated daily from the hospital facilities by landscape maintenance equipment, campus operations including but not limited to space and water heating, and vehicle trips to and from the proposed project site. The average daily emissions generated by the existing uses at the proposed project sight were estimated using URBEMIS 2007 and the CCAR General Reporting Protocol (Table 3.5.2-1, *Estimated Existing Daily Operational Emissions*),[45] assuming that there is currently 1.2 million square feet of potentially operational hospital space at the proposed project site. The current operational emissions of GHGs are estimated to be a maximum of over 180,000 pounds per day of CO_{2e}, which is equivalent to approximately 25,000 metric tons per year, which is mainly a result of the large number of vehicle trips (17,443 in total) generated by the hospital campus. These emission estimates are an overestimate due to the fact that the current campus is not fully utilized. For example, the Multi-service Ambulatory Care Center (MACC) and the Interns and Physicians Building are not fully operational. However, the calculated emissions provide an estimate of the worst-case scenario, should the current buildings become fully operational prior to completion of the proposed project.

TABLE 3.5.2-1
ESTIMATED EXISTING DAILY OPERATIONAL EMISSIONS

	CO_2 Emissions		
Emission Sources	**Pounds/ Per Day**	**Metric Tons/ Per Year**	**Metric Tons/ Per Capita/ Per Year**
Mobile Sources	143,940	23,831	0.0022
Area Sources	9,949	1,647	0.0002
Electricity Consumption	30,964	5,126	0.0005
Total Emissions	**184,853**	**25,478**	**0.0029**

NOTE:
1. Metric tons per capita were calculated using the 2010 population projection for the County.
2. Assuming full operational capacity.

3.5.3 Significance Thresholds

There are currently no established thresholds of significance for evaluating GHG emissions under CEQA in the County or the SCAQMD. As previously mentioned, no federal or State agency (e.g. USEPA, CARB, or SCAQMD) responsible for managing air quality emissions in the County has adopted a GHG emission significance threshold that may be used in reviewing newly proposed projects.

Although not mandatory for the proposed project, the Bay Area Air Quality Management District (BAAQMD) is the only regional agency to have adopted operational GHG emission thresholds. On June 2, 2010, CEQA projects within the BAAQMD area must take the following significance thresholds into consideration:

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[45] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

Stationary sources:

- 10,000 metric tons CO_{2e}/year

Projects other than stationary sources:

- Compliance with Qualified Greenhouse Gas Reduction Strategy; or
- 1,100 metric tons of CO_{2e}/year; or
- 4.6 metric tons CO_{2e} per year per capita service population (residents plus employees).

Plan-level emissions:

- Compliance with Qualified Greenhouse Gas Reduction Strategy; or
- 6.6 metric tons CO_{2e} per year per capita service population (residents plus employees).

CAPCOA has provided several approaches to consider potential cumulative significance of projects with respect to GHGs.[46] GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. A zero threshold approach can be considered based on the concept that climate change is a global phenomenon and all GHG emissions generated throughout the earth contribute to climate change. However, State CEQA Guidelines also recognizes that there may be a point where a project's contribution, although above zero, would not be a considerable contribution to the cumulative impact (CEQA Guidelines, Section 15130 (a)). Therefore, a threshold of greater than zero is considered more appropriate for the analysis of GHG emissions under CEQA. CAPCOA's summary of suggested thresholds for GHG emissions includes efficiency-based thresholds, quantitative emission limits, and limits on the size of projects (Table 3.5.3-1, *CAPCOA-Suggested Thresholds for Greenhouse Gases*).

TABLE 3.5.3-1
CAPCOA-SUGGESTED THRESHOLDS FOR GREENHOUSE GASES

	CAPCOA Suggested Threshold
Quantitative (900 metric tons)	~900 metric tons CO_{2e}/year for residential, office, and non-office commercial projects
Quantitative CARB Reporting Threshold/Cap and Trade	Report: 25,000 metric tons CO_{2e}/year Cap and Trade: 10,000 metric tons CO_{2e}/year
Quantitative Regulated Inventory Capture	~40,000 - 50,000 metric tons CO_{2e}/year
Unit-Based Threshold Based on Market Capture	Commercial space > 50,000 square feet
Projects of Statewide, Regional or Areawide Significance	Residential development > 500 units Shopping center/business establishment > 500,000 square feet Commercial office space > 250,000 square feet Industrial park > 600,000 square feet

SOURCE: California Air Pollution Control Office Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. Sacramento, CA.

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[46] California Air Pollution Control Office Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. Sacramento, CA.

The proposed project was considered in relation to the CAPCOA's recommended quantitative threshold of ~900 metric tons per year, as that is the most conservative non-zero threshold suggested. Also, the CAPCOA threshold of ~900 metric tons per year can apply to non-office commercial projects, which is a category that is applicable to the proposed project. In addition, the County considered the significance of the proposed project in relation to the adopted BAAQMD threshold of 1,100 metric tons per year, which applies to projects other than stationary sources.

Based on Appendix G of the State CEQA Guidelines, the project would be expected to have the potential to result in significant impacts related to global climate change if the project does one of the following:

- Generates greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

3.5.4 Impact Analysis

This section analyzes the potential for significant impacts due to GHG emissions that would occur from implementation of the proposed project. GHG emission impacts of a project generally fall into three major categories:

1. *Construction Impacts*: temporary impacts, including emissions from heavy equipment, delivery and dirt hauling trucks, and employee vehicles.

   Construction emissions vary substantially from day to day, depending on the level of construction phase and weather conditions.

2. *Operational Regional Impacts*: primarily emissions from natural gas and electricity usage and vehicles traveling to and from a project site.

3. *Cumulative Impacts*: GHG emission impacts resulting from the incremental impact of the project when added to other projects in the vicinity

Assessment Methods and Models

Methodology to assess the proposed project's impacts on global climate change has not been developed by SCAQMD, state, or federal agencies. No significance thresholds have been established to determine the project's construction and operational impacts on global climate change. Given the absence of methodology and thresholds to evaluate global climate change impacts of the proposed project and the challenges associated with determining criteria for the proposed project-specific significance in regards to GHG emissions, the proposed project's global climate change impacts were analyzed qualitatively according to its operational scenario, size, and location. In order to quantify the amount of GHG emissions contributed by construction and operation of the proposed project, the URBEMIS 2007 emissions model, the EMFAC 2007 model, and the CCAR General Reporting Protocol were used. Typically, the more energy used during operation of the proposed project, the more GHG emissions would be contributed by the proposed project. Therefore, the quantitative analysis on the proposed project's potential impacts to global climate change also includes the analysis on energy consumption that would be required during its operational phase. Due to the absence of adopted significance criteria and thresholds for GHG emissions by SCAQMD or a state or federal agency with jurisdiction over the County, the level of significance of the proposed project's potential impacts to global climate change would be determined by comparing the GHG emissions per capita to the GHG emissions per capita required to reduce California's GHG emissions to 1990 levels (10 metric tons per capita) by 2020 as required by AB 32, as well as the suggested thresholds by CAPCOA and the adopted thresholds by the BAAQMD.

URBEMIS Model

The methodology used to analyze construction and operational GHG emission impacts is consistent with the methods described in the 1993 *CEQA Air Quality Handbook*.[47] The CARB URBEMIS 2007, version 9.2.4, was used to estimate construction emissions from the demolition of 506,485 square feet of buildings, the construction of 156,700 square feet of new buildings in Tier I, and the construction of up to approximately 1,814,696 square feet of new buildings in Tier II. The analysis of construction impacts to GHG emissions is based on the construction scenario described as an element of Section 2.0, *Project Description*, of this EIR and includes demolition and building construction impacts.

URBEMIS is a computer program that can be used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, and office buildings; area sources such as gas appliances, wood stoves, fireplaces, and landscape maintenance equipment; and construction projects. The URBEMIS 2007 model directly calculates CO_2 emissions. However, the URBEMIS 2007 model does not calculate CH_4 and N_2O emissions; therefore, the GHG emissions calculated by URBEMIS are reported as CO_2 emissions, not CO_{2e} emissions. CO_2 emissions reported from URBEMIS in this EIR are essentially the same as CO_{2e} emissions because CH_4 and N_2O emissions from mobile sources are negligible in comparison to CO_2 emissions. URBEMIS 2007, version 9.2.4, was also used to analyze the proposed project's operational emissions, which would likely result from the vehicle trips to and from the proposed project site, and area source emissions, which would likely result from natural gas combustion and landscaping activities within the vicinity of the proposed project site.

EMFAC 2007 Model

The CARB Emissions Factors (EMFAC) 2007 model, version 2.3, was used to evaluate the proposed project's GHG emission level contributed by mobile sources, such passenger cars, based on the expected vehicle fleet mix, vehicle speeds, commute distances, and temperature conditions for the estimated start date of the proposed project. The EMFAC 2007, version 2.3, which is embedded within the URBEMIS 2007 model, includes emission factors for CO_2. The transportation-related GHG emissions impacts generated by implementation of the proposed project were analyzed using the EMFAC 2007 model. The EMFAC 2007 model within URBEMIS 2007 does not calculate CH_4 and N_2O emissions for mobile sources, and therefore the GHG emissions of mobile sources calculated by EMFAC are reported as CO_2 emissions, not CO_{2e} emissions. In this analysis, fleet mix, vehicle speeds, commute distances, and temperature conditions were based on the default values in the URBEMIS 2007 and EMFAC 2007 models.[48]

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[47] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[48] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

CCAR General Reporting Protocol

Another method used to estimate the GHG emissions of the proposed project was CCAR's General Reporting Protocol, Version 3.1. The CCAR General Reporting Protocol outlines the GHG emissions reporting rules, emission calculation methodologies, and standardized recommended reporting mechanism. The CCAR General Reporting Protocol provides information on emission factors for CO_2, CH_4, N_2O, and CFCs and methodologies on how to calculate GHG emissions from annual electricity and natural gas consumption.

The methodology to quantify electricity consumption at the proposed project using the CCAR General Reporting Protocol consists of quantification of the annual electricity use required by the proposed project facilities.

Qualitative Analysis on Proposed Project's Impacts on Global Climate Change

Construction Activities

The proposed project's incremental impact on GHG emission would be significant if the size, the nature, or the duration of the construction phase would generate a substantial amount of GHG emissions.

Tier I. Tier I project construction is anticipated to take up to 37 months with build-out anticipated in 2014. During construction, standard heavy-duty construction equipment would be operated. The relatively small size of the area under construction (approximately 5 acres) and the relatively short duration of construction activities (up to 37 months) would not be expected to result in substantial emissions of GHGs. Therefore, GHG emission impacts due to Tier I of the proposed project's construction phase would be expected to be below the level of significance. In addition, it is anticipated that mitigation measures recommended in the Air Quality Subsection 3.2.5, Mitigation Measures, of this EIR for reducing PM_{10} emissions and NO_x emissions and compliance with Leadership in Energy and Environmental Design (LEED) criteria would reduce the proposed project's GHG emission impacts during construction.

Tier II. Tier II is anticipated to be completed within a 10-year period from 2010 to 2020. The construction phase of Tier II of the proposed project would cover an area of approximately 38 acres in size. During construction, standard heavy-duty construction equipment would be operated. The relatively large area under construction and long duration of construction activities would be expected to result in substantial GHG emissions. Therefore, GHG emissions due to Tier II of the proposed project's construction phase would result in significant impacts.

Operation and Maintenance

Tier I. Tier I of the proposed project's operational phase would not be expected to result in substantial increases in GHG emissions. Due to the fact that Tier I would incorporate green building design principles and would result in a decrease in square footage compared to existing conditions, the electricity consumption and mobile source emissions during operation of Tier I would be expected to be below the level of significance. Energy efficiency, reduction in materials and resources, and attainment of the indoor environmental quality would be integrated into the design features of Tier I to reduce or prevent GHG emissions associated with the proposed project's operation. Attainment of LEED credits and the utilization of energy-efficient equipment would be expected to be consistent with the County Energy and Environmental Policy, particularly with the Energy and Water Efficiency Program, the Environmental Stewardship Program, and the Sustainable Design Program set forth in the policy. Therefore, there would be no anticipated significant GHG emission impacts due to operation of Tier I of the proposed project.

Tier II. Incorporation of green building design principles, attainment of LEED credits and the utilization of energy-efficient equipment would be expected to reduce the operational GHG impacts of Tier II to the maximum extent feasible. In addition, the chosen location for the proposed project in a SCAG 2% Strategy Opportunity Area, supports attainment of regional sustainable development patterns that are designed to reduce GHG emissions over business as usual. However, due to the large extent of the Tier II development of the proposed project, and the large number of daily vehicle trips (19,549) expected to occur during operation of the proposed project upon full build-out, the proposed project's operational phase would be expected to result in significant and unavoidable impacts related to GHG emissions.

Quantitative Analysis on Proposed Project's Impacts on Global Climate Change

<u>Construction Activities</u>

The analysis of construction-related GHG emissions was based on the construction scenario described in Section 2.0, *Project Description*, of this EIR. GHG emissions during the construction phase can be attributed to emissions from demolition, excavation and construction equipment and mobile emissions from worker and vendor trips.

Tier I. Based on the methods and modeling tools previously described, Tier I construction activities would result in up to a maximum of 12,740 pounds per day of CO_2 emissions, or approximately 3,840 metric tons for the total 37-month duration of the Tier I construction phase, which is equivalent to approximately 0.0004 metric tons per capita (Table 3.5.4.1-1, *Tier I: Unmitigated Estimated Daily Regional Construction Emissions*).[49] The annual emissions due to construction of Tier I of the proposed project, which would be approximately 1,408 metric tons per year during the highest emitting year, would be expected to be below the level of significance when compared to California's GHG emissions target for 2020, 427 million metric tons per year, and the County's GHG emissions target for 2020, 108 million metric tons per year (approximately 9.6 metric tons per capita). In addition, when compared with the suggested thresholds for GHG emissions provided by CAPCOA (Table 3.5.3-1), construction of Tier I of the proposed project would not exceed the suggested cap and trade threshold of 10,000 metric tons CO_{2e} per year. However, construction of Tier I may be considered to be above the level of significance upon application of CAPCOA's suggested quantitative threshold of 900 metric tons of CO_{2e} per year or the BAAQMD's adopted quantitative threshold of 1,100 metric tons per year. On this basis, specific to this proposed project only, and because the County is attempting to evaluate the impacts of the proposed project from a conservative worst-case scenario, it can be conservatively determined that the GHG emission impacts due to construction of Tier I of the proposed project may be above the level of significance.

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[49] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

TABLE 3.5.4.1-1
TIER I: UNMITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

Construction Phase	CO_2 Emissions (Pounds/ Day)	Duration of Construction Phase (days)	CO_2 Emissions (Metric tons)	CO_2 Emissions (Metric tons per capita)
Demolition	1,915	22	19	0.0000
Mass Site Grading	9,743	23	25	0.0000
Trenching	3,150	64	91	0.0000
Building Construction[1]	11,890	609	3,284	0.0003
Paving	1,565	43	31	0.0000
Architectural Coating	107	44	2	0.0000
90 worker trips	850	805	310	0.0000
Maximum Total	**12,740**	**805**	**3,840**	**0.0004**

NOTE: Metric tons per capita were calculated using the 2014 population projection for the County.

Tier II. Tier II construction activities would result in up to a maximum of 37,088 pounds per day of CO_2 emissions, or approximately 37,804 metric tons for the total 10-year duration of the Tier II construction phase, which is equivalent to approximately 0.0033 metric tons per capita (Table 3.5.4.1-2, *Tier II: Unmitigated Estimated Daily Regional Construction Emissions*).[50] The annual emissions during construction of Tier II would be a maximum of 4,206 metric tons per year, or 0.0004 metric tons per capita per year. The annual emissions due to construction of Tier II of the proposed project would be expected to be below the level of significance when compared to California's GHG emissions target for 2020, 427 million metric tons per year, and the County's GHG emissions target for 2020, 108 million metric tons per year (approximately 9.6 metric tons per capita). In addition, when compared with the suggested thresholds for GHG emissions provided by CAPCOA (Table 3.5.4-1), construction of Tier II of the proposed project would not exceed the suggested cap and trade threshold of 10,000 metric tons CO_{2e} per year. However, construction of the Tier II may be considered to be above the level of significance upon application of CAPCOA's suggested quantitative threshold of 900 metric tons of CO_{2e} per year or the BAAQMD's adopted quantitative threshold of 1,100 metric tons per year. On this basis, specific to this proposed project only, and because the County is attempting to evaluate the impacts of the proposed project from a conservative worst-case scenario, it can be conservatively determined that the GHG emission impacts due to construction of Tier II of the proposed project may be above the level of significance.

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[50] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

TABLE 3.5.4.1-2
TIER II: UNMITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

Year	CO_2 Emissions (Pounds/Day)	Duration of Construction Phase (days)	CO_2 Emissions (Metric tons)[3]	CO_2 Emissions (Metric tons per capita)[1]
2010	9,743	45	199	0.0000
2011	21,968	260	2,591	0.0002
2012	33,857	260	3,993	0.0004
2013	35,668	260	4,206	0.0004
2014	35,668	260	4,206	0.0004
2015	35,668	260	4,206	0.0004
2016	35,667	260	4,206	0.0004
2017	35,667	260	4,206	0.0004
2018	35,667	260	4,206	0.0004
2019	23,778	260	2,804	0.0002
2020	11,889	239	1,289	0.0001
150 worker trips	1,420	2,624	1,690	0.0001
Maximum Total	**37,088**[2]	**2,624**	**37,804**[4]	**0.0033**[4]

NOTES:

1. Metric tons per capita were calculated using the 2020 population projection for the County.
2. Maximum daily emissions are equal to the highest daily construction emissions plus emissions due to 150 worker trips (35,668 + 1,420)
3. Metric tons per year, apart from worker trips, which are reported as total emissions for the entire 10 year construction duration.
4. Total emissions were calculated by summing the total annual emissions for each year of construction and the total emissions due to worker trips for the entire 10 year construction duration.

Operation and Maintenance

Over 50 percent of the electricity generated in California is derived from fossil fuels, such as natural gas and coal.[51] The combustion of fossil fuels for electricity production results in emissions of GHGs. Therefore, an analysis of projected electricity consumption of the proposed project is required in order to quantify the potential amount of GHGs emitted by the proposed project.

Two GHG emissions estimation tools, the URBEMIS 2007 model and the CCAR General Reporting Protocol, were used in evaluating the proposed project's potential GHG emission levels due to operation and maintenance. The URBEMIS 2007 model was used to estimate CO_2 emissions from on-road vehicle trips, and the CCAR General Reporting Protocol was used to estimate the CO_{2e} emissions from electricity use (Table 3.5.4.1-3, *Estimated Daily Increase in Operational Emissions Due to the Proposed Project)*.

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[51] U.S. Environmental Protection Agency. Accessed 21 May 2009. "How Clean is the Electricity I Use – Power Profiler." Available at: http://www.epa.gov/cleanenergy/energy-and-you/how-clean.html

TABLE 3.5.4.1-3
ESTIMATED DAILY INCREASE IN OPERATIONAL EMISSIONS DUE TO THE PROPOSED PROJECT

Emission Sources	CO_2 Emissions		
	Pounds/Day	**Metric Tons/Year**	**Metric Tons/Per Capita/Per Year**
Tier I Mobile Source Emissions	-40,594	-6,721	-0.0006
Tier II Mobile Source Emissions	204,009	33,776	0.0030
Net Mobile Source Emissions	**163,415**	**27,055**	**0.0024**
Tier I Electricity Consumption	-8,739	-1,447	-0.0001
Tier II Electricity Consumption	46,825	7,752	0.0007
Net Electricity Consumption	**38,085**	**6,305**	**0.0006**
Total Area Sources	**11,811**	**1,955**	**0.0002**
TOTAL EMISSIONS	**213,311**	**35,315**	**0.0032**

NOTE:
1. Metric tons per capita for Tier I and Tier II were calculated using the 2014 and 2020 population projections for the County, respectively.
2. Negative numbers indicate a decrease in emissions in comparison with existing conditions.

Tier I. Due to the fact that Tier I would reduce the existing square footage of available building space on site, Tier I would result in a decrease in emissions due to electricity consumption and mobile sources compared to existing conditions (Table 3.5.4.1-3). Based on a build-out year of 2014, results from the URBEMIS 2007 model suggest that CO_2 emissions associated with on-road vehicle use would be reduced by a maximum of approximately 40,594 pounds per day or 6,721 metric tons per year in comparison with existing conditions (Table 3.5.2-1).[52] Results from the CCAR General Reporting Protocol calculations suggest that CO_{2e} emissions associated with electricity consumption would be reduced by a maximum of approximately 8,739 pounds per day or 1,447 metric tons per year in comparison with existing conditions (Table 3.5.4.1-3).[53] The net CO_{2e} emissions associated with the Martin Luther King, Jr. Medical Center Campus (existing conditions minus the emission reductions caused by implementation of Tier I) would be 17,110 metric tons per year due to mobile sources and 3,679 due to electricity use, which is a reduction from the existing conditions (Table 3.5.2-1). Therefore, there would be no expected GHG emission impacts associated with operation of Tier I.

Tier II. Based on a build-out year of 2020, results from the URBEMIS 2007 model suggest that CO_2 emissions associated with on-road vehicle use would be a maximum of approximately 204,009 pounds per day or 33,776 metric tons per year upon completion of Tier II (Table 3.5.4.1-3).[54] Tier II would also result in approximately 46,825 pounds per day or 7,752 metric tons of CO_{2e} emissions per year as a result of electricity consumption (Table 3.5.4.1-3). Using the projected

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[52] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[53] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[54] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

2020 population for the County, Tier II of the proposed project would be expected to contribute up to 0.004 metric tons of CO_2 per capita per year (Table 3.5.4.1-3).[55]

The calculations presented do not account for the energy efficiency measures that would be incorporated into the proposed project design. For example, development of the new MACC and the Ancillary Building are currently registered with the U.S. Green Building Council under Leadership in Energy and Environmental Design for New Construction (LEED-NC).[56] The County will seek LEED Silver certification for the new MACC and the Ancillary Building.[57] The LEED program recognizes and promotes a project's success in five areas: (1) sustainable sites, (2) water efficiency, (3) energy and atmosphere efficiencies, (4) materials and resources, and (5) indoor environmental quality. In addition, the federal government has a program titled "Green Guide for Healthcare Construction" (GGHC), which is designed to help hospitals navigate through the LEED program. The proposed project would incorporate energy efficient and sustainable strategies throughout the construction, development, and operation of the proposed project. LEED requires that new construction or renovation projects achieve at least two Optimize Energy Performance points. The projects can achieve two points in this credit either by following a prescriptive compliance path or by demonstrating a percentage improvement in the proposed building performance rating compared to the baseline building performance rating of 14 percent or higher for new buildings or 7 percent or higher for existing building renovations;[58] therefore, the actual CO_{2e} emissions due to electricity consumption will be at least 14 percent less than that predicted for any buildings designed and constructed by the County.

When the worst-case scenario analysis of Tier II is compared with the suggested thresholds for GHG emissions provided by CAPCOA, operation of Tier II of the proposed project would exceed the suggested cap and trade threshold of 10,000 metric tons CO_{2e} per year as well as the suggested unit-based threshold of 50,000 square feet of commercial building space, CAPCOA's suggested quantitative threshold of 900 metric tons of CO_{2e} per year, and the BAAQMD's adopted quantitative threshold of 1,100 metric tons per year. On this basis, specific to this proposed project only, and because the County is attempting to evaluate the impacts of the proposed project from a conservative worst-case scenario, it can be conservatively determined that the GHG emission impacts due to operation of the proposed project may be above the level of significance.

Cumulative Impacts

Tier I

It was determined that there are forty-two (42) projects that are anticipated to be implemented within the construction period for both tiers of the proposed project occurring within an approximate 3-mile radius of the proposed project site (Section 2.0, *Project Description*, Table 2.6-1, *List of Related Projects*), but for the purposes of GHG analysis, there are many more projects in the County, the State, and worldwide that would contribute to cumulative global GHG emissions.

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[55] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

[56] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[57] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[58] U.S. Green Building Council, Leadership in Energy and Environmental Design Green Building Rating System. October 2007. *New Construction and Major Renovations*. Washington, DC.

Due to the fact that GHG emissions from construction of Tier I of the proposed project as analyzed in this EIR may have the potential to be above the level of significance, implementation of the proposed project would be expected to result in cumulative impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects. However the operation of Tier I when cumulatively considered, would not have considerable operational impacts and would not be expected to contribute to cumulative operational impacts.

Tier II

It was determined that there are forty-two (42) projects that are anticipated to be implemented within the construction period for both tiers of the proposed project occurring within an approximate 3-mile radius of the proposed project site (Section 2.0, *Project Description*, Table 2.6-1), but for the purposes of GHG analysis, there are many more projects in the County, the State, and worldwide that would contribute to cumulative global GHG emissions. Due to the fact that GHG emissions from construction of Tier II and operation of Tier II of the proposed project as analyzed in this EIR may have the potential to be above the level of significance, implementation of the proposed project would be expected to result in cumulative impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects.

3.5.5 Mitigation Measures

The incorporation of GHG emission mitigation measure GHG-1 would ensure a full implementation of sustainable building design for the proposed project to assist the County in attaining the goal of reducing GHG emissions to 1990 levels by the year 2020 as required by AB 32.

The California Office of Attorney General's guidance to local agencies for addressing GHG emission impacts is recommended for consideration by the County to increase sustainability and reduce GHG emission impacts associated with operation of the proposed project.[59] Among the 52 general applicable project-level measures that can be applied to a diverse range of projects, seven (7) measures have been incorporated into the design of Tier I of the proposed project. It is anticipated that these measures would also be incorporated in the design for Tier II of the proposed project.

The CARB's guidance on 44 early action measures to reduce GHG emissions has been considered by the County in order to reduce GHG emission impacts associated with implementation of the proposed project. In developing mitigation measures for the proposed project, only the feasible GHG emission reduction early action measures provided by the CARB that are also applicable to the proposed project have been recommended for incorporation.

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[59] California Department of Justice Office of the Attorney General. Updated 9 December 2008. *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

Tier I

Measure GHG-1

Prior to construction of the proposed project, the final design plan and schemes for Tier I shall be reviewed to ensure that the County of Los Angeles conforms to its commitments pursuant to the California Climate Action Registry and the greenhouse gas emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven (7) of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide (CO_2) emissions per capita:

- Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use
- Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings
- Create water-efficient landscapes
- Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site.)
- Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods
- Incorporate provisions for future public transit into project design
- Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio

The review shall further ensure that all applicable sustainable design measures or comparable measures have been incorporated into the final project design.

Tier II

Measure GHG-1

Prior to construction of the proposed project, the final design plan and schemes for Tier II shall be reviewed to ensure that the County of Los Angeles conforms to its commitments pursuant to the California Climate Action Registry and the greenhouse gas emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven (7) of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide (CO_2) emissions per capita:

- Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use

- Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings

- Create water-efficient landscapes

- Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site.)

- Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods

- Incorporate provisions for future public transit into project design

- Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio

The review shall further ensure that all applicable sustainable design measures or comparable measures have been incorporated into the final project design.

3.5.6 Level of Significance after Mitigation

Tier I

Mitigation measure GHG-1 would reduce CO_2 emissions contributed by operation of Tier I of the proposed project, thereby assisting compliance with the goals of AB 32 to reduce CO_{2e} emissions to 1990 levels by the year 2020. Mitigation measure GHG-1 would ensure that indirect and cumulative GHG emission impacts would be reduced to the maximum extent feasible. After implementation of mitigation measure GHG-1, potential GHG emission impacts associated with operation of Tier I would remain at below the level of significance under a qualitative or quantitative analysis. Mitigation measure GHG-1 would not affect construction emissions. Therefore, construction of Tier I of the proposed project would be expected to remain above the level of significance assuming application of CAPCOA's suggested quantitative threshold of 900 metric tons of CO_{2e} per year or the BAAQMD's adopted threshold of 1,100 metric tons per year.

Tier II

Mitigation measure GHG-1 would reduce CO_2 emissions contributed by operation of Tier II of the proposed project, thereby assisting compliance with the goals of AB 32 to reduce CO_{2e} emissions to 1990 levels by the year 2020. Mitigation measure GHG-1 would ensure that indirect and cumulative GHG emission impacts would be reduced to the maximum extent feasible. However, potential GHG emission impacts associated with construction and operation of Tier II would remain as significant and unavoidable assuming application of CAPCOA's suggested quantitative threshold of 900 metric tons of CO_{2e} per year or the BAAQMD's adopted threshold of 1,100 metric tons per year, which the County is using in order to evaluate the proposed project from a conservative, worst-case scenario.

3.6 HAZARDS AND HAZARDOUS MATERIALS

As a result of the Initial Study, the County of Los Angeles (County) determined that the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in impacts related to hazards and hazardous materials.[1] Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts from hazards and hazardous materials.

The analysis of hazards and hazardous materials consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions at the proposed project site, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential hazards and hazardous materials that could be associated with the proposed project site were evaluated with regard to the Limited Environmental Subsurface Investigation prepared by URS in June 2009,[2] as well as published and unpublished literature. The potential for impacts from hazards and hazardous materials have been analyzed in accordance with the data compiled by Environmental Data Resources, Inc.[3,4,5]

3.6.1 Regulatory Framework

Federal

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, also known as the Superfund, outlines the potential liability related to the cleanup of hazardous substances, available defenses to such liability, appropriate inquiry into site status under Superfund, which is the federal government's program to clean up the nation's uncontrolled hazardous waste sites, statutory definitions of hazardous substances and petroleum products, and the petroleum product exclusion under CERCLA.[6]

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[2] County of Los Angeles Department of Public Works. 10 June 2009. *Limited Environmental Subsurface Investigation, Proposed MACC Building and ED/Ancillary Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center, 12021 South Wilmington Avenue, Los Angeles, CA*.

[3] Environmental Data Resources, Inc. 29 December 2008. *The EDR Aerial Photo Decade Package, Martin Luther King Medical Center, 12021 South Wilmington Avenue, Los Angeles, CA 90059*. Inquiry Number: 2388899.5.

[4] Environmental Data Resources, Inc. 23 December 2008. *The EDR Radius Map Report with GeoCheck, Martin Luther King Medical Center, 12021 South Wilmington Avenue, Los Angeles, CA 90059*. Inquiry Number: 2388899.2s.

[5] Environmental Data Resources, Inc. 23 December 2008. *The EDR Historical Topographic Map Report, Martin Luther King Medical Center, 12021 South Wilmington Avenue, Los Angeles, CA 90059*. Inquiry Number: 2388899.4.

[6] *United States Code*, Title 42, Chapter 103, Subchapter I: "Hazardous Substances Releases, Liability, Compensation." Available at: http://www.law.cornell.edu/uscode/html/uscode42/usc_sup_01_42_10_103.html

Superfund Amendment and Reauthorization Act, Title III

The Superfund Amendment and Reauthorization Act (SARA), Title III of 1986 is the Emergency Planning and Community Right-to-Know Act.[7] Facilities are required to report the following items on U.S. Environmental Protection Agency (USEPA) Form R, the Toxic Chemical Release Inventory Reporting Form: facility identification, off-site locations where toxic chemicals are transferred in wastes, chemical-specific information, and supplemental information.

Form R requires a facility to list the hazardous substances that are handled on site and to account for the total aggregate releases of listed toxic chemicals for the calendar year. Releases to the environment include emissions to the air, discharges to surface water, and on-site releases to land and underground injection wells.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) of 1976 was the first major federal act regulating the potential health and environmental problems associated with hazardous and non-hazardous solid waste.[8] RCRA and the implementation regulations developed by the U.S. Environmental Protection Agency (EPA) provide the general framework for the national hazardous and non-hazardous waste management systems. This framework includes the determination of whether hazardous wastes are being generated, techniques for tracking wastes to eventual disposal, and the design and permitting of hazardous waste management facilities.

RCRA amendments enacted in 1984 and 1986 began the process of eliminating land disposal as the principal hazardous waste disposal method. Hazardous waste regulations promulgated in 1991 address site selection, design, construction, operation, monitoring, corrective action, and closure of disposal facilities. Additional regulations addressing solid waste issues are contained in 40 Code of Federal Regulations (CFR), Part 258.

Federal Aviation Administration

The Federal Aviation Administration (FAA) requires review of any construction plans and specifications for development proximate to airports that exceed certain height criteria.[9] These minimum height requirements include any construction or alteration more than 200 feet in height above ground level and/or at a greater height than that of an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway.[10]

This review is initiated using FAA Form 7460, Notice of Proposed Construction or Alteration, if necessary. The FAA determines whether there is an obstruction to the safe and efficient use of airspace

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[7] *United States Code*, Title 42, Chapter 116 et. seq: "Emergency Planning and Community Right-to-Know Act." Available at: http://www.law.cornell.edu/uscode/html/uscode42/usc_sup_01_42_10_116.html

[8] *United States Code*, Title 42, Chapter 82, Subchapter I, §§ 6901 et. seq.: "Solid Waste Disposal Act, Resource Conservation and Recovery Act of 1986." Available at: http://www.law.cornell.edu/uscode/html/uscode42/usc_sup_01_42_10_82.html

[9] *Code of Federal Regulations*, Title 14, Part 77. 5. May 2003. "Aeronautics and Space, Objects Affecting Navigable Airspace." Available at: http://www.access.gpo.gov/nara/cfr/waisidx_05/14cfr77_05.html

[10] *Federal Aviation Regulations*, Part 77, "Objects Affecting Navigable Airspace." Available at: http://www.pctpa.org/library/aluc/aluc_appB.PDF.

over part or all of a proposed land use change under Federal Aviation Regulations Part 77, Objects Affecting Navigable Airspace, during this review.

State

Hazardous Waste Control Law of 1972

The Hazardous Waste Control Law of 1972 is the original hazardous waste control law in California. This law initiated programs that track hazardous waste generators, their hazardous waste streams, and their hazardous waste handling practices.

Title 22 and Title 23 of the California Code of Regulations

In California, Titles 22 and 23 of the California Code of Regulations (CCR) address hazardous materials and wastes. Title 22 defines, categorizes, and lists hazardous materials and wastes. Title 23 identifies public health and safety issues related to hazardous materials and wastes and specifies disposal options.

Hazardous Materials Release Response Plans and Inventory Law of 1986

The Hazardous Materials Release Response Plans and Inventory Law of 1986 (Business Plan Act)[11] governs hazardous materials handling, reporting requirements, and local agency surveillance programs.

Hazardous Substances Account Act (State Superfund)

Chapter 6.8 of the California Health and Safety Code requires DTSC to include "the largest manageable number" of potentially responsible parties ("PRP") in any cleanup order that applies to a multiple PRP site after considering certain factors, including the adequacy of the evidence of each PRP's liability, the financial viability of each PRP, and the degree to which each PRP contributed to the release of hazardous substances at the site.

Medical Waste Management Act (California Health and Safety Code Sections 117600-118360)

The Department of Public Health shall adopt regulations that will establish statewide standards for uniformity in the implementation and administration of this act and will promote waste minimization and source reduction.

Local

Los Angeles County General Plan

The Safety element of the County of Los Angeles General Plan assesses threats to public health and safety from a variety of hazards and recommends strategies to reduce these threats. There are four policies in the Safety element that apply to projects within the County, including the unincorporated territory of the County of Los Angeles:[12]

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[11] *California Health and Safety Code*, Chapter 6.8, §25500 et seq. (1985, as amended). Available at: http://www.aroundthecapitol.com/code/code.html?sec=hsc&codesection=25404-25404.9

[12] County of Los Angeles Department of Regional Planning. December 1990. *County of Los Angeles General Plan, Safety*

- Maintain and strengthen the review of projects and development proposals and upgrade Los Angeles County Fire Department prevention standards and mitigation measures in areas of urban fire hazard
- Review proposed development projects involving the use or storage of hazardous materials
- Disapprove proposals that cannot properly mitigate unacceptable threats to public health and safety to the satisfaction of responsible agencies
- Strengthen the capability of County agencies to effectively respond to emergencies

3.6.2 Existing Conditions

3.6.2.1 Routine Transport, Use, or Disposal of Hazardous Materials

The existing Martin Luther King, Jr. Medical Center is a hospital registered as a small- and large-quantity generator of hazardous materials such as waste oil and mixed oil; oxygenated solvents including acetone, butanol, and ethyl acetate; spent halogenated solvents; and other hazardous materials including batteries, lamps, pesticides, thermostats, mercury, silver and polychlorinated biphenyls. The existing Martin Luther King, Jr. Medical Center also deals with biomedical and radiological wastes. However, there are specific government regulations restricting the transport, use, and disposal of these hazardous materials, and the existing hospital does not entail the use of such materials beyond the regulated parameters.[13]

The existing Martin Luther King, Jr. Medical Center is listed on the registered underground storage tanks (UST) and Historical UST databases due to the existence of 11 USTs at the power plant on the campus. These USTs consist of one unleaded gasoline tank and one waste tank installed in 1970 and nine diesel tanks installed between 1970 and 1980. No leaks have been reported to originate from these USTs.[14] All USTs have to be registered with the California Environmental Protection Agency to account for the presence of USTs at the site.[15] There are no other County requirements or commitments associated with having the UST listed. The County will remain on this list as long as long as there are registered USTs at the site.

3.6.2.2 Release of Hazardous Materials Into the Environment

A leaking underground storage tank (LUST) containing gasoline was discovered at the existing Martin Luther King, Jr. Medical Center during the closure of the UST in 1988. The unauthorized release of gasoline only affected soil. The impacted soil was remediated and the case was closed in 1996.[16] This unauthorized release of gasoline into the soil also resulted in the hospital being listed on the California Hazardous Materials Incident Report System (CHMIRS). The hospital is also identified as a CHMIRS site due to the unauthorized release of approximately 14,000 gallons of oily water that originated from

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Element. Los Angeles, CA.

[13] Environmental Data Resources, Inc. 23 December 2008. *The EDR Radius Map Report with GeoCheck, Martin Luther King Medical Center, 12021 South Wilmington Avenue, Los Angeles, CA 90059*. Inquiry Number: 2388899.2s.

[14] Environmental data Resources, Inc. 23 December 2008. *The EDR Radius Map Report with GeoCheck, Martin Luther King Medical Center, 12021 South Wilmington Avenue, Los Angeles, CA 90059*. Inquiry Number: 2388899.2s.

[15] United States Environmental Protection Agency. Office of Underground Storage Tanks. Accessed August 2010. Available at: http://www.epa.gov/oust/

[16] Environmental data Resources, Inc. 23 December 2008. *The EDR Radius Map Report with GeoCheck, Martin Luther King Medical Center, 12021 South Wilmington Avenue, Los Angeles, CA 90059*. Inquiry Number: 2388899.2s.

a ruptured pipe in the hospital power plant. The oily water was pumped up into tanker trucks for off-site disposal.[17]

The existing Martin Luther King, Jr. Medical Center is identified on the Emissions Inventory Database, maintained by the South Coast Air Quality Management District (SCAQMD), for the release of total organic hydrocarbon gases, reactive gases, carbon monoxide, oxides of nitrogen, oxides of sulfur, and particulate matter.[18]

3.6.2.3 Existing or Proposed Schools

The existing Martin Luther King, Jr. Medical Center is located within one quarter mile of the following schools: King-Drew Medical Magnet High School located at 1601 East 120thth Street adjacent to the proposed project site to the north; Lincoln Drew Elementary School located at 1667 East 118th Street approximately 0.1 mile to the north; Carver Elementary School located at 1425 East 120th Street approximately 0.21 mile to the west; and Harriet Tubman High School, Compton Community Day School, and Cesar Chavez Alternative School, which are all located at 12501 South Wilmington Avenue approximately 0.25 mile to the south of the proposed project site.

3.6.2.4 Hazardous Materials Sites Pursuant to Government Code Section 65962.5

The existing Martin Luther King, Jr. Medical Center is not identified in the most recent version of the Hazardous Materials and Substance Sites List maintained by the California Environmental Protection Agency, DTSC.[19]

3.6.2.5 Proposed Project Site Located in an Airport Land Use Plan, within 2 Miles of a Public Airport or Public Use Airport

There are no public airports or public airports within 2 miles of the proposed project site. The nearest airports to the proposed project site are the Compton/Woodley Airport located at 901 West Alondra Boulevard in the City of Compton approximately 2.1 miles south; the Saint Francis Medical Center Helistop located in the City of Lynwood approximately 2.7 miles east; the Gardena Valley Airport located in the City of Gardena approximately 4 miles southeast; and the Hawthorne Municipal Airport located in the City of Hawthorne approximately 4.6 miles west. According to the Los Angeles County General Plan,[20] the proposed project is not within or near an airport land use plan.

3.6.2.6 Proposed Project Site Located in the Vicinity of a Private Airstrip

The nearest private airstrip to the existing Martin Luther king, Jr. Medical Center is located in Playa Vista at 5510 Lincoln Boulevard approximately 11.5 miles northwest of the proposed project site.[21] However, a helipad is located at the proposed project site, on the roof of the Inpatient Tower.

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[17] Environmental Data Resources, Inc. 23 December 2008. *The EDR Radius Map Report with GeoCheck, Martin Luther King Medical Center, 12021 South Wilmington Avenue, Los Angeles, CA 90059*. Inquiry Number: 2388899.2s.

[18] Environmental Data Resources, Inc. 23 December 2008. *The EDR Radius Map Report with GeoCheck, Martin Luther King Medical Center, 12021 South Wilmington Avenue, Los Angeles, CA 90059*. Inquiry Number: 2388899.2s.

[19] California Environmental Protection Agency, Department of Toxic Substances Control. 2 February 2010. "Hazardous Waste and Substances Site List."

[20] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[21] Airport IQ Data Center. Accessed on 10 April 2008. Web site. Available at: http://www.gcr1.com/5010web/

3.6.2.7 Emergency Response Plan or Emergency Evacuation Plan

Consistent with the Safety element of the County of Los Angeles General Plan,[22] the purpose of the existing Martin Luther King, Jr. Medical Center is to improve conditions related to healthcare services. No part of the existing hospital interferes with any existing emergency response plan or evacuation plan.

3.6.2.8 Wildland Fires

The existing Martin Luther King, Jr. Medical Center is located in an urban environment without adjacent or nearby wildlands. In addition, the existing Martin Luther King, Jr. Medical Center location is not considered to be in a fire hazard severity zone.[23] The nearest fire hazard zone is well over 10 miles from the proposed project site. Therefore, the existing Martin Luther king, Jr. Medical Center would not be expected to result in significant impacts from hazards and hazardous materials related to exposure of people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

3.6.3 Significance Thresholds

The potential for the proposed project to result in impacts related to hazards and hazardous materials was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. The project would normally be considered to have a significant impact to hazards and hazardous materials when the potential for any one of the following eight thresholds occurs:

- Creates a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials

- Creates a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment

- Emits hazardous emissions or handles hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school

- Is located on a site which is included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment

- Is located within in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and results in a safety hazard for people residing or working in the project area

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[22] County of Los Angeles Department of Regional Planning. December 1990. *County of Los Angeles General Plan, Safety Element*. Los Angeles, CA.

[23] California Department of Forestry and Fire Protection, 1997. Los Angeles Fire Hazard Severity Zoning (FHSZ) Map. Sacramento, CA. Available at: http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_losangeles.php

- Is within the vicinity of a private airstrip, and would result in a safety hazard for people residing or working in the project area
- Impairs implementation of or physically interferes with an adopted emergency response plan or emergency evacuation plan
- Exposes people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands

3.6.4 Impact Analysis

3.6.4.1 Routine Transport, Use, or Disposal of Hazardous Materials

Tier I

Tier I of the proposed project would not create a significant hazard that could affect the public or the environment through the routine transport, use, or disposal of hazardous materials. The proposed project is a hospital registered as a small- and large-quantity generator of hazardous materials. These hazardous materials include waste oil and mixed oil; oxygenated solvents including acetone, butanol, and ethyl acetate; spent halogenated solvents; and other hazardous materials including batteries, lamps, pesticides, thermostats, mercury, silver and polychlorinated biphenyls. The proposed project would also continue to generate biomedical and radiological wastes. However, the amount of these wastes would not be increased as a result of Tier I and there are specific government regulations restricting the transport, use, and disposal of these hazardous materials. The proposed project does not entail the use of such materials beyond regulated parameters. Any hazardous materials, substances, or wastes that are stored, used, or generated at the proposed project site shall be handled or disposed of in compliance with all existing regulations. Therefore, there are no expected impacts to the public or the environment related to the routine transport, use, or disposal of hazardous materials.

Tier II

Tier II of the proposed project would not create a significant hazard that could affect the public or the environment through the routine transport, use, or disposal of hazardous materials. The proposed project is a hospital registered as a small- and large-quantity generator of hazardous materials such as small medical wastes such as needles to waste oil and mixed oil; oxygenated solvents including acetone, butanol, and ethyl acetate; spent halogenated solvents; and other hazardous materials including batteries, lamps, pesticides, thermostats, mercury, silver and polychlorinated biphenyls. The proposed project will also generate biomedical and radiological wastes. However, there are specific government regulations restricting the transport, use, and disposal of these hazardous materials, and the proposed project does not entail the use of such materials beyond regulated parameters. Any hazardous materials, substances, or wastes that are stored, used, or generated at the proposed project site shall be handled or disposed of in compliance with all existing regulations. Therefore, there are no expected impacts to the public or the environment related to the routine transport, use, or disposal of hazardous materials.

3.6.4.2 Release of Hazardous Materials into the Environment

Tier I

Tier I of the proposed project would create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The removal of asbestos-containing materials (ACMs) or lead-based paints (LBPs) at the proposed project site creates the potential for a release of asbestos and lead into the environment. In addition, fuels and lubricants used for construction vehicles may impact the site due to leakage, spillage, or accidents. Therefore, implementation of the proposed project has the potential to result in significant impacts to the environment related to the accidental release of ACMs and LBPs, and will require the consideration of mitigation measures.

The proposed project would be expected to result in less than significant impacts from hazards and hazardous materials in relation to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials with the incorporation of mitigation measures. The proposed project site is the location of documented past releases of gasoline and oil from a LUST, which occurred prior to existing underground storage tank LUST regulations. Cleanup of the site has been completed for the release of oil and gasoline, and no further action is warranted.[24] Because the proposed project site is both a small- and a large-quantity generator of hazardous materials, the potential exists for a hazardous materials release to occur. The proposed project tiers do not directly address hospital operations that require the use or transport of hazardous materials and the proposed project would not entail use of such materials beyond regulated parameters. However, as part of the proposed project, it is anticipated that some emergency generators and USTs may have to be relocated. To prevent impacts, tank relocation would be conducted according to the following applicable federal and state regulations related to tank management: Code of Federal Regulations (CFR) 40, Part 112; 40 CFR, Part 280; CFR 281; 40 CFR, Part 282; and the California Code of Regulations (CCR) Title 22 and Title 23 Regulations. It is unlikely that the proposed project would result in accidental leaks and spills that would affect the public or the environment. However, mitigation has been proposed to ensure that the impact remains less than significant during construction-related activities. Therefore, the proposed project would be expected to result in less than significant impacts from hazards and hazardous materials related to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials with the incorporation of mitigation measures.

Tier II

In the event that the County decides to demolish the existing MACC building, emergency room, storage building or the cooling towers, construction of the proposed project may result in the accidental release of ACMs or LBPs into the environment, given the prevalent use of ACMs and LBPs in the building industry at the time period these buildings were constructed. Construction equipment–related fuels and lubricants also have the potential for accidental release into the environment if proper care is not utilized.

Tier II of the proposed project would create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into

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[24] Environmental Data Resources, Inc. 23 December 2008. *The EDR Radius Map Report with GeoCheck, Martin Luther King Medical Center, 12021 South Wilmington Avenue, Los Angeles, CA 90059*. Inquiry Number: 2388899.2s.

the environment. The removal of ACMs and LBPs at the proposed project site creates the potential for a release of asbestos and lead into the environment. In addition, fuels and lubricants used for construction vehicles may impact the site due to leakage, spillage, or accidents. Therefore, implementation of the proposed project has the potential to result in significant impacts to the environment related to the accidental release of ACMs and LBPs, and will require the consideration of mitigation measures.

The proposed project would be expected to result in less than significant impacts from hazards and hazardous materials in relation to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials with the incorporation of mitigation measures. The proposed project site is the location of documented past releases of gasoline and oil from a LUST, which occurred prior to existing underground storage tank LUST regulations. Cleanup of the site has been completed for the release of oil and gasoline, and no further action is warranted.[25] Because the proposed project site is both a small- and a large-quantity generator of hazardous materials, the potential exists for a hazardous materials release to occur. The proposed project tiers do not directly address hospital operations that require the use or transport of hazardous materials and the proposed project would not entail use of such materials beyond regulated parameters. However, as part of the proposed project, it is anticipated that some emergency generators and USTs may have to be relocated. To prevent impacts, tank relocation would be conducted according to the following applicable federal and state regulations related to tank management: Code of Federal Regulations (CFR) 40, Part 112; 40 CFR, Part 280; CFR 281; 40 CFR, Part 282; and the California Code of Regulations (CCR) Title 22 and Title 23 Regulations. It is unlikely that the proposed project would result in accidental leaks and spills that would affect the public or the environment. However, mitigation has been proposed to ensure that the impact remains less than significant during construction-related activities. Therefore, the proposed project would be expected to result in less than significant impacts from hazards and hazardous materials related to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials with the incorporation of mitigation measures.

3.6.4.3 Existing or Proposed Schools

Tier I

Tier I of the proposed project would have the potential to result in significant impacts related to creating a significant hazard that would be reduced to below the level of significance with the incorporation of mitigation measures, from hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste, to existing or proposed schools located within one-quarter mile of the project site. There are six schools located within one-quarter mile of the proposed project. These schools are: Lincoln Drew Elementary School and Headstart located 0.10 mile to the north; Carver Elementary located 0.21 mile to the west; Harriet Tubman High School located 0.25 mile south; Cesar Chavez Alternative School located 0.25 mile south; Compton Community Day Middle School located 0.25 mile south; and King Drew Magnet High School located adjacent to the proposed project campus on East 120th Street. The proposed project is a hospital that routinely handles and transports hazardous materials for disposal. While the volume of hazardous materials would likely increase, from the current operational amounts with completion of the proposed project, the use of such materials is controlled by existing government regulations and the proposed project

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[25] Environmental Data Resources, Inc. 23 December 2008. *The EDR Radius Map Report with GeoCheck, Martin Luther King Medical Center, 12021 South Wilmington Avenue, Los Angeles, CA 90059*. Inquiry Number: 2388899.2s.

would not entail use of hazardous materials beyond regulated parameters. Therefore, there would be no expected impacts with the incorporation of mitigation measures from hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste, to existing or proposed schools located within one-quarter mile of the project site.

Tier II

Tier II of the proposed project would have the potential to result in significant impacts related to creating a significant hazard that would be reduced to below the level of significance with the incorporation of mitigation measures, from hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste, to existing or proposed schools located within one-quarter mile of the project site. There are six schools located within one-quarter mile of the proposed project. These schools are: Lincoln Drew Elementary School and Headstart located 0.10 mile to the north; Carver Elementary located 0.21 mile to the west; Harriet Tubman High School located 0.25 mile south; Cesar Chavez Alternative School located 0.25 mile south; Compton Community Day Middle School located 0.25 mile south; and King Drew Magnet High School located adjacent to the proposed project campus on East 120th Street. The proposed project is a hospital that routinely handles and transports hazardous materials for disposal. While the volume of hazardous materials would likely increase, from the current operational amounts with completion of the proposed project, the use of such materials is controlled by existing government regulations and the proposed project would not entail use of hazardous materials beyond regulated parameters. Therefore, there would be no expected impacts with the incorporation of mitigation measures from hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste, to existing or proposed schools located within one-quarter mile of the project site.

3.6.4.4 Hazardous Waste Sites

Tier I

Tier I of the proposed project would not be located on a hazardous waste site that would result in creating a significant hazard to the public or the environment. The existing Martin Luther King, Jr. Medical Center is not identified in the most recent version of the Hazardous Materials and Substance Sites List maintained by the California Environmental Protection Agency, Department of Toxic Substances Control.[26] Therefore, the proposed project would not be expected to impact the public or the environment.

Tier II

Tier II of the proposed project would not be located on a hazardous waste site that would result in creating a significant hazard to the public or the environment. The existing Martin Luther King, Jr. Medical Center is not identified in the most recent version of the Hazardous Materials and Substance Sites List maintained by the California Environmental Protection Agency, Department of Toxic Substances Control.[27] Therefore, the proposed project would not be expected to impact the public or the environment.

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[26] California Environmental Protection Agency, Department of Toxic Substances Control. 10 February 2010. "Hazardous Waste and Substances Site List."

[27] California Environmental Protection Agency, Department of Toxic Substances Control. 10 February 2010. "Hazardous Waste and Substances Site List."

3.6.4.5 Proposed Project Located near Airport

Tier I

Tier I of the proposed project would not result in a significant impact from hazards and hazardous materials in relation to proximity to a public airport and the creation of safety hazards to people residing or working in the proposed project area. The nearest airports are the Compton/Woodley Airport, located at 901 West Alondra Boulevard in the City of Compton, approximately 2.1 miles south; the Saint Francis Medical Center Helistop in the City of Lynwood, approximately 2.7 miles east; the Gardena Valley Airport in the City of Gardena, approximately 4 miles southeast; and the Hawthorne Municipal Airport in the City of Hawthorne, approximately 4.6 miles west of the proposed project site. Therefore, implementation of the proposed project would not result in significant impacts from safety hazards and hazardous materials in relation to proximity to a public airport to the people residing or working within the proposed project boundaries.

Tier II

Tier II of the proposed project would not result in a significant impact from hazards and hazardous materials in relation to proximity to a public airport and the creation of safety hazards to people residing or working in the proposed project area. The nearest airports are the Compton/Woodley Airport, located at 901 West Alondra Boulevard in the City of Compton, approximately 2.1 miles south; the Saint Francis Medical Center Helistop in the City of Lynwood, approximately 2.7 miles east; the Gardena Valley Airport in the City of Gardena, approximately 4 miles southeast; and the Hawthorne Municipal Airport in the City of Hawthorne, approximately 4.6 miles west of the proposed project site. Therefore, implementation of the proposed project would not result in significant impacts from safety hazards and hazardous materials in relation to proximity to a public airport to the people residing or working within the proposed project boundaries.

3.6.4.6 Proposed Project Located near Private Airstrip

Tier I

Tier I of the proposed project would not result in a significant impact to people residing or working within the project area due to project's proposed location in the vicinity of a private airstrip. The nearest private airstrip is located in Playa Vista at 5510 Lincoln Boulevard, approximately 11.5 miles northwest of the proposed project site.[28] A heliport is currently located on site at the proposed project site. The heliport is currently not in use at the existing Martin Luther King, Jr. Medical Center Campus (existing campus), as it is associated with the emergency functions that are not currently in operation at the existing campus. The heliport would not be altered or impacted by the proposed project. As such, implementation of the proposed project would not be expected to result in significant impacts from safety hazards and hazardous materials in relation to proximity to a private airport to the people residing or working within the proposed project boundaries.

Tier II

Tier II of the proposed project would not result in a significant impact to people residing or working within the project area due to project's proposed location in the vicinity of a private airstrip. The nearest private airstrip is located in Playa Vista at 5510 Lincoln Boulevard, approximately 11.5 miles

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[28] Airport IQ Data Center. Accessed on 10 April 2008. Web site. Available at: http://www.gcr1.com/5010web/

northwest of the proposed project site.[29] A heliport is currently located on site at the proposed project site. The heliport is currently not in use at the existing Martin Luther King, Jr. Medical Center Campus (existing campus), as it is associated with the emergency functions that are not currently in operation at the existing campus. The heliport would not be altered or impacted by the proposed project. As such, implementation of the proposed project would not be expected to result in significant impacts from safety hazards and hazardous materials in relation to proximity to a private airport to the people residing or working within the proposed project boundaries.

3.6.4.7 Emergency Response Plan or Emergency Evacuation Plan

Tier I

Tier I of the proposed project would not be expected to impair implementation of, or physically interfere with an adopted emergency response plan or an emergency evacuation plan. Currently, the existing campus is not fully operational. However, the existing campus provides various outpatient and administrative support services. Tier I of the proposed project is anticipated to interfere with an emergency response plan or evacuation plan; however, it is anticipated that the site Emergency Response and Evacuation plans will be updated as appropriate, addressing all campus development, as each building is completed. Further, the proposed improvements at the campus will result in additional medical facilities to address medical needs related to emergencies in the community of Willowbrook and surrounding areas. This will result in the availability of enhanced health care accessibility, and will provide community support facilities and uses, and thus a beneficial impact would occur. The proposed project would therefore not be expected to interfere with the emergency response plan or the emergency evacuation plan. Therefore, Tier I of the proposed project would not be expected to result in significant impacts to hazards and hazardous resources related to emergency response plan or emergency evacuation plan.

Tier II

Tier II of the proposed project would not be expected to impair implementation of, or physically interfere with an adopted emergency response plan or an emergency evacuation plan. Currently, the existing campus is not fully operational. However, the existing campus provides various outpatient and administrative support services. Tier II of the proposed project is anticipated to interfere with an emergency response plan or evacuation plan; however, it is anticipated that the site Emergency Response and Evacuation plans will be updated as appropriate, addressing all campus development, as each building is completed. Further, the proposed improvements at the campus will result in additional medical facilities to address medical needs related to emergencies in the community of Willowbrook and surrounding areas. This will result in the availability of enhanced health care accessibility, and will provide community support facilities and uses, and thus a beneficial impact would occur. The proposed project would therefore not be expected to interfere with the emergency response plan or the emergency evacuation plan. Therefore, Tier II of the proposed project would not be expected to result in significant impacts to hazards and hazardous resources related to emergency response plan or emergency evacuation plan.

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[29] Airport IQ Data Center. Accessed on 10 April 2008. Web site. Available at: http://www.gcr1.com/5010web/

3.6.4.8 Wildland Fires

Tier I

Tier I of the proposed project would not be expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. There are no wildlands that would be subject to fire on or near the proposed project site.[30] The proposed project site is located in an urban environment served by fire hydrants and local fire stations, and without adjacent or nearby wildlands. In addition, the proposed project location is not considered to be in a fire hazard severity zone.[31] Therefore, Tier II of the proposed project would not be expected to increase the impact or to result in significant impacts related to wildland fires.

Tier II

Tier II of the proposed project would not be expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. There are no wildlands that would be subject to fire on or near the proposed project site.[32] The proposed project site is located in an urban environment served by fire hydrants and local fire stations, and without adjacent or nearby wildlands. In addition, the proposed project location is not considered to be in a fire hazard severity zone.[33] Therefore, Tier II of the proposed project would not be expected to increase the impact or to result in significant impacts related to wildland fires.

3.6.4.9 Cumulative Impacts

The incremental impact of the proposed project, when added to the related past, present, or reasonably foreseeable, probable future projects listed in Section 2.0, *Project Description*, would not result in cumulative impacts related to hazards and hazardous materials.

Tier I

Because the hazards and hazardous materials impacts expected from the implementation of the proposed project do not affect lands outside the boundaries of the proposed project site, these impacts do not create any cumulative impacts on the environment outside of the proposed project boundaries. Additionally, as previously mentioned, there are specific government regulations restricting the transport, use, and disposal of these hazardous materials, and the proposed project would does not entail the use of such materials beyond regulated parameters. Although there are schools and residences that are proposed to be developed located on near the proposed project site, these related projects would be no more at risk of cumulative impacts related to hazards and hazardous materials than the existing sensitive receptors on and surrounding the proposed project site. The use and transport of hazardous materials would comply with the established regulations and would ensure that cumulative impacts are below the level of significance.

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[30] California Department of Forestry and Fire Protection. 1997. Los Angeles Fire Hazard Severity Zoning (FHSZ) Map. Sacramento, CA. Available at: http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_losangeles.php

[31] California Department of Forestry and Fire Protection. 1997. Los Angeles Fire Hazard Severity Zoning (FHSZ) Map. Sacramento, CA. Available at: http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_losangeles.php

[32] California Department of Forestry and Fire Protection. 1997. Los Angeles Fire Hazard Severity Zoning (FHSZ) Map. Sacramento, CA. Available at: http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_losangeles.php

[33] California Department of Forestry and Fire Protection. 1997. Los Angeles Fire Hazard Severity Zoning (FHSZ) Map. Sacramento, CA. Available at: http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_losangeles.php

Tier II

Because the hazards and hazardous materials impacts expected from the implementation of the proposed project do not affect lands outside the boundaries of the proposed project site, these impacts do not create any cumulative impacts on the environment outside of the proposed project boundaries. Additionally, as previously mentioned, there are specific government regulations restricting the transport, use, and disposal of these hazardous materials, and the proposed project would does not entail the use of such materials beyond regulated parameters. Although there are schools and residences that are proposed to be developed located on near the proposed project site, these related projects would be no more at risk of cumulative impacts related to hazards and hazardous materials than the existing sensitive receptors on and surrounding the proposed project site. The use and transport of hazardous materials would comply with the established regulations and would ensure that cumulative impacts are below the level of significance.

3.6.5 Mitigation Measures

Tier I

Measure Hazards-1

To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

Measure Hazards-2

To avoid exposure to asbestos-containing materials and lead-based paints during demolition, construction, and remediation activities, the County of Los Angeles and the Office of Statewide Health Planning and Development shall require that all such materials and wastes be identified and an Operations and Maintenance Plan developed prior to the issuance of demolition permits for each structure constructed prior to 1979. The Operations and Maintenance Plan shall ensure compliance with all applicable federal, state, and local requirements and specify all work to be done, including lead and asbestos surveys of structures to be demolished, proper handling and storage of lubricants and fuels for construction equipment, and methods for remediation of asbestos-containing materials and lead-based paints, if necessary. The Operations and Maintenance Plan shall be submitted to the County of Los Angeles Department of Health Services for review and approval prior to initiation of construction and demolition activities for the Multi-Service Ambulatory Care Center building, emergency room, storage building, and cooling towers. The Operations and Maintenance Plan shall, as appropriate and necessary, conform to the requirements of the Los Angeles County Department of Health Services (Local Enforcement Agency), South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, and the Department of Toxic Substances Control.

Compliance with the Operations and Maintenance Plan shall be monitored by the County of Los Angeles Regional Planning Department throughout construction and demolition.

To reduce impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. These agencies shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

Measure Hazards-3

Prior to the issuance of grading permits for development, the County of Los Angeles shall ensure that a Soil Management Plan is prepared for the project site and that the Office of Statewide Health Planning and Development reviews the grading plans to ensure that the construction contractor is required to stop work and notify the Certified Unified Program Agency of the unanticipated encounter of underground storage tanks during grading activities. In the event that any leaking underground storage tanks are located or encountered, the County of Los Angeles Department of Public Works shall be notified and the underground storage tank shall be remediated in accordance with County of Los Angeles guidelines and consistent with specifications of the Department of Toxic Substances Control and other relevant standards. The County of Los Angeles Fire Department Health Hazardous Materials Division shall be notified of all other contaminated soils encountered during construction related site activities.

Measure Hazards-4

To avoid exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the proposed project, the County of Los Angeles shall require that the construction contractor store, use, and transport all hazardous materials in compliance with all relevant regulations and guidelines. The routine transport of hazardous materials to and from the Martin Luther King, Jr. Medical Center Campus during construction and operation of the elements of the project shall be accomplished via Wilmington Avenue, Compton Avenue, and 119th Street. Compliance shall be determined by monitoring by regulatory agencies. Transport, storage, and handling of construction-related hazardous materials shall be consistent with the guidelines provided by the California Department of Transportation, Los Angeles Regional Water Quality Control Board, the South Coast Air Quality Management District, and the Certified Unified Program Agency. Each agency shall regulate and enforce, through permitting and record keeping, the monitoring and enforcement of this mitigation measure.

Measure Hazards-5

At least 30 days prior to approval of Tier I final plans and specifications for development, the Office of Statewide Health Planning and Development shall review and provide comments on the plans and specifications to ensure compliance with all requirements of the Department of Toxic Substances Control and to verify that the site remains unlisted on the Hazardous Materials and Substance Sites List maintained by the California Environmental Protection Agency, Department of Toxic Substances Control.

Tier II

Measure Hazards-1

To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance and other construction related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

Measure Hazards-2

To avoid exposure to asbestos-containing materials and lead-based paints during demolition, construction, and remediation activities, the County of Los Angeles and the Office of Statewide Health Planning and Development shall require that all such materials and wastes be identified and an Operations and Maintenance Plan developed prior to the issuance of demolition permits for each structure constructed prior to 1979. The Operations and Maintenance Plan shall ensure compliance with all applicable federal, state, and local requirements and specify all work to be done, including lead and asbestos surveys of structures to be demolished, proper handling and storage of lubricants and fuels for construction equipment, and methods for remediation of asbestos-containing materials and lead-based paints, if necessary. The Operations and Maintenance Plan shall be submitted to the County of Los Angeles Department of Health Services for review and approval prior to initiation of construction and demolition activities for the Multi-Service Ambulatory Care Center building, emergency room, storage building , and the cooling towers. The Operations and Maintenance Plan shall, as appropriate and necessary, conform to the requirements of the Los Angeles County Department of Health Services (Local Enforcement Agency), South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, and the Department of Toxic Substances Control. Compliance with the Operations and Maintenance Plan shall be monitored by the County of Los Angeles Regional Planning Department throughout construction and demolition.

To reduce impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. These agencies shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

Measure Hazards-3

Prior to the issuance of grading permits for development, the County of Los Angeles shall ensure that a Soil Management Plan is prepared for the proposed project site and that the Office of Statewide Health Planning and Development reviews the grading plans to ensure that the construction contractor is required to stop work and notify the Certified Unified Program Agency of the unanticipated encounter of underground storage tanks during grading activities. In the event that any leaking underground storage tanks are located or encountered, the County of Los Angeles Department of Public Works shall be notified and the underground storage tank shall be remediated in accordance with County of Los Angeles guidelines and consistent with specifications of the Department of Toxic Substances Control and other relevant standards. The County of Los Angeles Fire Department Health Hazardous Materials Division shall be notified of all other contaminated soils encountered during construction-related site activities.

Measure Hazards-4

To avoid exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the project, the County of Los Angeles shall require that the construction contractor store, use, and transport all hazardous materials in compliance with all relevant regulations and guidelines. The routine transport of hazardous materials to and from the Martin Luther King, Jr. Medical Center Campus during construction and operation of the elements of the project shall be accomplished via Wilmington Avenue, Compton Avenue, and 119th Street. Compliance shall be determined by monitoring by regulatory agencies. Transport, storage, and handling of construction-related hazardous materials shall be consistent with the guidelines provided by the California Department of Transportation, Los Angeles Regional Water Quality Control Board, the South Coast Air Quality Management District, and the Certified Unified Program Agency. Each agency shall regulate and enforce, through permitting and record keeping, the monitoring and enforcement of this mitigation measure.

Measure Hazards-5

At least 30 days prior to approval of Tier II final plans and specifications for development, the Office of Statewide Health Planning and Development shall review and provide comments on the plans and specifications to ensure compliance with all requirements of the Department of Toxic Substances Control and in order to verify that the site remains unlisted on the Hazardous Materials and Substance Sites List maintained by the California Environmental Protection Agency, Department of Toxic Substances Control.

3.6.6 Level of Significance after Mitigation

Tier I

Implementation of mitigation measure Hazards-1 and Hazards-2 for Tier I would reduce significant impacts related to the exposure of hazards and hazardous materials to below the level of significance.

Implementation of mitigation measure Hazards-3 for Tier I would reduce significant impacts related to USTs below the level of significance.

Implementation of mitigation measure Hazards-4 for Tier I would reduce significant impacts related to exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the proposed project to below the level of significance.

Implementation of mitigation measure Hazards-5 for Tier I would reduce significant impacts related to hazards and hazardous materials below the level of significance.

Tier II

Implementation of mitigation measure Hazards-1 and Hazards-2 for Tier II would reduce significant impacts related to the exposure of hazards and hazardous materials to below the level of significance.

Implementation of mitigation measure Hazards-3 for Tier II would reduce significant impacts related to UST below the level of significance.

Implementation of mitigation measure Hazards-4 for Tier II would reduce significant impacts related to exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the proposed project to below the level of significance.

Implementation of mitigation measure Hazards-5 for Tier II would reduce significant impacts related to hazards and hazardous materials below the level of significance.

3.7 HYDROLOGY AND WATER QUALITY

As a result of the Initial Study, the County of Los Angeles determined that the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in impacts to hydrology and water quality.[1] Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts to hydrology and water quality.

The analysis of hydrology and water quality consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions at the proposed project area, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to hydrology and water quality are subject to the methodologies and information provided by the County of Los Angeles (County) General Plan;[2] the County Department of Public Works Hydrology Manual;[3] Section 15063 of the State of California Environmental Quality Act Guidelines;[4] the National Pollution Discharge Elimination System (NPDES);[5] National Flood Insurance Program Flood Insurance Rate Maps for the County;[6] the California Storm Water Best Management Practice Handbook;[7] the U.S. Geological Survey (USGS) 7.5-minute series South Gate, California topographic quadrangle;[8] the State of California Regional Water Quality Control Plan; and the Los Angeles Regional Water Quality Control Board (LA-RWQCB).[9]

3.7.1 Regulatory Framework

This regulatory framework identifies the federal, state, and local statutes and policies that relate to hydrology and water quality and that must be considered by the County during the decision-making process for projects that involve the potential to result in significant impacts related to hydrology and water quality.

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] County of Los Angeles Department of Public Works. *2006 Hydrology Manual*. Available at: http://ladpw.org/wrd/publications

[4] California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[5] U.S. Environmental Protection Agency. 2009. National Pollution Discharge Elimination System. Available at: http://cfpub.epa.gov/npdes/

[6] Federal Emergency Management Agency. Flood Maps. Available at: http://www.fema.gov/hazard/map/index.shtm

[7] California Stormwater Quality Association. 1993. *California Stormwater Best Management Practice Handbook*. Available at: http://www.cabmphandbooks.com

[8] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[9] California Regional Water Quality Control Board, Los Angeles Regional Water Quality Control Board. 2007. *Water Quality Control Plan (Basin Plan) for the Los Angeles Regional Water Quality Control Board (4)*. Los Angeles, CA.

Federal

Section 401 of the Clean Water Act of 1972

The federal Clean Water Act (CWA) of 1972 sets national goals and policies to eliminate discharge of water pollutants into navigable waters and to achieve a water-quality level that will protect fish, shellfish, and wildlife while providing for recreation in and on the water whenever possible.[10] The CWA regulates point-source and non-point-source discharges to receiving waters with the National Pollutant Discharge Elimination System (NPDES) program. The CWA provides for delegating certain responsibilities for water-quality control and planning to the states. The State of California (State) has been authorized by the U.S. Environmental Protection Agency (USEPA) to administer and enforce portions of the CWA, including the NPDES program. The State issues NPDES permits through the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs). The proposed project is regulated by the Los Angeles RWQCB.

In 1987, the CWA was amended to state that the discharge of pollutants to waters of the United States from storm water is effectively prohibited, unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added Section 402(p) and established a framework for regulating industrial, municipal, and construction storm water discharges under the NPDES program. The 1987 amendment was developed from the awareness that storm water runoff, a non-point-source discharge, is a significant source of water pollution. In 1990, the USEPA published final regulations that established application requirements to determine when industrial, municipal, and construction activities require an NPDES permit.

On December 13, 2001, the Los Angeles RWQCB, adopted Order No. 01-182. This order is the NPDES permit (NPDES CAS004001) for municipal storm water and urban runoff discharges within the County of Los Angeles.

As adopted in December 2001, the requirements of Order No. 01-182 (the "permit") covers 84 cities and the unincorporated areas of the County of Los Angeles. Under the permit, the Los Angeles County Flood Control District is designated as the principal permittee; the County of Los Angeles along with the 84 incorporated cities are designated as co-permittees. The principal permittee coordinates and facilitates activities necessary to comply with the requirements of the permit, but is not responsible for ensuring compliance of any of the permittees.

In compliance with the permit, the permittees have implemented a Storm Water Quality Management Plan (SQMP), with the ultimate goal of accomplishing the requirements of the permit and reducing the amount of pollutants in storm water and urban runoff. The SQMP is divided into six separate programs, as outlined in the permit. These programs are Public Information and Participation, Industrial/Commercial Facilities, Development Planning, Development Construction, Public Agency Activities, and Illicit Connection / Illicit Discharge. Each permittee is required by the permit to have implemented these programs by February 1, 2002.

General Construction Activity Storm Water Discharges

Storm water discharges that are composed entirely of runoff from qualifying construction activities may be eligible to be regulated under the General Construction Activity Storm Water Permit issued by the SWRCB rather than an individual NPDES permit issued by the appropriate RWQCB. Construction

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[10] *United States Code*. Title 33, Section 1341: "Certification."

activities that qualify include clearing, grading, excavation, reconstruction, and dredge-and-fill activities that result in the disturbance of greater than 1 acre of total land area. The proposed project would be required to conform to the Standard Urban Stormwater Management Plan (SUSMP) as part of compliance with the NPDES General Construction Activity Storm Water Permit (amended on September 2, 2009, Order No. 2009-0009-DWQ) to reduce water quality impacts to the maximum extent practicable. A Stormwater Pollution Prevention Plan (SWPPP) is required by the construction general permit and describes the construction site operators activities to prevent stormwater contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water Act. A SUSMP is a report that includes one or more site maps, an identification of post-construction activities that could cause pollutants to enter the storm water and a description of measures or best management practices (BMPs) to control these pollutants to the maximum extent practicable. A BMP is defined by the California Stormwater Quality Association (CASQA) formerly known as the Storm Water Quality Task Force, as any program, technology, process, citing criteria, operating method, measure, or device that controls, prevents, removes, or reduces storm water pollution.

Executive Order 11988

The objective of Executive Order 11988, dated May 24, 1977, is the avoidance of, to the extent possible, long- and short-term adverse impacts associated with the occupancy and modification of the base floodplain (100-year floodplain) and the avoidance of direct and indirect support of development in the base floodplain wherever there is a practicable alternative. Under the Executive Order, the U.S. Army Corps of Engineers (Corps) must provide leadership and take action to:

- Avoid development in the base floodplain unless it is the only practicable alternative
- Reduce the hazard and risk associated with floods
- Minimize the impact of floods to human safety, health, and welfare
- Restore and preserve the natural and beneficial values of the base floodplain

The proposed project would be subject to Executive Order 11988 if it would result in adverse impacts to the 100-year floodplain.

Regional

Water Quality Control Plan for the Los Angeles Region

The federal Clean Water Act is administered and enforced by the State Water Resources Control Board, which develops regulations to implement water-quality control programs mandated at the federal and state levels.

The Los Angeles RWQCB has prepared a Water Quality Control Plan for the Los Angeles Region (Basin Plan), which includes the Coastal Watersheds of Los Angeles and Ventura Counties. The first essentially complete Basin Plan, which was established under the requirements of California's 1969 Porter-Cologne Water Quality Control Act [Section 13000 (Water Quality) et seq. of the California Water Code], was adopted in 1975 and revised in 1984. The most recent version of the Basin Plan was adopted in 1994.[11]

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[11] Regional Water Quality Board, Los Angeles Region. 13 June 1994 (Triennial Review completed 2008-2010). *Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties.* Monterey Park, CA.

The Basin Plan assigned beneficial uses to surface and groundwater such as municipal water supply and water-contact recreation to all waters in the basin. It also set water-quality objectives, subject to approval by the EPA, intended to protect designated beneficial uses. These objectives apply to specific parameters (numeric objectives) and general characteristics of the water body (narrative objectives). An example of a narrative objective is the requirement that all waters must remain free of toxic substances in concentrations producing detrimental effects on aquatic organisms. Numeric objectives specify concentrations of pollutants that are not to be exceeded in ambient waters of the basin.

Local

County of Los Angeles General Plan

The County of Los Angeles Board of Supervisors adopted the Conservation, Open Space and Recreation element as a component of the County of Los Angeles General Plan;[12] the provisions of the element were updated, revised, combined, and included in the Streamlined County of Los Angeles General Plan (General Plan).[13] The Conservation, Open Space and Recreation element addresses policies directed for open space-related resources of Los Angeles County.

The General Plan includes goals to conserve water and protect water quality. There are two policies supporting this goal relevant to the proposed project:[14]

1. Protect groundwater recharge and watershed areas, conserve storm and reclaimed water, and promote water conservation programs
2. Encourage the maintenance of landscaped areas and pollution-tolerant plants in urban areas. Integrate landscape and open space into housing, commercial, and industrial developments, especially in urban revitalization areas. Use drought-resistant vegetation.

The General Plan includes a hazards goal to reduce the risk of life and property from seismic occurrence, flooding, erosion, wildland fires, and landslides. There is one policy supporting this goal relevant to the proposed project:[15]

- Restrict urban development on flood prone areas, and thus avoid major new flood control works.

The "Flood Protection Policy Map" of the County of Los Angeles General Plan must be taken into consideration in the project planning process.[16,17]

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[12] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA.

[13] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. and County of Los Angeles Department of Regional Planning. January 1993. *Streamlined County of Los Angeles General Plan*. Los Angeles, CA.

[14] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. and County of Los Angeles Department of Regional Planning. January 1993. *Streamlined County of Los Angeles General Plan*. Los Angeles, CA.

[15] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. and County of Los Angeles Department of Regional Planning. January 1993. *Streamlined County of Los Angeles General Plan*. Los Angeles, CA.

[16] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA.

Los Angeles County Hydrology Manual

The County of Los Angeles Hydrology Manual provides information relevant to conducting hydrologic study within the County of Los Angeles.[18] This manual provides examples and methods to explain the steps involved in converting rainfall to runoff flow rates and volumes using Los Angeles County Department of Public Works' standards.

Additionally, this manual contains procedures and standards developed and revised by the Water Resources Division of the County Department of Public Works based on historic rainfall and runoff data collected within the County.[19] The techniques in this manual apply to the design of local storm drains, retention and detention basins, pump stations, and major channel projects. The techniques also apply to storm drain deficiency and flood hazard evaluations. Low flow hydrology methods related to water quality standards are also discussed.[20]

Municipal Code

On December 13, 2001, the LA-RWQCB, adopted Order No. 01-182. This order is the NPDES permit (NPDES CAS00400, amended September 14, 2006, August 9, 2007, and December 10, 2009) for municipal storm water and urban runoff discharges within the County of Los Angeles.

As adopted in December 2001, the requirements of Order No. 01-182 (the "permit") covers 84 cities and the unincorporated areas of the County of Los Angeles (with the exception of the portion of County of Los Angeles in the Antelope Valley), covered areas include the cities of Lancaster and Palmdale, as well as the cites of Long Beach and Avalon. Under the permit, the County of Los Angeles Flood Control District is designated as the principal permittee; the County of Los Angeles along with the 84 incorporated cities are designated as permittees. The principal permittee coordinates and facilitates activities necessary to comply with the requirements of the permit, but is not responsible for ensuring compliance of any of the permittees.

The County Stormwater Ordinance addresses provisions that apply to the discharge, deposit, or disposal of any stormwater and/or runoff to the storm drain system and/or receiving waters within any unincorporated area covered by the NPDES municipal stormwater permit. The County Municipal Stormwater NPDES Permit contains a requirement for permittees to develop and implement programs for stormwater management within the County.

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[17] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. and County of Los Angeles Department of Regional Planning. January 1993. *Streamlined County of Los Angeles General Plan*. Los Angeles, CA.

[18] County of Los Angeles, Department of Public Works. January 2006. *County of Los Angeles Hydrology Manual*. Available at: http://dpw.lacounty.gov/wrd/publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf

[19] County of Los Angeles, Department of Public Works. January 2006. *County of Los Angeles Hydrology Manual*. Available at: http://dpw.lacounty.gov/wrd/publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf

[20] County of Los Angeles, Department of Public Works. January 2006. *County of Los Angeles Hydrology Manual*. Available at: http://dpw.lacounty.gov/wrd/publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf

In compliance with the permit, the permittees have implemented a storm water quality management plan (SWQMP), with the ultimate goals of accomplishing the requirements of the permit and reducing the amount of pollutants in storm water and urban runoff. The SWQMP is divided into six separate programs, as outlined in the permit. These programs are 1) Public Information and Participation, 2) Industrial/Commercial Facilities, 3) Development Planning, 4) Development Construction, 5) Public Agency Activities, and 6) Illicit Connection/Illicit Discharge. Each permittee is required by the permit to have implemented these programs by February 1, 2002.

General Construction Activity Storm Water Discharges

Storm water discharges that are composed entirely of runoff from qualifying construction activities may be eligible to be regulated under the General Construction Activity Storm Water Permit issued by the SWRCB rather than an individual NPDES permit issued by the appropriate RWQCB. Construction activities that qualify include clearing, grading, excavation, reconstruction, and dredge-and-fill activities that result in the disturbance of greater than one acre of total land area. The proposed project would be required to conform to the Stormwater Pollution Prevention Plan (SWPPP) and Standard Urban Stormwater Management Plan (SUSMP) as part of compliance with the NPDES General Construction Activity Storm Water Permit to reduce both the construction and operational water quality impacts to the maximum extent practicable. The SWPPP and SUSMP are construction and operational plans, respectively that include one or more site maps, an identification of construction activities that could cause pollutants to enter the storm water, and a description of measures or best management practices (BMPs) to prevent, mitigated, or control these pollutants to the maximum extent practicable. A BMP is defined by the Stormwater Quality Task Force as any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces storm water pollution.

3.7.2 Existing Conditions

The proposed project is located within the Los Angeles Regional Water Quality Control Board authority. Therefore, the proposed project area's existing conditions were verified under the State of California RWQCB Basin Plans for the Los Angeles region.

The implementation of the proposed project would affect the existing 38-acre Martin Luther King, Jr. Medical Center Campus located at 12021 Wilmington Avenue in the unincorporated area of Willowbrook in the County of Los Angeles, California. The proposed project is located within the Central Basin Municipal Water District, and the proposed project site and surrounding urbanized area are served by storm drain collection infrastructure that is a part of the Los Angeles storm drain system.

The proposed project site appears on the USGS 7.5-minute series South Gate topographic quadrangle.[21] The elevations at the proposed project site range from 86 feet about mean sea level (MSL) to 88 feet above MSL. The topography of the site can be generally characterized as flat. There are no significant topographic features at the project site.

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[21] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

3.7.2.1 Drainage

The Los Angeles Region includes all coastal drainage flow of five coastal islands in addition to the flow into the Pacific Ocean between Rincon Point and the eastern Los Angeles County line. Compton Creek, which flows into the Los Angeles River just south of the 91 Freeway, is the nearest hydrologic feature and is located approximately 500 yards (0.3 mile) southwest of the MLK Campus.

The proposed project is a part the existing Los Angeles storm drain system. The Los Angeles County Department of Public Works has implemented measures to initiate storm water pollution reduction programs throughout the County.[22] The proposed project is located on a previously disturbed site

3.7.2.2 Surface Water Quality

The proposed project is located on an existing and previously disturbed site. The existing site consists largely of impervious surfaces, including buildings, parking lots, and other paved surfaces. There are some landscaped areas and other open spaces on the campus that serve as pervious surfaces. There are no natural drainage features on the proposed project site, although it is a part of the existing Los Angeles storm drain system.

3.7.2.3 Groundwater

The proposed project site area is located within the Central Coast Groundwater Basin (Central Basin) which has a storage capacity of 13,800,000 acre-feet. The Park Water Company, Central Division (PWC) provides potable water supplies for the Compton West service area that includes the proposed project area. Groundwater currently comprises approximately 11 percent of PWC's water supply and of its three groundwater supply wells located in its Compton West service area, one is active and two are on standby.[23]

The groundwater at the existing site has been encountered at 38 to 52 feet below ground surface.[24] The existing use of the proposed project site does not serve as or influence the local groundwater basin. The site also does not serve as a groundwater recharge site. Screening level analytical data from a preliminary investigation of subsurface soil borings at the proposed project site indicated that there were no contaminants of concern in samples collected of both soil and groundwater that resulted from the proposed project site.[25]

3.7.2.4 Floodways and 100-Year Flood Zone

The proposed project site is located on the existing 38-acre Martin Luther King, Jr. Medical Center Campus in Los Angeles County, which is not located within a 100-year or 500-year flood zone.[26] The existing campus does not have structures that are located within a 100-year flood hazard area.

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[22] County of Los Angeles Department of Public Works. Accessed 2 October 2009. "Stormwater Pollution Prevention Home." Available at: http://ladpw.org/PRG/StormWater/Page_03.cfm

[23] RMT. 2010. *Preliminary Water Supply Assessment, Martin Luther King Medical Center Campus, Redevelopment Project, 2010*. Los Angeles, CA.

[24] URS Corporation. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

[25] URS Corporation. 10 June 2009. *Report Limited Environmental Subsurface Investigation for the Proposed MACC Building and ED/Ancillary Building Martin Luther King, Jr. Multi-Service Ambulatory Care Center*. Los Angeles, CA.

[26] Federal Emergency Management Agency. Flood Maps. Available at: http://www.fema.gov/hazard/map/index.shtm

The Los Angeles River Watershed currently redirects flood water to reduce the impacts of major flood events in the region. The watershed encompasses and is shaped by the path of the Los Angeles River and ultimately follows into San Pedro Bay.[27] The Los Angeles River is channelized to control the runoff and reduce flood-related impacts in the region. Each of the major flood control channels offer the proposed project site protection from flooding during a significant rain event, specifically during potential flood activity.

3.7.2.5 Seiche, Tsunamis, and Mudflows

Seiches and tsunamis are the result of tectonic activity, such as an earthquake. A seiche is an oscillation of the surface of a landlocked body of water that can create a hazard to persons and structures on and in the vicinity of the water. A tsunami is a long-period, high-velocity tidal surge that can result in a series of very low (trough) and high (peak) sea levels with the potential to inundate areas up to several miles from the coast, creating hazards to people or structures from loss, injury, or death. Most of the hazards created by a tsunami come when a trough follows the peak resulting in a rush of sea water back into the ocean. A mudflow is a moving mass of soil made fluid by a loss of shear strength, generally as a result of saturation from rain or melting snow.

The proposed project site is located approximately 10 miles east from the Pacific Ocean, at elevations between approximately 86 and 88 feet above MSL. There are no slopes on-site or in the surrounding vicinity.

3.7.3 Significance Thresholds

The potential for the proposed project to result in impacts to hydrology and water quality was analyzed in relation to the questions contained in Appendix G of the State California Environmental Quality Act (CEQA) Guidelines. The proposed project would normally be considered to have a significant impact to hydrology and water quality if the proposed project would:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere with groundwater recharge leading to a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of preexisting nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)
- Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation either on site or off site
- Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river or substantial increase in the rate or amount of surface runoff in a manner that would result in flooding either on site or off site

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[27] County of Los Angeles Department of Public Works. 2008. *Los Angeles River Watershed.* Available at: http://ladpw.org/wmd/watershed/LA/

- Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff

- Otherwise substantially degrade water quality

- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map

- Place structures within a 100-year flood hazard area that would impede or redirect flood flows

- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam

- Result in inundation by seiche, tsunami, or mudflow

3.7.4 Impact Analysis

3.7.4.1 Water Quality Standards

Tier I

Tier I of the proposed project would be expected to result in less than significant impacts to hydrology and water quality in relation to violating any water quality standards or waste discharge requirements. The proposed project would entail both construction and operational elements in Tier I, would be expected to involve ground-disturbing activities. The construction of the proposed project may contribute to erosion, sediment-laden runoff, discharge of non-storm water runoff from the proposed project site, or other water quality–related events that could violate water quality standards or waste discharge requirements. In addition, Tier I of the proposed project would include construction-related activities and operational activities that would be expected to result in changes from current hydrology-related activities at the proposed project site.

Tier I of the proposed project would implement sustainable measures, Leadership in Energy and Environmental Design (LEED) elements, and best management practices (BMPs) to reduce or eliminate non-storm discharges to the storm water system. These requirements meet the water quality standards set forth by the responsible agencies, and address storm water runoff quantity and flow rate, suspended solids (primarily from erosion), and contaminants such as phosphorus and hydrocarbons. BMPs would be incorporated in accordance with the NPDES permit issued to the County by the LA-RWQCB, the LADPW SUSMP, and the County General Plan. Therefore, Tier I would be expected to result in less than significant impacts to hydrology and water quality in relation to violating any water quality standards or waste discharge requirements.

Tier II

Tier II of the proposed project would be expected to result in less than significant impacts to hydrology and water quality in relation to violating any water quality standards or waste discharge requirements. The proposed project would entail both construction and operational elements in Tier II, which would be expected to involve ground-disturbing activities. As in Tier I, the construction of the Tier II may contribute to erosion, sediment-laden runoff, discharge of non-storm water runoff from the proposed project site, or other water quality–related events that could violate water quality standards or waste discharge requirements. In addition, Tier II of the proposed project would include construction-related activities and operational activities that would be expected to result in changes from current hydrology-related activities at the proposed project site.

Tier II of the proposed project would implement sustainable measures, LEED elements, and BMPs to reduce or eliminate non-storm discharges to the storm water system. These requirements meet the water quality standards set forth by the responsible agencies, and address storm water runoff quantity and flow rate, suspended solids (primarily from erosion), and contaminants such as phosphorus and hydrocarbons. BMPs would be incorporated in accordance with the NPDES permit issued to the County by the LA-RWQCB, the LADPW SUSMP, and the County General Plan. Therefore, Tier II would be expected to result in less than significant impacts to hydrology and water quality in relation to violating any water quality standards or waste discharge requirements.

3.7.4.2 Surface Water Quality

Direct and Indirect Impacts

Tier I

Tier I of the proposed project would have the potential to result in significant impacts to hydrology and water quality in relation to surface water quality, therefore requiring the consideration of mitigation measures. Tier I of the proposed project would be expected to generate wastewater from kitchen uses, restrooms, landscape, irrigation, and would entail ground-disturbing activities during construction elements. The proposed project would have the potential to violate water quality standards due to indirect impacts from the runoff of sediment-laden polluted stormwater or wastewater into the Los Angeles County storm drain system, subsequently causing discharges of pollutants of concern into receiving waters of the storm drain system. It is anticipated that Tier I of the proposed project would result in an approximately 14-percent increase in impervious surfaces, which would be expected to increase runoff from the proposed project site (Appendix G, *Stormwater Analysis for Tier I Development*).[28] This increase in stormwater runoff would be reduced at the proposed project site by project design features such as a combination of on-site storage detention and infiltration by constructing subsurface stormwater collection chambers under the parking lots in the areas designated in a soil infiltration report as the best infiltration locations (Appendix G).[29]

As with most projects that contain construction-related activities, the construction phase of Tier I would also require the use of gasoline, diesel fuel, and lubricants for fueling project vehicles and paints, adhesives, and solvents. Accidental spills of petroleum products and other hazardous substances during project construction, refueling and operation and maintenance activities could potentially enter the storm drain system if not properly cleaned up and removed from the spill site. Additionally, other construction-related activities have the potential to result in the release of wastewater, and other pollutants that could impact the surface water at the proposed Tier I project site. However, the plans and specifications for the proposed Tier I project would include a requirement for the construction contractor to comply with all provisions of the NPDES permit issued by the LA-RWQCB, to the County of Los Angeles, as they relate to avoiding impacts from stormwater runoff during construction; the County would be responsible for ensuring that these practices are enforced. Tier I of the proposed project would be required to incorporate BMPs during construction and operation. BMPs are

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[28] Moffatt and Nichol. July 2010. *Stormwater Analysis for Tier I Development*. Long Beach, CA.

[29] Moffatt and Nichol. July 2010. *Stormwater Analysis for Tier I Development*. Long Beach, CA.

consistent with guidelines provided in the *California Storm Water Best Management Practices Handbook for Construction Activities* and in the Los Angeles County Storm Water Management Program for substantiated erosion or siltation.

Mitigation measures to ensure the implementation of BMPs, SWQMP, LEED and sustainable measures to reduce potentially significant construction-related impacts related to water quality will reduce this impact to below the level of significance.

It is not anticipated that operation of Tier I would result in impacts related to water quality, as the proposed project would be designed in compliance with County standards and BMPs, LEED, and sustainable measures such as appropriate design of parking lot catch basins and biofiltration of stormwater runoff. Ongoing maintenance of project landscaping may require occasional use of pesticides and herbicides, which would be utilized in accordance with state regulations and usage instructions, thereby avoiding any substantive adverse impact. Operation of Tier I would, therefore, not result in significant impacts to hydrology and water quality.

Tier II

Tier II would have the potential to result in significant impacts to hydrology and water quality in relation to surface water quality, therefore requiring the consideration of mitigation measures. As in Tier I, the proposed Tier II project would be expected to generate wastewater from kitchen uses, restrooms, landscape, irrigation and would entail ground-disturbing activities during construction elements that would have the potential to violate water quality standards due to indirect impacts from the runoff of sediment-laden polluted stormwater into the Los Angeles County storm drain system, subsequently causing discharges of pollutants of concern into receiving waters of the storm drain system.

As with most projects that contain construction-related activities, the construction phase of Tier II would also require the use of gasoline, diesel fuel, and lubricants for fueling project vehicles and paints, adhesives, and solvents. Accidental spills of petroleum products and other hazardous substances during project construction, refueling and operation and maintenance activities could potentially enter the storm drain system if not properly cleaned up and removed from the spill site. Additionally, other construction-related activities have the potential to result in the release of wastewater, and other pollutants that could impact the surface water at the proposed Tier II project site.

The plans and specifications for Tier II would include a requirement for the construction contractor to comply with all provisions of the NPDES permit issued by the LA-RWQCB, to the County of Los Angeles, as they relate to avoiding impacts from stormwater runoff during construction; the County would be responsible for ensuring that these practices are enforced. Tier II of the proposed project would be required to incorporate BMPs during construction and operation. BMPs are consistent with guidelines provided in the *California Storm Water Best Management Practices Handbook for Construction Activities* and in the Los Angeles County Storm Water Management Program for substantiated erosion or siltation.

Mitigation measures to ensure the implementation of BMPs, SWQMP, LEED, and sustainable measures to reduce potentially significant construction-related impacts related to water quality would reduce this impact to below the level of significance.

It is anticipated that operation of Tier II would result in impacts related to water quality. It is anticipated that Tier II of the proposed project has the potential to result in a significant increase in impervious surfaces, which would be expected to increase runoff from the proposed project site (Appendix G).[30] This increase in storm water runoff would be reduced at the proposed project site by project design features. These features include items such as a combination of on-site storage detention and infiltration facilities, in the form of subsurface stormwater collection chambers under the parking lots in designated areas in a soil infiltration report as the best infiltration locations (Appendix G).[31] However, Tier II of the proposed project has the potential to result in significant impacts related to surface water quality during operation due to the size of the anticipated development and the various uses that might contribute to additional runoff or that may indirectly result from the additional development on the campus, therefore requiring implementation of mitigation measures. The proposed project would be designed in compliance with County standards and BMPs, LEED (for all County buildings greater than 10,000 square feet), and sustainable measures such as appropriate design of parking lot catch basins and biofiltration of storm water runoff to help reduce surface water quality. Ongoing maintenance of project landscaping may require occasional use of pesticides and herbicides, which would be utilized in accordance with state regulations and usage instructions, thereby avoiding any substantive adverse impact. Operation of Tier II of the proposed project would result in significant impacts to hydrology and water quality that would be reduced to below the level of significance with the incorporation of mitigation measures.

3.7.4.3 Groundwater

Tier I

Tier I of the proposed project would be expected to result in significant impacts to hydrology and water quality in relation to groundwater that would be reduced to below the level of significance with the incorporation of mitigation measures. The proposed project site does not serve as a designated groundwater recharge area; however, project design elements would be expected to reduce the potential for polluted materials to infiltrate into groundwater. The proposed project is located within the Central Coast Groundwater Basin and groundwater has been determined to occur at approximately 38 to 52 feet below ground surface.[32] The construction phase of the project has the potential to encounter groundwater during excavation activities, which are expected to include excavation to approximately 45 feet below the surface. Where groundwater is encountered, dewatering will be required. However, this effect on groundwater would occur only during the proposed project construction and would have a minimal effect on local groundwater levels in the area.

Tier I of the proposed project development would be consistent with the existing uses at the site. Although development of the new buildings and site improvements on the campus would be expected to slightly increase the impervious surface area of the proposed project site, resulting in a site predominantly covered in impervious surfaces, which may decrease the amount of groundwater recharge; the proposed project site would be anticipated to maintain at least 10 percent of the campus in open space. Additionally, the proposed project site for Tier I is not designated as a current recharge facility for a groundwater basin by the Metropolitan Water District of Southern California.[33] Tier I would not deplete ground water supplies, interfere with groundwater recharge, or utilize groundwater

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[30] Moffatt and Nichol. July 2010. *Stormwater Analysis for Tier I Development*. Long Beach, CA.

[31] Moffatt and Nichol. July 2010. *Stormwater Analysis for Tier I Development*. Long Beach, CA.

[32] URS. 14 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed ED/Ancillary Building and Central Plant Expansion, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[33] Metropolitan Water District of Southern California. November 2005. *Regional Urban Water Management Plan*· Los Angeles, CA.

supplies. While the impervious surfaces on the campus would prevent some water infiltration at the campus, the proposed project would include sustainable LEED elements to ensure that the proposed project does not significantly impact the groundwater supplies or recharge at the proposed project site. Therefore, implementation of Tier I has the potential to result in significant impacts to hydrology and water quality in relation to groundwater, therefore requiring the consideration of mitigation measures.

Tier II

Tier II of the proposed project would be expected to result in significant impacts to hydrology and water quality in relation to groundwater that would be reduced to below the level of significance with the incorporation of mitigation measures. The proposed project site does not serve as a designated groundwater recharge area; however, project design elements would be expected to reduce the potential for polluted materials to infiltrate into groundwater. The proposed project is located within the Central Coast Groundwater Basin and groundwater has been determined to occur at approximately 38 to 52 feet below ground surface.[34] As in Tier I, the construction phase of Tier II of the project has the potential to encounter groundwater during excavation activities, which are expected to include excavation to approximately 45 feet below the surface where excavation depths exceed the depth of groundwater. Where this occurs, dewatering would be required. However, this effect on groundwater would occur only during the proposed project construction and would have a minimal effect on local groundwater levels in the area.

The proposed Tier II project development would be consistent with the existing uses at the site. As with Tier I, Tier II would increase the impervious surface area of the proposed project site, resulting in a site predominantly covered in impervious surfaces, which may decrease the amount of ground water recharge; the proposed project site would be anticipated to maintain at least 10 percent of the campus in open space. Additionally, the proposed project site is not designated as a current recharge facility for a groundwater basin by the Metropolitan Water District of Southern California.[35] Tier II would not deplete ground water supplies, interfere with groundwater recharge, or utilize groundwater supplies. While the impervious surfaces on the campus would prevent some water infiltration at the campus, the proposed project will include sustainable Leadership in Energy and Environmental Design (LEED) elements to ensure that the Tier II does not significantly impact the groundwater supplies or recharge at the proposed project site. Therefore, implementation of Tier II has the potential to result in significant impacts to hydrology and water quality in relation to groundwater, therefore requiring the consideration of mitigation measures

3.7.4.4 Drainage

Tier I

Tier I of the proposed project would result in less than significant impacts to hydrology and water quality in relation to drainage. The proposed project would not substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation either on or off site. The materials most susceptible to erosion are artificial fill, soil, and younger alluvium; all three may exist beneath the surface of the

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[34] URS. 14 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed ED/Ancillary Building and Central Plant Expansion, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

[35] Metropolitan Water District of Southern California. November 2005. *Regional Urban Water Management Plan*· Los Angeles, CA.

proposed project area. However, most susceptible areas are typically steeper slopes and along drainage courses. Due to the urban conditions and relatively flat nature of the proposed project area, severe site erosion is not anticipated. Construction of the proposed project may create impacts associated with erosion due to potential uncontrolled drainage. However, drainage and erosion issues for the overall site would be addressed in the proposed project in accordance with the building code requirements and storm water BMPs. Therefore, erosion-related impacts associated with the alteration of the existing drainage pattern of the site or area during construction of Tier I would be less than significant.

Tier I of the proposed project requires the redevelopment of a previously disturbed site. The proposed project site does not contain existing drainage patterns nor are there existing drainage patterns within the vicinity that would change due to the proposed project. Upon review of the USGS 7.5-minute series South Gate topographic quadrangle, there are no potential impacts to existing drainage patterns that would result in flooding on site or off site.[36] Impervious surfaces that would result from development of Tier I of the proposed project would be located on areas that are currently impervious (including a surface parking lot comprised of asphalt), as such the Tier I development would not substantially interfere with groundwater infiltration (as discussed above) that could also result in an increase in runoff at the proposed project site in a manner that would adversely impact drainage. Therefore, Tier I would be expected to result in less than significant impacts to hydrology and water quality related to drainage.

Tier II

Tier II of the proposed project would result in less than significant impacts to hydrology and water quality in relation to drainage. Tier II would not substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation either on or off site. The materials most susceptible to erosion are artificial fill, soil, and younger alluvium; all three may exist beneath the surface of the proposed project area. However, most susceptible areas are typically steeper slopes and along drainage courses. Due to the urban conditions and relatively flat nature of the proposed project area, severe site erosion is not anticipated. Construction of Tier II may create impacts associated with erosion due to potential uncontrolled drainage. Drainage and erosion issues for the overall site would be addressed in the proposed project in accordance with the building code requirements and storm water BMPs. Therefore, erosion-related impacts associated with the alteration of the existing drainage pattern of the site or area during construction would be less than significant with the proposed project elements.

Tier II of the proposed project requires the redevelopment of a previously disturbed site. Although development of Tier II of the proposed project would be expected to increase the amount of impervious surfaces, it is anticipated that a substantial portion of that development would occur on currently impervious locations (including a surface parking lot comprised of asphalt). Additionally, Tier II of the proposed project would be expected to implement measure that would substantially reduce the potential impacts of the proposed project to result in altering or in an increase in runoff at the proposed project site in a manner that would adversely impact drainage. The proposed project site does not contain existing drainage patterns nor are there existing drainage patterns within the vicinity that would change due to the construction of Tier II. Upon review of the USGS 7.5-minute series South Gate topographic quadrangle, there are no potential impacts to existing drainage patterns that would

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[36] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

result in flooding on site or off site.[37] Therefore, Tier II would result in less than significant impacts to hydrology and water quality related to drainage.

3.7.4.5 100-Year Flood Zone

Tier I

Tier I of the proposed project would result in less than significant impacts to hydrology and water quality in relation to the 100-year flood zone. As discussed under the Existing Conditions in this section, the proposed project is not within a 100- or 500-year flood hazard area or within a designated flood plain management area. Therefore, implementation of Tier I of the proposed project would not result in direct or indirect impacts related to placing housing or other structures within the 100-year flood hazard area or flood plain management area, or expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

Tier I of the proposed project is the development and redevelopment of the existing Martin Luther King, Jr. Medical Center campus which is not located in a 100-year or 500-year flood hazard area based on the information provided by the FEMA maps.[38] Tier I would not involve the development of structures within a 100-year or 500-year flood hazard area. Therefore, the Tier I of the proposed project is not expected to result in significant impacts to hydrology and water quality related to the 100-year flood zone.

Tier II

Tier II of the proposed project would result in less than significant impacts to hydrology and water quality in relation to the 100-year flood zone. As discussed under the Existing Conditions in this section, the proposed project is not within a 100- or 500-year flood hazard area or within a designated flood plain management area. Therefore, implementation of Tier II would not result in direct or indirect impacts related to placing housing or other structures within the 100-year flood hazard area or flood plain management area, or expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

Tier II of the proposed project is the development and redevelopment of the existing Martin Luther King, Jr. Medical Center campus which is not located in a 100-year or 500-year flood hazard area based on the information provided by the FEMA maps.[39] Tier II of the proposed project would not involve the development of structures within a 100-year or 500-year flood hazard area. Therefore, Tier II is not expected to result in significant impacts to hydrology and water quality related to the 100-year flood zone.

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[37] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[38] Federal Emergency Management Agency. Flood Maps. Available at: http://www.fema.gov/hazard/map/index.shtm

[39] Federal Emergency Management Agency. Flood Maps. Available at: http://www.fema.gov/hazard/map/index.shtm

3.7.4.6 Seiche, Tsunamis, and Mudflows

Tier I

Tier I of the proposed project would result in less than significant impacts to hydrology and water quality in relation to seiche, tsunamis, and mudflows. The proposed project site is 10 miles east of the Pacific Ocean and the elevation ranges from 86 feet above MSL to 88 feet above MSL. Due to the distance of the proposed project site from the Pacific Ocean, there is no potential for an impact resulting from a tsunami to occur. The proposed project is not located adjacent to or near an enclosed body of water that would be impacted by a seiche. Tier I is not located or adjacent to steep slopes that would be impacted by mudflows. Due to the sufficient elevation of the proposed project area and the distance from the ocean and other bodies of water, there would be no direct or indirect impacts related to seiches or tsunamis. The low relief of the proposed project area and relatively flat surface significantly reduce the risk for earthquake-related ground failures that would result in mudflows; therefore, there would be no direct or indirect impacts. Therefore, Tier I of the proposed project would not be expected to result in significant impacts to hydrology and water quality related to seiche, tsunamis, and mudflows.

Tier II

Tier II of the proposed project would result in less than significant impacts to hydrology and water quality in relation to seiche, tsunamis, and mudflows. The proposed project site is 10 miles east of the Pacific Ocean and the elevation ranges from 86 feet above MSL to 88 feet above MSL. Due to the distance of the proposed project site from the Pacific Ocean, there is no potential for an impact resulting from a tsunami to occur. The proposed project is not located adjacent to or near an enclosed body of water that would be impacted by a seiche. Tier II is not located or adjacent to steep slopes that would be impacted by mudflows. Due to the sufficient elevation of the proposed project area and the distance from the ocean and other bodies of water, there would be no direct or indirect impacts related to seiches or tsunamis. The low relief of the proposed project area and relatively flat surface significantly reduce the risk for earthquake-related ground failures that would result in mudflows; therefore, there would be no direct or indirect impacts. Therefore, Tier II would not be expected to result in significant impacts to hydrology and water quality related to seiche, tsunamis, and mudflows.

3.7.4.7 Cumulative Impacts

Tier I

The incremental impact of Tier I of the proposed project, when considered with the related past, present, or reasonably foreseeable, probable future projects listed in Section 2, Project Description, would not cause a significant impact to hydrology and water quality. The less than significant impacts after mitigation that are associated with the proposed project would be localized and would not cumulatively impact groundwater levels and quality when analyzed with the other projects in the area. Tier I would include the incorporation of BMPs for sediment and erosion control during construction and therefore would not contribute to or cause a significant cumulative impact on surface water quality and erosion. Therefore, implementation of Tier I would not cause an incremental impact when considered with the related past, present, or reasonably foreseeable, probable future project.

Tier II

The incremental impact of Tier II of the proposed project, when considered with the related past, present, or reasonably foreseeable, probable future projects listed in Section 2, Project Description, would not cause a significant impact to hydrology and water quality. The less than significant impacts after mitigation that are associated with Tier II would be localized and would not cumulatively impact groundwater levels and quality when analyzed with the other projects in the area. Tier II would include the incorporation of BMPs for sediment and erosion control during construction and therefore would not contribute to or cause a significant cumulative impact on surface water quality and erosion. Therefore, implementation of Tier II of the proposed project would not cause an incremental impact when considered with the related past, present, or reasonably foreseeable, probable future project.

3.7.5 Mitigation Measures

Implementation of the following mitigation measures is recommended to avoid, reduce, or eliminate the potential impacts related to hydrology and water quality.

Tier I

Measure Hydrology-1

The County shall ensure that the construction, landscape features, and site grading for Tier I of the project comply with standard best management practices set forth by the Regional Water Quality Control Board. Prior to final plans and specifications for all elements of the project, the County of Los Angeles shall review the plans and specifications for all elements to ensure that the plans and specifications require the construction contractor to prepare a Standard Urban Stormwater Mitigation Plan for construction activities and implement best management practices for construction, materials, and waste handling activities, which will include, but not be limited to:

- Scheduling excavation, grading, and paving activities for dry weather periods.
- Controlling the amount of runoff crossing the construction site by means of berms and drainage ditches to divert water flow around the site.
- Identifying potential pollution sources from materials and wastes that will be used, stored, or disposed of on the site.
- Informing contractors and subcontractors about the clean storm water requirements and enforce their responsibilities in pollution prevention through a contractual agreement
- Sweeping the streets surrounding the proposed project site daily and trash removal throughout the construction of the project to avoid degradation of water quality.

Measure Hydrology-2

The construction contractor shall incorporate Standard Urban Stormwater Mitigation Plan requirements and best management practices to mitigate storm water runoff, which include the following:

- The incorporation of bio-retention facilities located within the project area
- The incorporation of catch basin filtration systems
- The use of porous pavements to reduce runoff volume

Measure Hydrology-3

In the event that groundwater is encountered during Tier I construction, the County of Los Angeles shall require the construction contractor complete the dewatering operations in accordance with the established National Pollution Discharge Elimination System permit requirements.

Measure Hazards-1

To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance and other construction related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

Tier II

Measure Hydrology-1

The County shall ensure that the construction, landscape features, and site grading for Tier II of the project comply with standard best management practices set forth by the Regional Water Quality Control Board. Prior to final plans and specifications for all elements of the project, the County of Los Angeles shall review the plans and specifications for all elements to ensure that the plans and specifications require the construction contractor to prepare a Standard Urban Stormwater Mitigation Plan for construction activities and implement best management practices for construction, materials, and waste handling activities, which will include, but not be limited to:

- Scheduling excavation, grading, and paving activities for dry weather periods.
- Controlling the amount of runoff crossing the construction site by means of berms and drainage ditches to divert water flow around the site.
- Identifying potential pollution sources from materials and wastes that will be used, stored, or disposed of on the site.
- Informing contractors and subcontractors about the clean storm water requirements and enforce their responsibilities in pollution prevention through a contractual agreement
- Sweeping the streets surrounding the proposed project site daily and trash removal throughout the construction of the project to avoid degradation of water quality.

Measure Hydrology-2

The construction contractor shall incorporate Standard Urban Stormwater Mitigation Plan requirements and best management practices to mitigate storm water runoff, which include the following:

- The incorporation of bio-retention facilities located within the project area

- The incorporation of catch basin filtration systems
- The use of porous pavements to reduce runoff volume

Measure Hydrology-3

In the event that groundwater is encountered during Tier I construction, the County of Los Angeles shall require the construction contractor to complete the dewatering operations in accordance with the established National Pollution Discharge Elimination System permit requirements.

Measure Hydrology-4

To ensure that operational impacts associated with Tier II remain below the level of significance, the County shall require that best management practices and sustainable practices, such as regularly removing vegetation and debris from curbs, catch basins, and outlets; limiting the amount of pesticides and fertilizers used in landscaping, and other best management practice as recommended by the Environmental Protection Agency or in the California Stormwater Best Management Practice Handbooks as ongoing maintenance measures, are implemented into a maintenance plan for the campus.

Measure Hazards-1

To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance and other construction related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

3.6.6 Level of Significance after Mitigation

Tier I

Implementation of mitigation measures Hydrology-1 through Hydrology-4, in addition to Hazards-1, would reduce significant hydrology and water quality impacts related to construction-related water quality to below the level of significance.

Tier II

Implementation of mitigation measures Hydrology-1 through Hydrology-4, in addition to Hazards-1, would reduce significant hydrology and water quality impacts related to construction- and operation-related water quality to below the level of significance.

3.8 NOISE

As a result of the Initial Study, the County of Los Angeles determined that the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in noise impacts.[1] Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts from noise.

The analysis of noise consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions in the proposed project area, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation.

The potential for impacts from noise has been analyzed utilizing the findings of the Noise Impact Analysis (Appendix F, *Noise Technical Report*)[2] in accordance with the methodologies provided by Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines,[3] the County of Los Angeles (County) General Plan,[4] and the County Noise Ordinance.[5]

The definitions for noise and ground-borne vibration are discussed in this section to provide context for the evaluation of noise as it relates to the proposed project.

Definitions

Noise

Noise is defined as unwanted sound. The human response to environmental noise is subjective and varies considerably from individual to individual. Sensitive receptors, such as residential areas, convalescent homes, schools, auditoriums, and other similar land uses, may be affected to a greater degree by increased noise levels than industrial, manufacturing, or commercial facilities. The effects of noise can range from interference with sleep, concentration, and communication, to the causation of physiological and psychological stress, and, at the highest intensity levels, hearing loss.

The method commonly used to quantify environmental noise involves evaluation of all frequencies of sound, with an adjustment to reflect the constraints of human hearing. Since the human ear is less sensitive to low and high frequencies than to midrange frequencies, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called "A-weighting," written as dBA (decibels in A-weighted sound levels). In practice, environmental

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[2] Sapphos Environmental, Inc. August 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Noise Impact Analysis*. Pasadena, CA.

[3] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[4] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[5] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ordinance 11778, Section 2 (Article 1, Section 101); Ordinance 11773, Section 2 (Article 1, Section 101). Chapter 12.08. Available at: http://ordlink.com/codes/lacounty/index.htm

noise is measured using a sound level meter that includes an electronic filter corresponding to the A-weighted (Table 3.8-1, *A-weighted Sound Levels).*

TABLE 3.8-1
A-WEIGHTED SOUND LEVELS

Noise Source	A-weighted Sound Level (in dBA)	Subjective Loudness	Effect of Noise
Near jet engine	130	Intolerable or deafening	Hearing loss
Loud auto horn	100	Very noisy	Hearing loss
Normal conversation at 5–10 feet	60	Loud	Speech interference
Bird calls	40	Moderate	Sleep disturbance
Whisper	30	Faint	No effect
Rustling leaves	10	Very faint	No effect

NOTE: dBA = decibels in A-weighted sound levels

There are several statistical tools used to evaluate and compare noise level measurements. To account for the fluctuation in noise levels over time, noise impacts are commonly evaluated using time-averaged noise levels. Equivalent Levels (Leq) are used to represent the noise level experienced over a stated period of time averaged as a single noise level. Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, an artificial decibel increment is added to quiet-time noise levels to create a 24-hour noise descriptor, or a 24-hour Leq, called the Community Noise Equivalent Level (CNEL). This equivalent level is also known as the Day-Night Level (Ldn).

Another measure used to characterize noise exposure is the variation in sound levels over time, measured by the percentage exceedance level. L_{10} is the A-weighted sound level that is exceeded for 10 percent of the measurement period, and L_{90} is the level that is exceeded for 90 percent of the measurement period. L_{50} is the median sound level. Additional statistical measures include L_{min} and L_{max}, the minimum and maximum sound levels, respectively, measured during a stated measurement period.

These descriptions of noise are based on the sound level at the point of measurement. When determining potential impacts to the environment, the noise level at the receptor is considered. Noise is attenuated as it propagates from the source to the receiver. Attenuation is the reduction in the level of sound resulting from absorption by the topography, the atmosphere, distance, barriers, and other factors. Attenuation is also logarithmic, rather than linear, so that noise levels decrease approximately 6 dBA for every doubling of distance.

Ground-Borne Vibration Definition

Vibration is an oscillatory motion, which can be described in terms of displacement, velocity, or acceleration. Because motion is oscillatory and there is no net movement of the vibrating element, the average of any of the motion descriptors is zero. Displacement is the easiest descriptor to understand. For a vibrating floor, the displacement is simply the distance that a point on the floor moves away from its static position. The velocity represents the instantaneous speed of the movement, and the acceleration represents the rate of change in the speed.

Although displacement is easier to understand than velocity and acceleration, it is rarely used for describing ground-borne vibration. This is because most transducers used to measure ground-borne vibration use either velocity or acceleration. Even more important, the response of humans, buildings, and equipment to vibration is more accurately described using velocity or acceleration. Therefore, ground-borne vibration is measured as a velocity level in 10^{-6} inches per second.

The effects of ground-borne vibration include striking movements of the building floors, rattling of windows, or shaking of items on shelves or hangings on walls. The rumble is the noise radiated from the motion and contact of room surfaces. In essence, the room surfaces act like a loudspeaker. This is called ground-borne noise. In extreme cases, vibrations can cause damage to buildings. Ground vibrations from construction activities rarely reach levels that can damage structures, but can achieve the audible and perceptible ranges in buildings close to a construction site. Peak Particle Velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. PPV is an appropriate measure for evaluating potential building damage during construction. Construction vibration impacts are assessed in terms of PPV.

3.8.1 Regulatory Framework

State

California Senate Bill 860, which became effective January 1, 1976, directed the California Office of Noise Control within the State Department of Health Services to prepare "Guidelines for the Preparation and Content of Noise Elements of the General Plan."[6] One purpose of these guidelines was to provide sufficient information concerning the noise environment in the community so that noise could be considered in the land use planning process. As part of this publication, Land Use Compatibility Standards were developed in four categories: Normally Acceptable, Conditionally Acceptable, Normally Unacceptable, and Clearly Unacceptable. These categories were based on earlier work done by the U.S. Department of Housing and Urban Development (HUD). The interpretation of the four categories is as follows:

- Normally Acceptable: Specified land use is satisfactory without special insulation.
- Conditionally Acceptable: New development requires detailed analysis of noise insulation requirements.
- Normally Unacceptable: New development is discouraged and requires a detailed analysis of insulation features.
- Clearly Unacceptable: New development should not be undertaken.

The State of California has developed a Land Use Compatibility Matrix for community noise environments that further defines four categories of acceptance and assigns CNEL values to them. In addition, the State Building Code (Title 24, California Code of Regulations [CCR], Part 2) establishes uniform minimum noise insulation performance standards to protect persons within new hotels, motels, dormitories, long-term care facilities, apartment houses, and residential units other than detached single-family residences from the effects of excessive noise, including, but not limited to, hearing loss or impairment and interference with speech and sleep. Residential structures to be located where the CNEL or L_{dn} is 60 dBA or greater are required to provide sound insulation to limit the interior CNEL to a maximum of 45 dBA. An acoustic, or noise, analysis

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[6] California Department of Health Services, Office of Noise Control. February 1976. *Guidelines for the Preparation and Content of Noise Elements of the General Plan*. Contact: California Department of Health Services, Office of Noise Control, P.O. Box 942732 Sacramento, CA 94234-7320.

report prepared by an experienced acoustic engineer is required for the issuance of a building permit for these structures. Conversely, land use changes that result in increased noise levels at residences of 60 dBA or greater must be considered in the evaluation of impacts to ambient noise levels.

Local

County of Los Angeles

The County Noise Control Ordinance[7] provides for the designation of noise-sensitive zones but does not define specific land uses for these zones. Instead, Section 12.08.260 defines a "noise-sensitive zone" as any area designated, pursuant to Part 4 of the chapter, for the purpose of ensuring a state of exceptional quiet. Section 12.08.470 refers to the use of these zones at individual institutions or facilities that have been designated by the local health officer. These must be indicated by the display of conspicuous signs in at least three separate locations within 164 meters (0.1 mile) of the institution or facility.

Operational Noise

The County does not set land use standards for noise in the Noise element of the General Plan. However, the County has adopted the Noise Control Ordinance of the County,[8] which specifies exterior noise standards as shown in Table 3.8.1-2, *County of Los Angeles Exterior Noise Standards*. The exterior noise levels presented in the final column of Table 3.8.1-2 indicate the average hourly dBA to be maintained for designated noise zone level use.

TABLE 3.8.1-2
COUNTY OF LOS ANGELES EXTERIOR NOISE STANDARDS

Noise Zone	Designated Noise Zone Land Use (Receptor Property)	Time Interval	Exterior Noise Level[1]
I	Noise-Sensitive Area[2]	Anytime	45 dBA
II	Residential Area	10:00 p.m. – 7:00 a.m. (Nighttime) 7:00 a.m. – 10:00 p.m. (Daytime)	45 dBA 50 dBA
III	Commercial Area	10:00 p.m. – 7:00 a.m. (Nighttime) 7:00 a.m. – 10:00 p.m. (Daytime)	55 dBA 60 dBA
IV	Industrial Area	Anytime	70 dBA

NOTES:
1. Required average hourly noise standard.
2. Noise-sensitive area is designated to ensure exceptional quiet.

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[7] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Available at: http://ordlink.com/codes/lacounty/index.htm

[8] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Available at: http://ordlink.com/codes/lacounty/index.htm

SOURCE: County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

The County Ordinance includes five standards for governing exterior noise levels:[9]

> **Standard No. 1:** shall be the exterior noise level that may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable noise level stated above, or if the ambient L_{50} exceeds the foregoing level, then the ambient L_{50} becomes the exterior noise level for Standard No. 1.
>
> **Standard No. 2:** shall be the exterior noise level that may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable noise level stated above, plus 5 dB, or if the ambient L_{25} exceeds the foregoing level, then the ambient L_{25} becomes the exterior noise level for Standard No. 2.
>
> **Standard No. 3:** shall be the exterior noise level that may not be exceeded for a cumulative period of more than 5 minutes in any hour. Standard No. 3 shall be the applicable noise level stated above, plus 20 dB, or if the ambient $L_{8.3}$ exceeds the foregoing level, then the ambient $L_{8.3}$ becomes the exterior noise level for Standard No. 3.
>
> **Standard No. 4:** shall be the exterior noise level that may not be exceeded for a cumulative period of more than 1 minute in any hour. Standard No. 4 shall be the applicable noise level stated above, plus 15 dB, or if the ambient $L_{1.7}$ exceeds the foregoing level, then the ambient $L_{1.7}$ becomes the exterior noise level for Standard No. 4.
>
> **Standard No. 5:** shall be the exterior noise level that may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level stated above, plus 20 dB, or if the ambient L_0 exceeds the foregoing level, then the ambient L_0 becomes the exterior noise level for Standard No. 5.

Construction Noise

The County Noise Control Ordinance also includes the following construction noise restrictions:

- Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work is prohibited between the weekday hours of 8:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays,[10] such that the sound creates a noise disturbance across a residential or commercial property line, except for emergency work of public service utilities or by a variance issued by the health officer.
- The contractor shall conduct construction activities in such a manner that the maximum noise levels for non-scheduled, intermittent, short-term operation of mobile equipment and that for repetitively scheduled and relatively long-term

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[9] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Available at: http://ordlink.com/codes/lacounty/index.htm

[10] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Available at: http://ordlink.com/codes/lacounty/index.htm. The ordinance also includes extended time limitations for specific construction related noise as described in table 3.8.1-3, *Maximum Construction Noise Levels*.

operation of stationary equipment at affected structures will not exceed those listed in Table 3.8.1-3, *Maximum Construction Noise Levels*, at any time.

- All mobile or stationary equipment or machinery powered by internal combustion engines will be equipped with suitable exhaust and air-intake silencers in proper working order.

- In case of a conflict between this noise ordinance and any other ordinance regulating construction activities, provisions of any specific ordinance regulating construction activities will take precedence.

TABLE 3.8.1-3
MAXIMUM CONSTRUCTION NOISE LEVELS

	Residential Structures		
	Single-family Residential	**Multi-family Residential**	**Semi-residential / Commercial**
Mobile Equipment: Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment			
Daily – 7:00 a.m. to 8:00 p.m. (except Sundays and legal holidays)	75 dBA	80 dBA	85 dBA
Daily – 8:00 p.m. to 7:00 a.m., Sundays and legal holidays	60 dBA	64 dBA	70 dBA
Stationary Equipment: Maximum noise level for repetitively scheduled and relatively long-term operation (more than 10 days) of stationary equipment			
Daily – 7:00 a.m. to 8:00 p.m. (except Sundays and legal holidays)	60 dBA	65 dBA	70 dBA
Daily – 8:00 p.m. to 7:00 a.m., Sundays and legal holidays	50 dBA	55 dBA	60 dBA
	Business Structures		
Mobile Equipment: Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment			
Daily – all hours (including Sundays and legal holidays)	85 dBA		

SOURCE: [1] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Available at: http://ordlink.com/codes/lacounty/index.htm

However, the County Noise Ordinance includes a list of activities that are exempt, including:

- The emission of sound for the purpose of alerting persons to the existence of an emergency, or the emission of sound in the performance of emergency work.

- The use of warning devices necessary for the protection of public safety, such as police, fire, and ambulance sirens, and train horns.[11]

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[11] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

Vibration

The County Noise Ordinance prohibits the operation of any device that creates vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz. The County establishes that the level at which vibration is perceived to be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz.[12]

3.8.2 Existing Conditions

3.8.2.1 Ambient Noise Levels

The existing noise environment in the vicinity of the proposed project site is typical of urban areas and is characterized by noise levels generated by vehicular traffic on nearby streets and highways, occasional aircraft flyway, dogs barking, and lawn mowers.

To analyze the significance of noise and vibration levels associated with the proposed project's construction and operation, the existing noise levels (the ambient noise level at the proposed project site) were measured during peak afternoon hours. Ambient noise level measurements were taken on April 6, 2010, during a typical weekday at sensitive receptors to the north, east, south, and west of the proposed project site between 4:00 p.m. and 6:00 p.m. (Figure 3.8.2.1-1, *Measured Ambient Noise Levels in Proposed Project Vicinity*). The measured ambient noise levels ranged from 55.2 dBA to 70.2 dBA (Table 3.8.2.1-1, *Measured Ambient Noise Levels in the Vicinity of the Proposed Project)*. These measurements are 20-minute L_{eq} noise levels.

TABLE 3.8.2.1-1
MEASURED AMBIENT NOISE LEVELS IN THE VICINITY OF THE PROPOSED PROJECT

Location	Ambient Noise Level
North (119th Street)	66.2 dBA
East (Wilmington Avenue)	69.7 dBA
South (122nd Street)	55.2 dBA
West (Compton Avenue)	70.2 dBA

NOTE: dBA = decibels in A-weighted sound levels

3.8.2.2 Noise Receptors

The noise levels of the proposed project were evaluated at noise receptors in the vicinity of the proposed project (Figure 3.8.2.2-1, *Noise Receptors*).

- Schools: The King/Drew Magnet High School of Medicine and Science (King Drew High School) is located north of the proposed project site across 119th Street (Receptor 1A, Figure 3.8.2.2-1), and Head Start/ Lincoln Drew Elementary is located north of the proposed project site on the north side of 118th Street (Receptor 1B, Figure 3.8.2.2-1).

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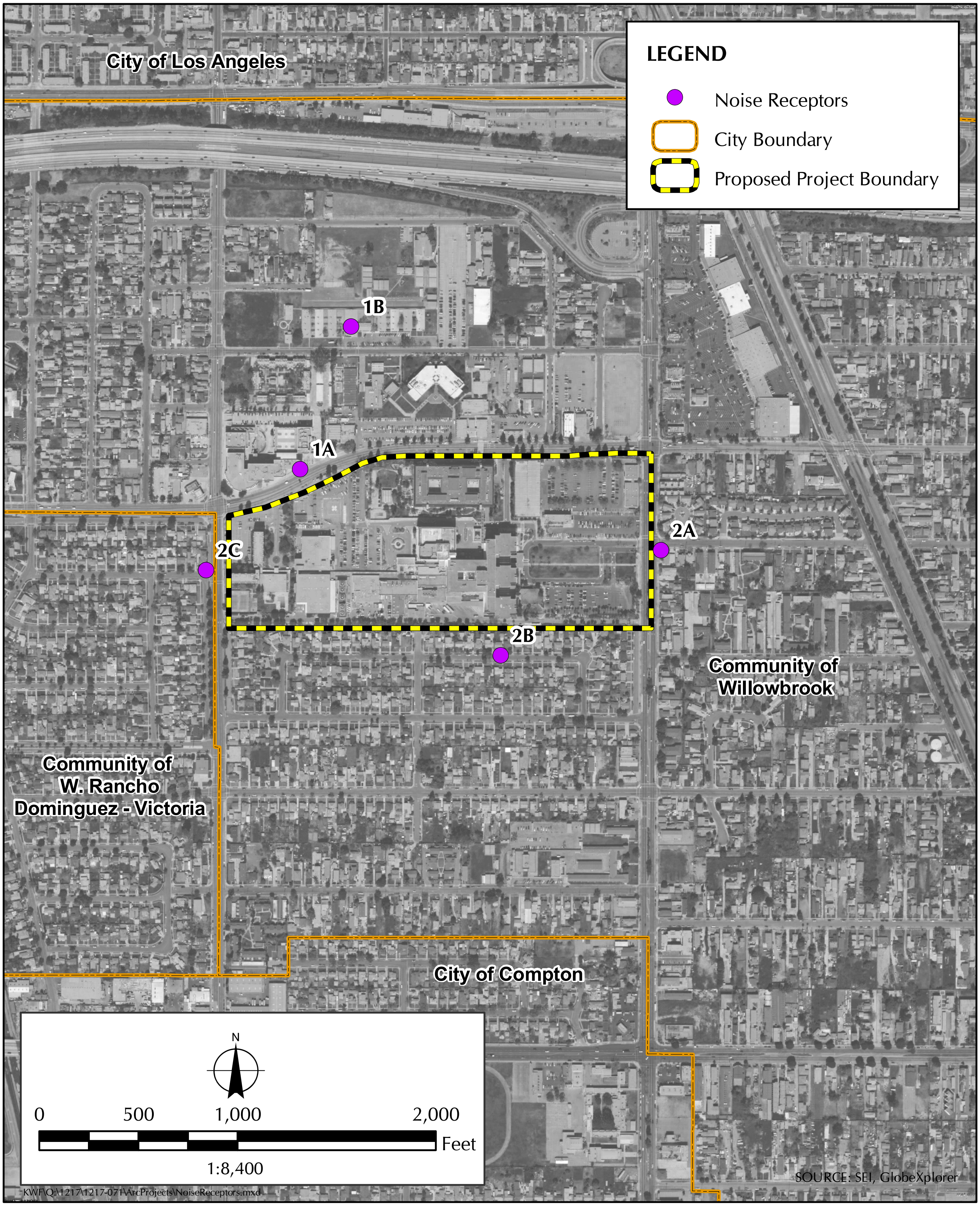
[12] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

SOURCE: SEI, GlobeXplorer

FIGURE 3.8.2.1-1

Measured Ambient Noise Levels in Proposed Project Vicinity



SOURCE: SEI, GlobeXplorer

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FIGURE 3.8.2.2-1

Noise Receptors

- Residential Land Uses (Receptors 2A, 2B, 2C, and 2D, Figure 3.8.2.2-1): Residential areas are located to the east, south, and west of the proposed project site.

The distances from the noise-sensitive receptors to the proposed project site are summarized in Table 3.8.2.2-1, *Noise-Sensitive Receptor Points in the Vicinity of the Proposed Project Site*.

TABLE 3.8.2.2-1
NOISE RECEPTOR POINTS IN THE VICINITY OF THE PROPOSED PROJECT SITE

Type of Receptor	Location on Figure 3.8.2.2-1	Direction	Shortest Distance to the Proposed Project Site
School	1A	North (Across 119th Street)	95 feet
	1B	North (Across 118th Street)	550 feet
Residential	2A	East (across Wilmington Avenue)	100 feet
	2B	South (across 122nd Street)	50 feet
	2C	West (across Compton Avenue)	90 feet

3.8.2.3 Airports and Airport Land Use Plans

The proposed project site is neither located within 2 miles of a public or private airstrip nor is it located within an airport land use plan. The nearest airport, the Compton/Woodley Airport, is located approximately 2.1 miles south of the proposed project site. The proposed project site is not located within the immediate vicinity of any private airstrip. The Saint Francis Medical Center which is located in the City of Lynwood, approximately 2.7 miles east of the proposed project site has a helistop and the next nearest airport, the Gardena Valley Airport in the City of Gardena, is located approximately 4 miles southeast of the proposed project site. A helipad is located at the proposed project site, on the roof of the Inpatient Tower for hospital-specific emergency use.

The nearest private airstrip is located in Playa Vista at 5510 Lincoln Boulevard, approximately 11.5 miles northwest of the proposed project site.

3.8.3 Significance Thresholds

The potential for the proposed project to result in impacts related to noise was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. The project would normally be considered to have a significant impact to noise when the potential for any one of the following six thresholds occurs:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

- Exposure of persons to or generation of excessive groundborne vibration;

- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public or public use airport, exposure of persons residing or working in the project area to excessive noise levels; or

- For a project within the vicinity of a private airstrip, exposure of persons residing or working in the project area to excessive noise levels.

The potential for operation of the proposed project to result in significant impacts on ambient noise levels was assessed in relation to the Community Noise Equivalent Level (CNEL) (Table 3.8.3-1, *Ambient Noise Significance Thresholds*).

TABLE 3.8.3-1
AMBIENT NOISE SIGNIFICANCE THRESHOLDS

CNEL Increase	Category Change	Significant Impact?
5 dBA or more	No	Yes
4 to 5 dBA	No	Yes
3 to 4 dBA	Yes	No
0 to 3 dBA	No	No

NOTE: dBA = decibels in A-weighted sound levels

The potential for operation of the proposed project to result in significant impacts with regard to vibration was assessed based upon a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz for operation and a peak particle velocity 0.2 in/sec for construction.[13]

3.8.4 Impact Analysis

3.8.4.1 Exposure of Persons to or Generation of Noise Levels in Excess of Standards

Tier I

The impact to noise related to exposure or generation of noise levels in excess of established standards from the proposed project would be expected to remain significant and unavoidable with the incorporation of mitigation measures.

Tier II

The impact to noise related to exposure or generation of noise levels in excess of established standards from the proposed project would be expected to remain significant and unavoidable with the incorporation of mitigation measures.

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[13] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

3.8.4.2 Construction Noise

Construction of the proposed project would result in an increase in heavy-duty trucks traveling on streets surrounding the proposed project site. Section 2.4.4.1 of the Project Description describes the two anticipated construction vehicle routes for accessing and exiting the proposed project site: the north haul route and the south haul route. The north and south haul routes utilize the heavily trafficked main thoroughfares in the vicinity of the proposed site, Wilmington Avenue and Compton Avenue, and avoid less trafficked residential streets. Ambient noise increases along Wilmington and Compton Avenues would not be expected to be significantly increased by the addition of heavy-duty vehicles trips during construction of the proposed project as the increase in vehicles would be a marginal increase over existing levels.

Construction noise for the proposed project would generally occur in phases. Average noise levels associated with various construction phases where all pertinent equipment is present and operating at a reference distance of 50 feet are presented in Table 3.8.4.2-1, *Construction Activity Noise Levels at 50 Feet*.

TABLE 3.8.4.2-1
CONSTRUCTION ACTIVITY NOISE LEVELS AT 50 FEET

Activity	Noise Level at 50 feet (dBA)
Ground Clearing/Demolition	84 ± 6 dBA
Excavations	89 ± 6 dBA
Foundations	78 ± 3 dBA
Erection of structures	85 ± 5 dBA
Finishing (i.e., paving)	89 ± 6 dBA

SOURCE: Bolt, Beranek, and Newman. December 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*. Washington, DC.

Based on the construction activity noise levels in Table 3.8.4.2-1, the distance at which impacts would be below the level of significance is predicted. This distance is then compared to the nearest noise receptor distance. Since noise sources are not stationary, this approach is used rather than predicting the noise levels at the nearest receptor. If the distance to the nearest noise receptor is more than the "distance at which impact will occur" then there would be no negative impact. Multiple phases of construction may occur simultaneously; however, they would be spread out over the proposed project area. If multiple phases of construction were to occur simultaneously it is not anticipated that the maximum construction noise levels would be noticeably greater than the construction noise level during the loudest phases of construction in isolation. For example, if construction is in the finishing phase at a location 50 feet from a sensitive receptor, the noise level from the finishing phase is assumed to be 89 dBA. If construction were simultaneously in the erection of structures phase 100 feet from the same the sensitive receptor, the noise level from the erection of structures phase would be 79 dBA. The combined noise level generated by construction in the finishing phase 50 feet from the sensitive receptor and in the erection phase 100 feet from the sensitive receptor would be 89.41 dBA, a negligible increase of less than one half of a decibel over the finishing construction noise in isolation. Therefore, the noise levels during the loudest phases of construction at sensitive receptors were used to determine the noise impacts at sensitive receptors and the noise levels produced by multiple phases of construction were not considered. The results are presented in Table 3.8.4.2-2, *Predicted Distance at which Construction Noise Impacts would be Below the Level of Significance*.

TABLE 3.8.4.2-2
PREDICTED DISTANCE AT WHICH CONSTRUCTION NOISE IMPACTS WOULD BE BELOW THE LEVEL OF SIGNIFICANCE

Construction Phase	**Distance at which Impact would be Below the Level of Significance at Respective Land Use***	
	Residential (75 dBA)	**Commercial (85 dBA)**
Ground Clearing/ Demolition	160 feet	50 feet
Excavations	280 feet	90 feet
Foundations	80 feet	25 feet
Erection of structures	180 feet	50 feet
Finishing (i.e., paving)	280 feet	90 feet
Actual distance to nearest noise receptor	East (across Wilmington Avenue: 100 ft South (across 122nd Street): 50 ft West (across Compton Avenue): 90 ft	North (across 119th Street): 95 ft North (across 118th Street): 550 ft

NOTE:
* Noise levels will vary depending on the location of the construction activities on the site.

Tier I

As shown in Table 3.8.4.2-2, the distance at which Tier I construction noise impacts would be below the level of significance for a commercial property for the different construction phases ranges from 25 to 90 feet. Therefore, construction noise levels would not be expected to exceed 85 dBA at the King Drew High School or at Head Start/ Lincoln Drew Elementary.

As shown in Table 3.8.4.2-2, the distance from the proposed project site at which impacts to affected residential structures would be below the level of significance is 280 feet. The nearest residential land use is approximately 50 feet south of the proposed project site. Since residential structures located to the east, south, and west of the proposed project are within 280 feet of the proposed project site, the consideration of mitigation measures would be required.

Tier II

As shown in Table 3.8.4.2-2, the distance at which Tier II construction noise impacts would be below the level of significance for a commercial property for the different construction phases ranges from 25 to 90 feet. Therefore, construction noise levels would not be expected to exceed 85 dBA at the King Drew High School or at Head Start/ Lincoln Drew Elementary.

As shown in Table 3.8.4.2-2, the distance from the proposed project site at which impacts to affected residential structures would be below the level of significance is 280 feet. The nearest residential land use is approximately 50 feet south of the proposed project site. Since residential structures located to the east, south, and west of the proposed project are within 280 feet of the proposed project site, the consideration of mitigation measures would be required.

Ambient Noise Levels

Tier I

Tier I of the proposed project would result in temporary significant impacts to ambient noise levels during construction of the proposed project. As discussed previously, construction of the proposed project would result in temporary noise increases at nearby residences that exceed County thresholds for construction noise. Therefore, construction of the proposed project would temporarily result in significant impacts from increases in ambient noise levels during construction, thus requiring the consideration of mitigation measures.

Tier II

Tier II of the proposed project would result in temporary significant impacts to ambient noise levels during construction of the proposed project. As discussed previously, construction of the proposed project would result in temporary noise increases at nearby residences that exceed County thresholds for construction noise. Therefore, construction of the proposed project would temporarily result in significant impacts from increases in ambient noise levels during construction, thus requiring the consideration of mitigation measures.

3.8.4.3 Operation Noise

Building Operation

Tier I

Operation of the mechanical systems of the proposed project would generate noise levels. Potential building operation noise was predicted using typical HVAC (Heating, Ventilating, and Air Conditioning) equipment systems. Typical equipment noise levels are 55 dBA at 50 feet from the rooftop source without shielding. Standard design features including shielding would reduce noise emissions below this level. Tier I project elements would occur in the central part of the proposed project area, approximately 270 feet from the nearest residences located to the south of the proposed project site. The measured ambient noise level at residences to the south of the proposed project site is 55.2 dBA. If HVAC equipment was located 50 feet from the residences to the south of the proposed project site, noise generated by the HVAC equipment would have potentially be 34.4 dBA. At this level, the noise from the HVAC equipment at residences would be well below the ambient noise level and would not be perceptible

Tier II

Operation of the mechanical systems of the proposed project would generate noise levels. Potential building operation noise was predicted using typical HVAC (Heating, Ventilating, and Air Conditioning) equipment systems. Typical equipment noise levels are 55 dBA at 50 feet from the rooftop source without shielding. Standard design features including shielding would reduce noise emissions below this level. The nearest sensitive receptors to potential locations of HVAC equipment are residences located to the south of the proposed project site. The measured ambient noise level at residences to the south of the proposed project site is 55.2 dBA. If HVAC equipment was located 50 feet from the residences to the south of the proposed project site, noise generated by the HVAC equipment would have the potential to exceed the 50 dBA daytime noise limit and the 45 dBA nighttimes noise limit. However, it would not exceed the measured ambient noise level. During nighttime hours, when noise from traffic is less than during daytime hours, HVAC equipment at 50 feet from residences would potentially result in a significant noise impact. However, it is anticipated that new buildings on the campus would be consistent with the existing campus layout and building setbacks. As a result, any anticipated increases in the noise levels would be reduced. Additionally, mitigation measures would be incorporated to ensure that noise levels from building operation are below the level of significance.

Traffic

The traffic study prepared for the proposed project was reviewed to ascertain off-site noise impacts from changes in traffic volumes along adjacent roadways resulting from implementation of the proposed project. With respect to roadway noise impacts from vehicles traveling to and from the proposed project, the greatest project-related traffic would be generated during peak a.m. and p.m. hours.

Tier I

Tier I of the proposed project would result in a net decrease in trips generated by Martin Luther King, Jr. Medical Center Campus; as the functions, programs and operations of various campus buildings and structures would be removed. Therefore, Tier 1 of the proposed project would not result in an increase in noise levels from project-related traffic.

Tier I of the proposed project would result in significant impacts from exposure of persons to, or generation of, noise during construction of the proposed project. The noise generated by the proposed project would potentially exceed County construction noise limits at sensitive receptors. Therefore, implementation of the proposed project would result in significant impacts from exposure of persons to, or generation of, noise, thus requiring the consideration of mitigation measures.

Tier II

Tier II of the proposed would result in an increase in traffic volumes at intersections in the vicinity of the proposed project, as a result of the new development and extended phased construction period. The intersections with the greatest percentage increases in traffic volumes are expected to be Compton Avenue and 118th Street during the p.m. peak-hour and Wilmington Avenue and MLK Hospital Driveway/120th Street during the p.m. peak-hours. The existing total p.m. traffic volume at the intersection of Compton Avenue and 118th Street, which is located on the east side of the proposed project, site is 625 vehicles. The anticipated 2020 p.m. peak-hour traffic volume at this intersection would be 1180 vehicles, an 89 percent increase over existing levels. The existing total p.m. traffic volume at the intersection of Wilmington Avenue and MLK Hospital Driveway/120th Street, which is located northeast of the proposed project site is 2010 vehicles. The anticipated 2020 p.m. peak-hour traffic volume at this intersection would be 3395 vehicles, a 69 percent increase over existing levels. A noise increase in 3-dBA is considered to be barely perceptible. Therefore, increased traffic could cause a perceptible change in noise if it results in a greater than 3-dBA Ldn increase in ambient noise levels. Decibels are a logarithmic unit for measuring sound pressure levels. The decibel level from two equivalent sources of sound producing noise simultaneously, such as vehicle traffic, results is 3 decibels greater than the decibel level of one source.[14] Therefore, a doubling in traffic volumes would be necessary to cause noise to increase over 3 dBA, in areas that already experience excessive noise from heavy traffic, the 89-percent increase in traffic at the intersection Compton Avenue and 118th Street and the 69-percent increase in traffic at the intersection Wilmington Avenue and MLK Hospital Driveway/120th Street that would be expected with completion of Tier II of the proposed project would result in less than a 3-dBA increase in noise levels, and as such, the traffic-related noise increases would not be expected to be perceptible. Therefore, increased noise levels generated by the anticipated increase in traffic levels from the proposed project would result in a less than significant impact.

Tier II of the proposed project would result in significant impacts from exposure of persons to, or generation of, noise during construction of the proposed project. The noise generated by the proposed project would potentially exceed County construction noise limits at sensitive receptors. Therefore, implementation of the proposed project would result in significant impacts from exposure of persons to, or generation of, noise, thus requiring the consideration of mitigation measures.

Groundborne Vibration and Groundborne Noise Levels

Implementation of the proposed project would potentially result in significant impacts from groundborne vibration and groundborne vibration noise levels. Groundborne vibration would be generated by the proposed project during construction activities. Operation of the proposed project would not generate substantial levels of vibration and, therefore, is not analyzed below. Construction activities can generate varying degrees of ground vibration, depending on the construction procedures, construction equipment used, and proximity to vibration-sensitive uses. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. Vibration is typically noticed nearby when objects in a building generate noise from rattling windows or picture frames. It is typically not perceptible outdoors and, therefore, impacts are based on the distance to the nearest building. The effect on buildings near a construction site varies depending on soil type, ground strata, and receptor building construction. The generation of vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight damage at the highest levels. Ground vibrations from construction activities rarely reach levels that can damage structures, but can achieve the audible and perceptible ranges in buildings close to a construction site. Peak Particle Velocity is defined as the maximum instantaneous peak of the vibration signal. PPV is an appropriate measure for evaluating potential building damage during construction. Construction vibration impacts are assessed in terms of PPV. People perceive vibration over time. Therefore, to evaluate the perceived level of vibration by nearby people the root mean square (rms) amplitude is used as it indicates the average vibration level produced by a signal.[15]

The nearest sensitive land uses from the existing campus are the residences which are located approximately 50 feet south of the proposed project site. Vibration would primarily occur during the grading and foundation phases of construction. The vibration velocities of typical construction equipment appear in Table 3.8.4.3-1, *Vibration Velocities for Construction Equipment*.

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[14] "Highway Traffic Noise Analysis and Abatement Policy and Guidance." U.S. Department of Transportation Federal Highway Administration. Available at: http://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

[15] Federal Transit Administration. May 2006. Transit Noise and Vibration Impact Assessment. Washington DC.

TABLE 3.8.4.3-1
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT

Equipment	PPV at 25 Feet (inches/second)*	Approximate L_v* at 25 feet
Pile driving (impact)	0.644	104
Pile driving (sonic)	0.170	93
Caisson drilling	0.089	87
Large bulldozer	0.089	87
Loaded trucks	0.076	86

*RMS velocity in decibels (VdB)
Source: Federal Transit Administration. May 2006. Transit Noise and Vibration Impact Assessment. Washington DC.

Anticipated vibration levels at the sensitive receptors were calculated in the Noise Impact Report. To evaluate human annoyance from daytime construction activities, the vibration velocities of Table 3.8.4.3-2, *Construction-Related Vibration Levels at the Nearest Sensitive Receptor, Structural Damage*, lists the maximum vibration levels from heavy construction equipment that would be experienced at the nearest sensitive receptor.

TABLE 3.8.4.3-2
CONSTRUCTION-RELATED VIBRATION LEVELS AT THE NEAREST SENSITIVE RECEPTOR, STRUCTURAL DAMAGE

Equipment	Maximum PPV in In/Sec at Residences (50 feet from vibration Source)	Significance Threshold (PPV in In/Sec)	Exceeds Significance Threshold
Pile driving (impact)	0.2277	0.2	Yes
Pile driving (sonic)	0.0601	0.2	No
Caisson drilling	0.0315	0.2	No
Large bulldozer	0.0315	0.2	No
Loaded trucks	0.0269	0.2	No

The Federal Transit Administration (FTA) has found that structural damage is possible when the PPV exceeds 0.2 inch per second. This criterion is the threshold at which there is a risk of damage to residential buildings. The RMS level at which people generally are able to perceive vibration is 65 VdB and levels are not usually considered significant unless they exceeds 70 VdB.[16]

Proposed project construction activities would be likely to result in RMS levels that would be perceptible (Table 3.8.4.3-3, *Construction-Related Vibration Levels at the Nearest Sensitive Receptor, Human Perception*).

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[16] Federal Transit Administration. May 2006. Transit Noise and Vibration Impact Assessment. Washington DC.

TABLE 3.8.4.3-3
CONSTRUCTION-RELATED VIBRATION LEVELS AT THE NEAREST SENSITIVE RECEPTOR, HUMAN PERCEPTION

Equipment	RMS in decibels (VdB) at Residences (50 feet from vibration Source)	Perception Threshold (RMS in decibels (VdB) at Residences)	Exceeds Perception Threshold
Pile driving (impact)	97.98	65.00	Yes
Pile driving (sonic)	86.98	65.00	Yes
Caisson drilling	80.98	65.00	Yes
Large bulldozer	80.98	65.00	Yes
Loaded trucks	79.98	65.00	Yes

Tier I

As shown in Table 3.8.4.3-2, proposed project construction activities would potentially result in PPV levels that exceed the FTA's criteria for vibration induced structural damage at residences 50 feet from the proposed project site if impact pile driving was utilized. Therefore, implementation of the proposed project would potentially result in significant impacts from generation of groundborne vibration (specifically as a result of construction-related activities that require pile driving), thus requiring the consideration of mitigation measures.

In addition, as shown in Table 3.8.4.3-3, proposed project construction activities would be likely to result in RMS levels that would be perceptible. While construction activities would be limited to daytime hours and would be infrequent, they would still be considered significant.

Tier II

As shown in Table 3.8.4.3-2, proposed project construction activities would potentially result in PPV levels that exceed the FTA's criteria for vibration induced structural damage at residences 50 feet from the proposed project site if impact pile driving was utilized. Therefore, implementation of the proposed project would potentially result in significant impacts from generation of groundborne vibration (specifically as a result of construction related activities that require pile driving), thus requiring the consideration of mitigation measures.

In addition, as shown in Table 3.8.4.3-3, proposed project construction activities would be likely to result in RMS levels that would be perceptible. However, construction activities would be limited to daytime hours and would be infrequent in duration. Therefore, while construction activities would be expected to result in perceptible vibration levels it is not expected that vibration levels would result in a significant impact.

Airports and Airport Land Use Plans

Tier I

Implementation of Tier I of the proposed project would not result in significant impacts from airports or the implementation of airport land use plans. The proposed project site is neither located within 2 miles of a public or private airstrip nor is it located within an airport land use plan. The nearest airport, the Compton/Woodley Airport, is located approximately 2.1 miles south of the proposed project site. The proposed project is relatively removed for the airport activities and would not result in significant impacts from the exposure of people residing or working in the project area to excessive noise levels caused by airports or the implementation of airport land use plans.

Tier II

Implementation of Tier II of the proposed project would not result in significant impacts from airports or the implementation of airport land use plans. The proposed project site is neither located within 2 miles of a public or private airstrip nor is it located within an airport land use plan. The nearest airport, the Compton/Woodley Airport, is located approximately 2.1 miles south of the proposed project site. The proposed project is relatively removed for the airport activities and would not result in significant impacts from the exposure of people residing or working in the project area to excessive noise levels caused by airports or the implementation of airport land use plans.

Private Airstrips

Tier I

Implementation of Tier I of the proposed project would not result in significant impacts from private airstrips. The proposed project would not be located near a private airstrip. The closest private airstrip is located more than 11 miles from the proposed project site. Therefore, the proposed project would not result in significant impacts from the exposure of people residing or working in the project area to excessive noise levels caused by private airstrips.

Tier II

Implementation of Tier II the proposed project would not result in significant impacts from private airstrips. The proposed project would not be located near a private airstrip. The closest private airstrip is located more than 11 miles from the proposed project site. Therefore, the proposed project would not result in significant impacts from the exposure of people residing or working in the project area to excessive noise levels caused by private airstrips.

3.8.4.4 Cumulative Impacts

The incremental impact of the proposed project, when added to the related past, present, or reasonably foreseeable, probable future projects listed in Section 2.0, *Project Description*, would not be expected to result in cumulative impacts from noise.

Tier I

If construction of the proposed project were to coincide with construction of nearby related projects, it would potentially result in increases in noise levels at nearby sensitive receptors beyond the proposed project considered in isolation. Two related projects, MLK Campus Improvements and South Public Health Clinic (Table 2.6-1), are close enough to the proposed project that, if construction of the proposed project were to occur simultaneously with construction of the related project, the resulting noise levels could result in a cumulative noise level greater than either project in isolation. The MLK Campus Improvements project is within the proposed project site and the South Public Health Clinic project is located 0.2 mile from the proposed project site. The cumulative increase in noise levels of the MLK Campus Improvements project with the proposed project, as the MLK Campus Improvements project is located within the proposed project, if the two projects were to occur simultaneously, the increase in noise levels would be similar to those of multiple phases of construction occurring simultaneously and as discussed earlier would be negligible. Cumulative noise levels at a sensitive receptor would be the highest relative to one project in isolation, when the sensitive receptor is in close proximity to both projects. The sensitive receptor that is nearest to the South Public Health Clinic while also being in close proximity to the proposed project is a residence, located is 205 feet from the South Public Health Clinic and170 feet from the proposed project. The noise level at this residence during the loudest phase of construction of the proposed project in isolation would be 63.4 dBA. The noise level at this residence during the loudest phase of construction of the South Public Health Clinic in isolation would be 61.7 dBA. If the loudest phase of construction of the proposed project were to occur at the closest point within the proposed project site to the residence simultaneously with the loudest phase of construction of the South Public Health Clinic at the closest point to the residence, the resulting noise level at the residence would be 65.6 dBA. 65.6 dBA is below the 75 dBA threshold of significance for construction noise at residences. Therefore, the proposed project would not result in a cumulative noise increase during construction. In addition, the mitigation measures considered to reduce the construction noise levels would also reduce the proposed project's contribution to potential cumulative construction noise.

When determining the significance of the noise levels from increased traffic, the anticipated traffic volumes at intersection in the vicinity of the proposed project in 2020 were based on estimated future volumes of traffic from ambient growth. Therefore, the cumulative increase in future traffic noise levels at proposed project build-out, with future ambient growth relative to the existing baseline, were considered in the earlier discussion of traffic noise impacts and were found to be below the level of significance. The mechanical systems of the proposed project would not be expected to be audible to the north, east, and west of the proposed project because ambient noise levels, primarily due to automobile traffic, would be sufficiently high that mechanical noise would not be perceptible. As discussed earlier, mechanical systems would potentially result in significant noise impacts at residences to the south of the proposed project site because of lower ambient noise levels in this area. However, the mechanical noise levels would only be audible at those residences nearest to the proposed project site in the event that there are significant deviations from the existing campus layout and setbacks and as none of the related projects occur in close proximity to these residences, it not expected that mechanical noise from the proposed project would contribute to cumulative noise impacts.

Tier II

Cumulative construction noise impacts for Tier II would potentially increase in noise levels. However, with the consideration of mitigation measures, the cumulative construction noise impacts would be reduced.

When determining the significance of the noise levels from increased traffic, the anticipated traffic volumes at intersection in the vicinity of the proposed project in 2020 were based on estimated future volumes of traffic from ambient growth. Therefore, the cumulative increase in future traffic noise levels at proposed project build-out, with future ambient growth relative to the existing baseline, were considered in the earlier discussion of traffic noise impacts and were found to be below the level of significance. The mechanical systems of the proposed project would not be expected to be audible to the north, east, and west of the proposed project because ambient noise levels, primarily due to automobile traffic, would be sufficiently high that mechanical noise would not be perceptible. As discussed earlier, mechanical systems would potentially result in significant noise impacts at residences to the south of the proposed project site because of lower ambient noise levels in this area. However, the mechanical noise levels would only be audible at those residences nearest to the proposed project site in the event that there are significant deviations from the existing campus layout and setbacks and as none of the related projects occur in close proximity to these residences, it not expected that mechanical noise from the proposed project would contribute to cumulative noise impacts.

3.8.5 Mitigation Measures

The mitigation measures below shall be implemented for the construction and operation activities related to the proposed project.

Tier I

Measure Noise-1

The County of Los Angeles shall require that the plans and specifications require that construction equipment be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 dB. The height and length of the barriers or curtains shall be determined based on location of construction activity and receptor.

Because of the close proximity of the source and receptors, the noise impact would be dependent on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during demolition and construction, and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noises shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall take into account the demolition and equipment mix that would be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels.

Measure Noise-2

Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment.

Measure Noise-3

The distance at which impact pile driving would not exceed a peak particle velocity of 0.2 inch per second at a residence would be 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving shall be utilized.

Measure Noise-4

The County of Los Angeles shall ensure that mechanical noise generated by the project is less than 45 dBA at residences immediately south (approximately 50 feet) of the project. This shall be achieved by implementing one, or a combination of more than one of the following strategies: utilizing quiet mechanical systems; locating mechanical systems away from residences (mechanical systems that produce a noise level of 55 dBA at 50 feet would need to be located a minimum of 160 feet from residences to bring mechanical noise levels below 45 dBA at residences), or utilizing insulating screens to break the line-of-site between the mechanical systems and nearby residences.

Tier II

Measure Noise-1

The County of Los Angeles shall require that the plans and specifications require that construction equipment be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 dB or to the maximum extent possible. The height and length of the barriers or curtains shall be determined based on the location of the construction activity and receptor.

Because of the close proximity of the source and receptors, the noise impact would be dependent on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during demolition and construction, and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noises shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall take into account the demolition and equipment mix that would be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels.

Measure Noise-2

Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment.

Measure Noise-3

The distance at which impact pile driving would not exceed a peak particle velocity of 0.2 inch per second at a residence would be 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving shall be utilized.

Measure Noise-4

The County of Los Angeles shall ensure that mechanical noise generated by the project is less than 45 dBA at residences immediately south (approximately 50 feet) of the project. This shall be achieved by implementing one, or a combination of more than one of the following strategies: utilizing quiet mechanical systems; locating mechanical systems away from residences (mechanical systems that produce a noise level of 55 dBA at 50 feet would need to be located a minimum of 160 feet from residences to bring mechanical noise levels below 45 dBA at residences), or utilizing insulating screens to break the line-of-site between the mechanical systems and nearby residences.

3.8.6 Level of Significance after Mitigation

Implementation of mitigation measure Noise-1 and Noise-2 would reduce construction-related noise levels by a minimum of 10 dB. Based on the mitigated construction noise levels, the distance at which impacts would be below the level of significance is predicted. This distance is then compared to the nearest noise receptor distance. Since noise sources are not stationary, this approach is used rather than predicting the noise levels at the nearest receptor. If the distance to the nearest noise receptor is more than the "distance at which impact will occur" then there would be no negative impact. The results are presented in Table 3.8.6-1, *Distance at which Mitigated Construction Noise Impacts would be Below the Level of Significance*.

TABLE 3.8.6-1
DISTANCE AT WHICH MITIGATED CONSTRUCTION NOISE IMPACTS WOULD BE BELOW THE LEVEL OF SIGNIFICANCE

Construction Phase	Distance at which Impact would be Below the Level of Significance at Respective Land Use*
	Residential (75 dBA)
Ground clearing	45 feet
Excavations	80 feet
Foundations	23 feet
Erection of structures	50 feet
Finishing (i.e., paving)	80 feet
Actual distance to nearest noise receptor	East (across Wilmington Avenue: 100 ft South (across 122nd Street): 50 ft West (across Compton Avenue): 90 ft

NOTE:
* Noise levels will vary depending on the location of the construction activities on the site.

Tier I

As shown in Table 3.8.6-1, the distance from the proposed project site at which impacts to affected residential structures would be below the level of significance is 80 feet. The nearest residential land use is approximately 50 feet south of the proposed project. Implementation of mitigation measures Noise-1 and Noise-2 would reduce construction noise at residential properties to the east and west of the campus to below the level of significance; however, construction noise levels would exceed the 75 dBA permissible level at residences south of the proposed project site that are within 80 feet of the proposed project property. Therefore, noise impacts from construction, while temporary, would remain significant and unavoidable.

Implementation of mitigation measure Noise-3 would reduce significant impacts related to potential building damage from vibration during construction to below the level of significance. However, vibration levels would still be perceptible at sensitive receptors; therefore, vibration levels during construction of the proposed project would result in a significant and unavoidable impact.

Implementation of mitigation measure Noise-4 would reduce significant impacts related to mechanical noise to below the level of significance.

Tier II

As shown in Table 3.8.6-1, the distance from the proposed project site at which impacts to affected residential structures would be below the level of significance is 80 feet. The nearest residential land use is approximately 50 feet south of the proposed project. Implementation of mitigation measures Noise-1 and Noise-2 would reduce construction noise at residential properties to the east and west of the campus to below the level of significance; however, construction noise levels would exceed the 75 dBA permissible level at residences south of the proposed project site that are within 80 feet of the proposed project property. Therefore, noise impacts from construction, while temporary, would remain significant and unavoidable.

Implementation of mitigation measure Noise-3 would reduce significant impacts related to potential building damage from vibration during construction to below the level of significance. However, vibration levels would still be perceptible at sensitive receptors; therefore, vibration levels during construction of the proposed project would result in a significant and unavoidable impact.

Implementation of mitigation measure Noise-4 would reduce significant impacts related to mechanical noise to below the level of significance.

3.9 POPULATION AND HOUSING

As a result of the Initial Study, the County of Los Angeles (County) determined that the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in impacts to population and housing.[1] Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potentially significant impacts to population and housing.

The analysis of population and housing consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing and projected population and housing conditions at the proposed project area, thresholds for determining if the project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. Population and housing at the proposed project site were evaluated with regard to state, regional and local data and forecasts.[2]

3.9.1 Regulatory Framework

State

California Housing Element Law

The California Housing Element Law, enacted in 1969, is implemented by the California Department of Housing and Community Development (HCD), one of 13 departments within the California Business, Transportation and Housing Agency. The HCD is responsible for reviewing local government housing elements for compliance with State law and providing written comments to the local government. Using the information provided by local government in its housing element, the HCD determines the regional housing need for each county and allocates funding to meet this need to the council of governments for distribution to its jurisdictions. The HCD also oversees distribution of the regional housing need by the council of governments (also known as Metropolitan Planning Organizations, or MPOs) to the local governments to ensure that funds are appropriately allocated.

Senate Bill 491

Senate Bill 491, amended in 2003, states that each local government must review its housing element frequently to evaluate the appropriateness of the housing goals, objectives, and policies, effectiveness of the housing element, and progress of the city, county, or city and count in implementing the housing element. The local government's review and revisions of the housing element must consider any low or moderate income housing provided or required.

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study.* Prepared by: Sapphos Environmental, Inc. Pasadena, CA.

[2] Southern California Association of Governments and U.S. Census Data were used and forecasts for population and housing.

Regional

Southern California Association of Governments

The Southern California Association of Governments (SCAG) region is comprised of six counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura and totals approximately 38,000 square miles in area. SCAG is the federally designated MPO under Title 23, United States Code (USC) 134(d)(1), for the six-county region. The region is home to a population of over 18 million people and is expected to grow to 24 million by 2035.[3]

SCAG is responsible for various regional planning and reporting functions. To plan and measure progress toward achieving regional planning goals and objectives, SCAG prepares the Regional Comprehensive Plan (RCP), the Southern California Compass Growth Vision, the Regional Housing Needs Assessment (RHNA), the RTP, the RTIP, and annual State of the Region reports. As part of these responsibilities, SCAG produces population, housing, and employment projections as well as other socioeconomic forecasts. Consistency with the growth forecast, at the subregional level, is one criterion that SCAG uses in exercising its federal mandate to review "regionally significant" development projects for conformity with regional plans. SCAG's current forecast is the one prepared for the 2008 RTP (2012 forecast), which utilizes Census data as a baseline. The proposed project site is located within the Gateway Cities Subregions, one of eight subregions in Los Angeles County.[4]

Regional Transportation Plan

SCAG is required by state and federal mandates to prepare a Regional Transportation Plan (RTP) every four years among various other documents. The 2008 RTP is a long-range regional transportation plan that provides a blueprint to help achieve a coordinated and balanced regional transportation system.[5] The RTP includes a description of regional growth trends to help identify future needs for travel and goods movement.

Regional Comprehensive Plan (2008)

Local governments are encouraged by SCAG to use the RCP as the basis for their own plans and are required to discuss the consistency between the RCP and proposed development projects that are deemed to be of "regional significance."[6] The criteria for regionally significant projects includes proposed shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space and a commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space. Although the proposed project would provide a mix of land uses, given the size of the proposed

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[3] Southern California Association of Governments. 2008. *2008 Regional Transportation Plan Addendum*. Available at: http://www.scag.ca.gov/RTPpeir2008/final/addendum.htm

[4] Southern California Association of Governments. Accessed 8 June 2010. *Regional Transportation Plan 2012 Growth Forecasts*. Available at: http://www.scag.ca.gov/forecast/downloads/excel/RTP2012-GROWTH-FORECAST.xls

[5] Southern California Association of Governments. 2008. *2008 Regional Transportation Plan Addendum*. Available at: http://www.scag.ca.gov/RTPpeir2008/final/addendum.htm

[6] The CEQA definition of projects of regional significance is combined with projects of statewide and area wide significance (Section 15206(b)). SCAG's criteria for regionally significant projects has combine the CEQA Section 15206(b) criteria with additional criteria to include projects that directly relate to the policies and strategies contained in the Regional Comprehensive Plan and the Regional Transportation Plan. Southern California Association of Governments (SCAG). June 25, 2010. Criteria List. http://www.scag.ca.gov/igr/clist.htm.

project, it is presumed to of equivalent size to at least one of the criteria and is therefore considered of regional significance. The RCP is closely tied to both SCAG's Compass Blueprint and the RTP. The RCP incorporates the recommendations from the 2008 RTP and also clarifies the need for further action, such as refinement of the Compass Blueprint program to achieve regional consensus, to achieve this Plan's goals.[7] The purpose of the 2008 RCP is to collect and disseminate regional policies. The nine areas covered in the RCP are land use and housing, open space and habitat, water, energy, air quality, solid, transportation, security and emergency preparedness, and economy. Growth projections contained in the RCP are based on a compilation of county and local projections. RCP forecasts are then used in the formulation of regional plans dealing with regional air quality, housing, transportation and traffic, and other infrastructure issues.

Regional Housing Needs Assessment

SCAG's RHNA is a key tool for its member governments to plan for growth. Various cities (including areas within the unincorporated County of Los Angeles, such as the proposed project; as well as other areas within the County, and the Counties of Imperial, Orange, Riverside, San Bernardino, and Ventura) are designated in SCAG's RHNA.[8] The most recent RHNA was approved by the SCAG Regional Council in July 2007 and quantifies the need for housing within each jurisdiction for specific planning periods. The current planning period is January 1, 2006 to June 30, 2014.[9] Each member government (i.e., city, county) must plan, consider, and decide how they will address this housing need through the process of completing the housing elements of their general plans. The RHNA does not necessarily encourage or promote growth, but rather allows communities to anticipate growth, so that they can grow in ways that enhance the quality of life but rather allows communities to anticipate growth, so that collectively the region and subregion can grow in ways that enhance quality of life, improve access to jobs, promotes transportation mobility, and addresses social equity, fair share housing needs.[10] The RHNA is produced by SCAG, as mandated by state law, to coincide with the region's schedule for preparing housing elements. The existing housing needs assessment is based on data from the most recent U.S. Census to measure ways in which the housing market is not meeting the needs of current residents. Of the six jurisdictions assessed in the RHNA, only the unincorporated County of Los Angeles will be reviewed for this analysis.

Compass Growth Vision Report[11]

The SCAG Southern California Compass Growth Vision Report (Compass Growth Vision), published in June 2004, presents a comprehensive growth vision for the six-county SCAG region, as well as achievements in the process of developing the growth vision. The Compass Growth Vision Report notes that population and household growth trends, and existing housing conditions point to an unmet demand for a greater diversity of housing throughout the six-county region.

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[7] Southern California Association of Governments.2008. *Regional Comprehensive Plan*. Available at: http://www.scag.ca.gov/rcp/pdf/finalrcp/f2008RCP_Complete.pdf

[8] Southern California Association of Governments. Accessed 8 June 2010. *Regional Housing Needs Assessment*. Available at: http://www.scag.ca.gov/housing/rhna/index.htm

[9] Southern California Association of Governments. Accessed 8 June 2010. *Regional Housing Needs Assessment*. Available at: http://www.scag.ca.gov/housing/rhna/index.htm

[10] Southern California Association of Governments. Accessed 8 June 2010. *Regional Housing Needs Assessment*. Available at: http://www.scag.ca.gov/housing/rhna/index.htm

[11] Southern California Association of Governments. Accessed 29 June 2010. *Compass Growth Vision Report*. Available at: http://www.compassblueprint.org/files/scag-growthvision2004.pdf

The Compass Growth Vision represents a plan that, with only modest changes to development patterns, can point the region toward maintained and improved quality of life. The Compass Growth Vision process has included a technical analysis of growth options and values-based considerations that emerged from continued public participation.[12] The Compass Growth Vision is driven by four key principles:

1. Mobility: Getting where we want to go
2. Livability: Creating positive communities
3. Prosperity: Long-term health for the region
4. Sustainability: Promoting efficient use of natural resources.[13]

Compass Blueprint 2%Stragety. The Compass Blueprint 2% Strategy is a guideline for how and where the Compass Growth Vision Report[14] for Southern California's future can be implemented. The 2% Strategy calls for modest changes to current land use and transportation trends on only two percent of the land area of the region, known as the 2% Strategy Opportunity Areas.[15] The 2% Strategy Opportunity Areas are key areas of the SCAG region for targeting growth, where projects, plans and policies consistent with the Compass Blueprint principles will best serve the mobility, livability, prosperity and sustainability goals of the Growth Vision. The 2% Strategy Opportunity Areas are primarily comprised of metro center, city centers, rail transit stops, bus rapid transit corridors, airports, ports and industrial center, priority residential in-fill area and Compass Blueprint priority communities.[16] The Martin Luther King Jr. Medical Center is within the 2% Strategy Opportunities Area (City of Los Angeles South Map). The following principles from the Compass Blueprint Growth Vision and 2% Strategy pertain to the proposed project:

Principle 1: Improve mobility for all residents.

GV P1.1	Encourage transportation investments and land use decisions that are mutually supportive.
GV P1.2	Locate new housing near existing jobs and new jobs near existing housing.
GV P1.3	Encourage transit-oriented development.
GV P1.4	Promote a variety of travel choices.

Principle 2: Foster livability in all communities.

GV P2.1	Promote infill development and redevelopment to revitalize existing communities.
GV P2.2	Promote developments, which provide a mix of uses.
GV P2.3	Promote "people scaled," walkable communities.
GV P2.4	Support the preservation of stable, single-family neighborhoods.

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[12] Southern California Association of Governments. Accessed 18 June 2010. "Compass Blueprint, 2% Strategy." Available at: http://www.compassblueprint.org/about/strategy

[13] Southern California Association of Governments. Accessed 18 June 2010. "Compass Blueprint, 2% Strategy." Available at: http://www.compassblueprint.org/about/strategy

[14] Adopted by SCAG's Regional Council in June 2004.

[15] Southern California Association of Governments. Accessed 18 June 2010. "Compass Blueprint, 2% Strategy." Available at: http://www.compassblueprint.org/about/strategy

[16] Southern California Association of Governments. Accessed 18 June 2010. "Compass Blueprint, Opportunities Areas Maps." Available at: http://www.compassblueprint.org/opportunityareas

Principle 3: Enable prosperity for all people.

GV P3.1	Provide, in each community, a variety of housing types to meet the housing needs of all income levels.
GV P3.2	Support educational opportunities that promote balanced growth.
GV P3.3	Ensure environmental justice regardless of race, ethnicity, or income class.
GV P3.4	Support local and state fiscal policies that encourage balanced growth.
GV P3.5	Encourage civic engagement.

Principle 4: Promote sustainability for future generations.

GV P4.1	Preserve rural, agricultural, recreational, and environmentally sensitive areas.
GV P4.2	Focus development in urban centers and existing cities.
GV P4.3	Develop strategies to accommodate growth that use resources efficiently, eliminate pollution, and significantly reduce waste.
GV P4.4	Utilize "green" development techniques.[17]

Local

County of Los Angeles General Plan

Housing Element (updated 2008)

The housing element of the County of Los Angeles General Plan (General Plan) includes general housing goals, strategies, and policies to meet the housing needs of the population in the County. The housing policies guide the County in making decisions related to housing issues (including the daily administration of the General Plan) and the public in understanding the general direction of the County's housing policies.[18]

Goal 1:	A wide range of housing types in sufficient supply to meet the needs of current and future residents, particularly persons with special needs, including but not limited to low income households, seniors, persons with disabilities, single-parent households, the homeless and at-risk homeless, and farm-workers.
Goal 2:	Sustainable communities with access to employment opportunities, community facilities and services, and other amenities.
Goal 3:	A housing supply that ranges broadly in housing costs to enable all households, regardless of income, to secure adequate housing.

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[17] Southern California Association of Governments. Accessed 29 June 2010. *Compass Growth Vision Report*. Available at: http://www.compassblueprint.org/files/scag-growthvision2004.pdf

[18] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

Goal 4:	A housing delivery system that provides assistance to low and moderate income households and those with special needs.
Goal 5:	Neighborhoods that protect the health, safety, and welfare of the community, and enhance public and private efforts in maintaining, reinvesting in, and upgrading the existing housing supply.
Goal 6:	An adequate supply of housing preserved and maintained in sound condition, located within safe and decent neighborhoods.
Goal 7:	An affordable housing stock that is maintained for its long-term availability to low and moderate income households and those with special needs.
Goal 8:	Accessibility to adequate housing for all persons without discrimination in accordance with Federal and State fair housing laws.
Goal 9:	Planning for and monitoring the long-term affordability of sound, quality housing.

Land Use Element

The Land Use element of the General Plan describes the needs, goals, and policies the County must maintain to use land efficiently, ensure compatibility of development, conserve resources and enhance environmental quality, improve the land use decision making process, and improve inter-agency coordination in land use planning.[19]

Goal 1:	Divergent trends toward decentralization of uses in urban fringe areas and concentration of uses in established urban communities require increased efforts to ensure that new development will be compatible with the natural and manmade environment.
Goal 2:	The manner in which land use decisions are made must address cumulative social, economic and environmental effects, and ensure opportunity for citizen participation.

3.9.2 Existing Conditions

This subsection summarizes the current estimates, trends, and characteristics of the population and housing in the unincorporated area of Los Angeles County.

Population Trends

Since the 1990 Census, the Southern California region has grown from 14.6 million to 16.5 million, an increase of approximately 12.8 percent. During this timeframe, Los Angeles County grew by 7.4 percent; however, in absolute numbers the County's growth was the highest increase of any county in

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[19] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

the state.[20] In 2000, the SCAG region had a population of approximately 16,516,000.[21] SCAG forecasts that the population for its six-county region will increase by six million between 2004 and 2030.[22] The proposed project is located within unincorporated Los Angeles County within the community of Willowbrook. In 1990, the population of the Willowbrook community was 32,772, which reflected a population growth of approximately 1,400 persons since 1990 and 2000, as compared to the County of Los Angeles' approximate one million person increase from 8,863,164 in 1990 to 9,519,338 in 2000. Table 3.9.2-1 *Population Trends by County, Region, and Community*, illustrates the population trends and growth for the SCAG region, the County, and the Willowbrook community.

TABLE 3.9.2-1
POPULATION TRENDS BY COUNTY, REGION, AND COMMUNITY

	2000 Census (Persons)	2007 (or 2006 - 2008 annual average)* (Persons)	Increase	Percent Growth (2000-2007*
Population				
SCAG Region	16,516,000[23]	18,600,000[24,25]	2,084,000	12.6%
County of Los Angeles	9,519,338[26]	9,832,137[27]	312,799	3.2%
Willowbrook Community[28]	34,138	34,215	77	0.23%

SOURCE: SCAG, County of Los Angeles, U.S. Census 2000, 2006-2008 (see footnotes for specific references).
*SCAG does not provide a 2006-2008 average; rather, SCAG data is based on 2007 and a 2000-2007 percent growth.

As displayed in Table 3.9.2-1, the Willowbrook community experienced very little growth between 2000 and 2007. The County as a whole experienced a population increase of approximately three percent. An increase was also reflected in the unincorporated portions of the County. The total population in the unincorporated areas of the County (which includes the community of Willowbrook) increased by approximately 106,000, (from 2000 to 2007), an increase of approximately 0.11 percent, reaching a total population of 1,092,078.[29]

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[20] Southern California Association of Governments. Accessed 7 June 2010. Census Data. Available at: http://www.scag.ca.gov/census/index.htm

[21] Southern California Association of Governments. Accessed 7 June 2010. Census Data. Available at: http://www.scag.ca.gov/census/pdf/regionweb.pdf

[22] Southern California Association of Governments. Accessed 18 June 2010. "Compass Blueprint, 2% Strategy." Available at: http://www.compassblueprint.org/about/strategy

[23] Southern California Association of Governments. Accessed 7 June 2010. Census Data—A Century of Growth. Available at: http://www.scag.ca.gov/census/pdf/regionweb.pdf

[24] Southern California Association of Governments. 2008. *Regional Transportation Plan, Executive Summary*. Available at: http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_ExecSum.pdf

[25] According to the 2008 RTP, SCAG's population is based on the population in 2007.

[26] U.S. Census 2000. Los Angeles County. Accessed 4 June 2010. Available at: www.factfinder.census,gov

[27] U.S. Census 2006-2008. Los Angeles County. Accessed 4 June 2010. Available at: www.factfinder.census,gov

[28] U.S. Census Bureau, American Fact Finder, Willowbrook Community CDP, 2000. Accessed 4 June 2010. Available at: http://factfinder.census.gov/servlet/

[29] Southern California Association of Governments. May 2009. Profile of the County of Los Angeles, Statistical Data (Population 2008). Available at: http://www.scag.ca.gov/resources/pdfs/Counties/LosAngelesCounty.pdf

Housing Trends

This subsection summarizes the current housing context for the region and the project area. The housing inventory on the SCAG regional level has increased between 2000 and 2007, bringing the regional housing stock from approximately 5,390,000 million dwelling units to approximately 5.8 million dwelling units, a relatively modest increase of 0.08 percent.[30] According to SCAG data, the region's population density rose from 2.94 average persons per unit in 1990 to 3.07 in 2000. The average person per household ratio in the SCAG region has also increased from 3.07 in 2000 to 3.19 in 2007. The growing population is reflected mostly in larger households rather than in the formation of new households.[31]

As indicated above, SCAG's RHNA is an assessment process performed periodically as part of Housing element and General Plan updates at the local level. The RHNA quantifies the need for housing by income group within each of six-county Southern California regions (as listed earlier in this section) during specific planning periods. The current planning period is January 1, 2006 to June 30, 2014.[32] Table 3.9.2-2, *SCAG RHNA Anticipated Housing Need By Income Bracket for Unincorporated Los Angeles County*, provides SCAG's RHNA by income for the unincorporated areas of Los Angeles County for the period of January 2006 through June 2014.

TABLE 3.9.2-2
SCAG RHNA ANTICIPATED HOUSING NEED BY INCOME BRACKET FOR UNINCORPORATED LOS ANGELES COUNTY

	Very Low Income Households (%)	**Low Income Households (%)**	**Moderate Income Households (%)**	**Above Moderate Income Households (%)**	**Total (%)**
SCAG RHNA County of Los Angeles (unincorporated)	25.2	15.9	17.2	41.7	100 %

SOURCE: SCAG, Regional Housing Need Allocation Plan, July 12, 2007.

Table 3.9.2-3, *SCAG RHNA Household Need Allocations by Income Bracket for Unincorporated Los Angeles County*, provides SCAG's projection of the number of households by income bracket for the unincorporated areas of Los Angeles County for the period of January 2006 through June 2014.

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[30] Southern California Association of Governments. 2008. *Regional Transportation Plan, Percent Growth in Population by County 2000-2007*. Available at: http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_Complete.pdf

[31] Southern California Association of Governments. 2008. *Regional Transportation Plan, Percent Growth in Population by County 2000-2007*. Available at: http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_Complete.pdf

[32] Southern California Association of Governments. 4 June 2010. Regional Housing Needs Assessment Fact Sheet. Available at: http://www.scag.ca.gov/factsheets/pdf/2009/SCAG_RHNA_Factsheet_0509.pdf

TABLE 3.9.2-3
SCAG RHNA HOUSEHOLD NEED ALLOCATIONS BY INCOME BRACKET FOR UNINCORPORATED LOS ANGELES COUNTY

	Number Of Very Low Income Households	Number Of Low Income Households	Number Of Moderate Income Households	Number Above Moderate Income Households	Total
SCAG RHNA[33] County of Los Angeles (unincorporated)	14,425	9,073	9,816	23,862	57,176

SOURCE: SCAG, Regional Housing Need Allocation Plan, July 12, 2007.

SCAG projections indicate that the unincorporated areas of Los Angles County (which includes the Willowbrook community) will increase its housing stock. The proposed project (Tier II) includes up to 100 residential units. This proposed growth, which is small, is within SCAG projections.

Since 2000, there has been an increase in the County-wide housing stock; however, this increase was not reflected in the Willowbrook community's housing inventory, demonstrating that the community is for the most part built out. In fact, a slight decrease in housing units occurred (Table 3.9.2-4, *Housing Trends and Population for Los Angeles County*).

TABLE 3.9.2-4
HOUSING TRENDS AND POPULATION FOR LOS ANGELES COUNTY

	2000 Census (dwelling units)	Increase (2000-2007) (dwelling units)	Percent Growth (2000-2007)	2007 (or 2006 - 2008 annual average)* (Persons)
County of Los Angeles	3,270,909	101,467	3.1%	3,372,376
Willowbrook Community[34]	9,042	(183)	(2%)	8,859

SOURCE:
U.S. Census 2000, 2006-2008.
NOTE:
*SCAG does not provide a 2006-2008 average; rather, SCAG data is based on 2007 and a 2000-2007 percent growth.

The unincorporated areas of the County also experienced an increase in housing stock between 2000 and 2008. The total number of households in the unincorporated area of the County increased by approximately 16,500 units, or 5.9 percent.[35] Although the housing stock did not mirror the increase observed in the housing stock for the County as a whole, the household size for the community of Willowbrook is larger than the County. Between 2006 and 2008, the average household size in the

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[33] SCAG's projections are based on the planning period of January 2006 though June 2014.

[34] U.S. Census Bureau. American Fact Finder, Willowbrook Community CDP, 2006-2008. Accessed 4 June 2010. Available at: http://factfinder.census.gov/servlet/

[35] Southern California Association of Governments. Accessed 7 June 2010. Profile of the County of Los Angeles, Statistical Data (Population 2008). Available at: http://www.scag.ca.gov/resources/pdfs/Counties/LosAngelesCounty.pdf

unincorporated area of the Willowbrook community was 4.10 persons per household, while the County's was 3.04 per household.[36]

Community Profile

The proposed project is located within the Willowbrook community. In the WIllowbrook community, the median household income for families was approximately $34,601 between 2006 and 2008, which was lower than the $55,192[37] median household income for families in the County during the same timeframe. Of the population living in Willowbrook, 25.8 percent of people fall below the poverty line as opposed to roughly 15.1 percent living in the County as a whole and 13.2 percent nationally. [38]

Between 2003 and 2006, the number of professional and management jobs within the County increased by approximately 2,600 and increased 1.2 percent between 2006 and 2008.[39] In 2008, the education and health employment sector remained the largest sector, accounting for approximately 26 percent of total jobs in the unincorporated area of the County.[40] Other large employment sectors included manufacturing (approximately 11 percent), leisure and hospitality (approximately 10 percent), and professional management (approximately 11 percent).[41]

In 2008, the total jobs in the unincorporated areas of Los Angeles County reached approximately 304,558, about 2.4 percent greater than its 2003 level.[42] The job growth rate in the unincorporated areas was the same percent as the growth rate as in Los Angeles County. Between 2003 and 2006, the number of retail trade jobs in the unincorporated area of the County increased from 25,496 to 27,029, approximately six percent.[43] However, between 2006 and 2008 there was a contraction in retail sales that reduced the total retail employment within the County by approximately 1.4 percent.

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[36] U.S. Census 2000. April 2010. Web site. "Population Finder." Available at: http://factfinder.census.gov/

[37] U.S. Census Bureau. Accessed 11 June 2010. American Fact Finder, Los Angeles County, 2006-2008. Available at: http://factfinder.census.gov/servlet/

[38] U.S. Census Bureau. Accessed 11 June 2010. American Fact Finder, Los Angeles County, 2006-2008. Available at: http://factfinder.census.gov/servlet/

[39] Southern California Association of Governments. May 2009. Profile of the County of Los Angeles, Statistical Data (Population 2008). Available at: http://www.scag.ca.gov/resources/pdfs/Counties/LosAngelesCounty.pdf

[40] Southern California Association of Governments. May 2009. Profile of the County of Los Angeles, Statistical Data (Population 2008). Available at: http://www.scag.ca.gov/resources/pdfs/Counties/LosAngelesCounty.pdf

[41] Southern California Association of Governments. May 2009. Profile of the County of Los Angeles, Statistical Data (Population 2008). Available at: http://www.scag.ca.gov/resources/pdfs/Counties/LosAngelesCounty.pdf

[42] Employment data is based on the California Employment Development Department (EDD) county totals and is adjusted by SCAG.

[43] Southern California Association of Governments. May 2009. Profile of the County of Los Angeles, Statistical Data (Population 2008). Available at: http://www.scag.ca.gov/resources/pdfs/Counties/LosAngelesCounty.pdf

Population, Housing and Employment Projections

This subsection summarizes the projections for population, households and employment for the unincorporated area of the County of Los Angeles. SCAG, under the Community Development Division, Planning and Policy Department, is responsible for producing socioeconomic projections and developing, refining and maintaining the SCAG regional and small area forecasting models. Historically, in the SCAG region as a whole, the professional business services and education and health services fields are work sectors that have experienced increased growth between 2000 and 2005 [Table 3.9.2-5, *Employment Trends in the Professional Business Services and Education and Health Services Sectors for the Gateway Cities Subregion (2000 and 2005)*].

TABLE 3.9.2-5

EMPLOYMENT TRENDS IN THE PROFESSIONAL BUSINESS SERVICES AND EDUCATION AND HEALTH SERVICES SECTORS FOR THE GATEWAY CITIES SUBREGION (2000 AND 2005)

Sector	2000 Jobs		2005 Jobs		Change in Jobs (2000 to 2005)	
	Number in Sector	Percent of Total SCAG Employment Base	Number in Sector	Percent of Total SCAG Employment Base	Increase in Number of Jobs	Percent Increase
Professional and Business Services	1,167,000	16%	1,197,000	15%	30,000	3%
Education and Health Services	1,429,000	19%	1,546,000	20%	117,000	8%

SOURCE: California Employment Development Department/ SCAG Employment Estimates (SCAG, 2008 RTP).

As stated above, the proposed project is located in the Gateway Cities Subregion. Table 3.9.2-6, *Population, Households, and Jobs Projections for the Gateway Cities Subregion (2008 to 2035)*, provides SCAG's forecasts for population, housing and employment for the unincorporated Gateway Cities Subregion of Los Angeles County[44]

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[44] Southern California Association of Governments. 2008. Integrated Growth Forecast. Available at: http://www.scag.ca.gov/forecast/downloads/excel/RTP07_CityLevel.xls

TABLE 3.9.2-6
POPULATION, HOUSEHOLDS, AND JOBS PROJECTIONS FOR THE GATEWAY CITIES SUBREGION (2008 TO 2035)[45]

	2008	2020	2035	2008-2020 change	2008-2020 percent change	2008-2035 change	2008-2035 percent change
Population	362,310	373,404	440,893	11,094	3%	78,583	22%
Households	87,562	89,774	110,366	2,212	2.5%	22,804	26%
Employment	76,543	77,308	85,039	765	0.9%	8,496	11%

SOURCE: SCAG, RTP 2012 Growth Forecasts, 2008.

As shown in Table 3.9.2-6 above, SCAG projects that the unincorporated Gateway Cities (proposed project area) 2035 population will increase to 440,893 (22.0 percent); the number of households will increase to 110,366 (26.0 percent); and the total number of job will increase to 85,039 (11.0 percent).

3.9.3 Significance Thresholds

The potential for the proposed project to result in impacts related to population and housing was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. The project would normally be considered to have a significant impact to population and housing when the potential for any one of the following three thresholds occurs:

- Inducement of substantial growth in an area, either directly or indirectly
- Displacement of substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere
- Displacement of substantial numbers of people, necessitating the construction of replacement housing elsewhere

The State CEQA Guidelines (Section 15131) states the following:[46]

> Economic or social effects of the project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes.

3.9.4 Impact Analysis

Population

Tier I

Tier I of the proposed project would not result in significant impacts to population displacement or unplanned population growth. The proposed project site currently contains the Martin Luther King, Jr.

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[45] Southern California Association of Governments. Accessed 8 June 2010. Integrated Growth Forecast, RTP 2012 Growth Forecasts. Available at: http://www.scag.ca.gov/forecast/index.htm

[46] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

Medical Center Campus and contains no residential development. Therefore, no residents would be removed in order to construct Tier I of the proposed project. The proposed project would be developed on the existing campus, which is a medical facility. Tier I of the proposed development does not entail a residential element. Tier I of the proposed project would not displace any existing residents, nor necessitate the construction of replacement housing elsewhere. Therefore, both construction and operation of Tier I of the proposed project would have no impact with regard to population displacement or unplanned population growth.

Tier II

Tier II of the proposed project would not result in significant impacts to population displacement or unplanned population growth. The proposed project site currently contains the Martin Luther King, Jr. Medical Center Campus and contains no residential development. Therefore, no residents would be removed in order to construct Tier II of the proposed project. Tier II of the proposed project would be developed on the existing campus, which is a medical facility. Under Tier II proposed development, up to 100 residential units would be added to the campus. The proposed project would not displace any existing residents, nor necessitate the construction of replacement housing elsewhere. Therefore, both construction and operation of the proposed project would have no impact with regard to population displacement or unplanned population.

Whether a project's added development would directly induce a substantial population increase or housing growth is evaluated by whether the direct project-related growth could be accommodated within the appropriate population and housing projections. As shown in the analysis that follows, direct growth from the project's residential component falls within SCAG's projections for the unincorporated Gateway Cities Subregion, and would therefore not result in a significant impact with regard to substantial or unplanned population growth.

A project's population impacts are based on an analysis of the probable number of residents associated with the number of residential dwelling units planned in the project. The project's estimated population is then compared with official population growth forecasts for the unincorporated area of the County. In 2000, the Willowbrook Community, a census-designated place (CDP) in unincorporated Los Angeles County had an average of 3.97 persons per household. However, the average persons per household increased to 4.10 between 2006 and 2008.[47] Thus, the 100 residential units proposed under Tier II would be expected to generate approximately 410 individuals.[48]

As shown in Table 3.9.2-6, SCAG projects that the unincorporated Gateway Cities Subregion (the proposed project area) 2020 population will be approximately 373,404, an increase of 11,094 individuals from 2008. The proposed project's residential component would generate an estimated population increase of 410 persons, which represents approximately 0.1[49] percent of the forecasted population in 2020 and approximately 4 percent of the forecasted growth between 2008 and 2020.[50]

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[47] The 2006- 2008 estimates represent the average characteristics of population and housing between January 2006 and December 2008 and do no represent a single point in time.

[48] U.S. Census Bureau. Accessed 4 June 2010. American Fact Finder, 2006-2008 Willowbrook CDP. Available at: http://factfinder.census.gov/servlet/. This calculation is based on the following: the 100 residential units proposed is multiplied by 4.10 (average persons per dwelling unit in the Willowbrook Community), equal approximately 410 new residents).

[49] This calculation is based on the following: the 410 new residents are divided by 373,404 (the 2020 projected population).

[50] This calculation is based on the following: the 410 new residents are divided by 11,094 (the 2020 projected residential growth).

The proposed project's estimated population falls within the SCAG forecasted growth for the Gateway Cities Subregion, and represents a small percentage of that growth. Therefore, the proposed project would not result in a significant impact with regard to substantial or unplanned population growth.

Housing

Tier I

Tier I of the proposed project would not result in significant impacts to housing displacement or unplanned housing growth. The existing campus is currently a medical facility with no existing housing. The development of Tier I of the proposed project would not displace any existing housing nor would the proposed project necessitate the construction of replacement housing. Therefore, both construction and operation of Tier I of the proposed project would have no impact with regard to housing displacement or unplanned housing growth.

Tier II

Tier II of the proposed project would not result in significant impacts to housing displacement or unplanned housing growth. The existing campus is currently a medical facility with no existing housing. Tier II development of the proposed project would not displace any existing housing nor would the proposed project necessitate the construction of replacement housing. Therefore, both construction and operation of the proposed project would have no impact and no mitigation is necessary with regard to housing displacement.

Housing impacts are typically based on the number of new dwelling units planned within the proposed project, as compared to the housing projections. The scale of new housing under the Master Plan campus build-out in Tier II is then compared with applicable adopted SCAG household growth forecasts for the unincorporated area of Los Angeles County and other housing goals and policies in SCAG policy documents. The proposed project is consistent with SCAG's Compass Blueprint Growth Vision by locating new housing near existing jobs and new jobs near existing housing; creating a mix of uses; promoting redevelopment; and focusing growth along major transportation corridors, near a major transit station, with a variety of travel choices, and within a 2% Strategy area. There are two bus stations located on the existing campus boundary: one bus station is located on the northern boundary on 120th Street, and one bus station is located on the eastern boundary on Wilmington Avenue. In addition, the Metro Imperial/Wilmington/Rosa Parks Station, with both Metro blue line and green line access, is located approximately 0.5 mile northeast of the existing campus; the Metro station has a park and ride, as well as a shuttle bus that transports individuals to and from the Martin Luther King, Jr. Medical Center Campus. See Section 3.12, *Traffic and Transportation*, for additional details.

As illustrated in Table 3.9.2-5 above, SCAG projects that the unincorporated Gateway Cities Subregion (proposed project area) 2020 households will be approximately 89,774. The proposed project represents 0.0011[51] of the current SCAG forecast for 2020 and 0.05[52] of the forecasted household growth between 2008 and 2020. Given that the proposed project's residential units (households) are consistent with the SCAG forecast for the Gateway Cities Subregion and represents a small percentage of that growth, the proposed project would not induce a substantial or unplanned amount of housing

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[51] This calculation is based on the following: the 100 residential units proposed are divided by the 89,774 (the 2020 households projected).

[52] This calculation is based on the following: the 100 residential units proposed are divided by the 2,212 (the 2020 projected household growth).

growth. The residential component of the proposed prospect would have a net benefit to the area because it would meet a portion of the forecasted need for the subregion and would not result in substantial or unplanned housing growth. Therefore, Tier II of the proposed project would not be expected to result in significant impacts with regard to housing displacement or unplanned housing growth.

Employment

Construction

Tier I

Tier I of the proposed project would not be anticipated to result in significant impacts with regard to an increase in resident population due to employment during construction. Direct but temporary increases in employment may occur during the construction phase of development projects. Construction employees would be required during the construction period of Tier I (development of the MACC building, Ancillary building, site improvements and support functions, etc.). It is anticipated that the labor force required to construct Tier I of the proposed project would either be filled by employees who live in the surrounding area or by people who would commute from their existing place of residence. As such, the need for construction workers would not result in workers relocating to the project area, particularly for a temporary construction assignment of short duration and Tier I of the proposed project would not be anticipated to result in an increase in resident population during construction.

Tier II

Tier II of the proposed project would not be anticipated to result in significant impacts with regard to an increase in resident population due to employment during construction. Direct but temporary increases in employment may occur during the construction phase of development projects. Construction employees would be required throughout the development in Tier II (mixed-use campus Master Plan development). Given the size of the employment base in Los Angeles County and the surrounding region, coupled with the current economic slow-down in construction, it is anticipated that construction jobs for the proposed project can be filled by employees who live in the surrounding area or by people who would commute from their existing place of residence. Further, construction work is specialized so that construction employees remain on-site only for the timeframe in which their specific skills are necessary to complete a particular phase of the construction process (i.e., site clearance, paving, painting, etc.). As such, the need for construction workers would not result in workers relocating to the project area, particularly for a temporary construction assignment of short duration. Thus, Tier II the proposed project would not be anticipated to result in a significant increase in resident population during construction.

Operation

Tier I

Tier I of the proposed project would not be anticipated to result in significant impacts with regard to an increase resident population due to employment during project operations. Operations of the Tier I component of the proposed project are anticipated to generate a small number of jobs in the medical field. Given the small number and type of jobs, substantial population impacts are not anticipated due to operation of the operation of Tier I of the proposed project. The new MACC building is a replacement use. It is anticipated that the new MACC building may attract a few medical professionals residing within County of Los Angeles, while non-medical related jobs such as accounting, administration and food services could easily be filled by persons living in the area. However, some existing medical professional staff currently at the campus facility may transfer over to fulfill the positions given their institutional history with the hospital. Under Tier I, the existing campus staff would be moved from the existing MACC and other facilities that would be vacated and would be shifted into the new Tier I facilities. Operational impacts from the MACC building and associated uses would not increase employment. Tier I would be expected to generate approximately 150 temporary construction jobs and no new permanent or operational staff positions as Tier I. Thus, Tier I the proposed project would not be anticipated to result in a significant increase in resident population due to employment during operations.

Tier II

Tier II of the proposed project would not be anticipated to result in significant impacts with regard to an increase in resident population due to employment during project operations. During construction, Tier II development would be expected to generate approximately 400 temporary construction jobs that would vary according to the development phase that is occurring on the campus at any given time as described in the Tier II Construction Scenario in Section 2.0, *Project Description*, of this EIR and as it will be determined in the Master Plan. As with Tier I, this would not be expected to result in a significant impact. It is anticipated that development and staffing for construction would be staggered by phases over the course of the 10-year construction period.

During operation of Tier II of the proposed project, Tier II has the potential to result in a range of new permanent staff positions. Should the Tier II development be limited, no new jobs would be anticipated as a result of Tier II; however, Tier II development could also be estimated to create at least 100 jobs.[53]

Employees are less likely to relocate for jobs in the retail industry. There tends to be a higher turnover in retail jobs (many of the jobs are hourly, part time and/or filled by students or employees that would be expected to terminate employment over time to take on more complex or different jobs in the future). Given the small number and type of jobs, substantial population impacts are not anticipated due to operation of the commercial/ retail component of Tier II. The proposed commercial/retail uses are intended to serve the proposed 100 residential units, the existing and proposed medical facilities, and the surrounding neighborhoods. Therefore, it is anticipated that the projected employment growth associated with the proposed development would fall within the area projections and would not generate substantive or unplanned growth in population or housing.

The proposed project would increase the medical and health facility services at the Martin Luther King Jr. Medical Center campus, providing more professional jobs at the proposed project site. It is anticipated that the proposed medical and health facility development at the proposed project site will contribute to fields that have historically experienced growth, and are projected to continue growing in

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[53] This range is a conservative assessment based upon coordination with the County. These numbers are based solely upon estimates regarding what could occur as part of this project and do not reflect known or actual trends although labor forecasts related completed by the United States (US) Bureau of Labor Statistics (BLS) were reviewed. The US BLS, November 2009 Monthly Labor Review, which is available at: http://www.bls.gov/opub/mlr/2009/11/mlr200911.pdf, projected the following for the year 2018: jobs in the health care and service assistance field will account for approximately 12% of the available non-farm jobs; retail and trade would account for 10%; professional business would account for 14% and leisure and hospitality would account for approximately 9% of the available non-farm jobs in the U.S. in 2018.

the future. As illustrated in Table 3.9.2-5 above, in the SCAG region as a whole, the professional business services and education and health services fields are work sectors that have experienced increases in growth, and are projected to experience continued growth. It is anticipated that the SCAG region will add 5.9 million people to reach 24 million people by 2035.[54] Supporting this 2035 projected population will be a total of 10.3 million jobs by 2035 including 2.5 million new jobs.[55] According to SCAG, this level of population and job growth is expected to yield 2 million additional households in the region. According to SCAG, it is estimated that between 2005 and 2035, service-sector jobs will lead in total growth and comprise the largest share of total jobs. Three top leading sectors include 1) education and health services, 2) professional and business services, and 3) construction.[56]

The 2008 RTP predicts that "increases in some service-sector jobs are directly associated with the increase in total population and an increase in the aged population in the region. The growth of service-sector jobs, in particular, population-serving jobs, is likely to continue in the future."[57] The proposed project would foster the Los Angeles subregion's ability to meet existing and continual medical and health needs of the area. The proposed project's impact would not be considered significant because the additional jobs would fall within the subregional forecast and therefore would be consistent with the regional forecast. The additional jobs would also represent a small portion of the forecast. Thus, Tier II the proposed project would not be anticipated to result in a significant increase in resident population due to employment during operations.

Other Growth Issues

Tier I

Indirect growth in population and housing can also occur from major infrastructure improvements that facilitate additional growth beyond the proposed project. Tier I of the proposed project would be limited to the immediate campus boundary. Indirect growth from extension of roads and infrastructure would not be anticipated from Tier I the proposed project, as it would be served by existing infrastructure and would not add any new roadways. Tier I of the proposed project would therefore not induce substantial population growth in an area, either directly or indirectly. Tier I of the proposed project would be expected to have a less than significant impact on population and housing with regard to indirect growth resulting from infrastructure and utilities.

Tier II

Tier II of the proposed project would not result significant impacts with regard to indirect growth resulting from infrastructure and utilities. Indirect growth in population and housing can also occur from major infrastructure improvements that facilitate additional growth beyond the proposed project. Indirect growth from extension of roads and infrastructure would not be anticipated from Tier II of the proposed project, as it would be served by existing infrastructure and would not add any new

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[54] Southern California Association of Governments. 2008. *Regional Transportation Plan, Chapter 2,Transportation Planning Challenges*. Available at: http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_Complete.pdf

[55] Southern California Association of Governments. 2008. *Regional Transportation Plan*, p. 56. Available at: http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_Complete.pdf

[56] Southern California Association of Governments. 2008. *Regional Transportation Plan, Chapter 2, Transportation Planning Challenges*, p. 58. Available at: http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_Complete.pdf

[57] Southern California Association of Governments. 2008. *Regional Transportation Plan*. Available at: http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_Complete.pdf

roadways. Some infrastructure upgrades and connections are proposed and may be required as mitigation for Tier II of the proposed project impacts (e.g., traffic); however these improvements are being sized to accommodate Tier II of the proposed project and would not facilitate substantial additional development outside of the proposed project (please refer to, Section 3.12, Transportation and Traffic and Section 3.16, Utilities and Services). For example, improvements made to the one of the ingress and egress of the hospital entrance would not generate new growth in the surrounding communities. The proposed project does not include any major road improvements or substantial infrastructure modifications that would facilitate additional growth in the general area. Tier II of the proposed project would therefore not induce substantial population growth in an area, either directly or indirectly. Tier II of the proposed project's impact on population and housing would be less than significant with regard to indirect growth resulting from infrastructure and utilities.

Cumulative Impacts

The incremental impacts of the proposed project to population, when added to the related past, present or reasonably foreseeable future projects listed in Section 2.0, *Project Description*, would not be expected to be significant.

Tier I

The proposed project would not result in any population or housing displacement or the need for replacement housing. While temporary jobs would be created by the proposed project, this growth would not be adverse or unplanned when compared to population housing or employment growth projected for the subregion. The housing , school, and other plan development in the County and the surrounding area, such as the South Health Clinic or charter high school when reviewed with the proposed project would all provide services to the existing population and will be developed within the existing infrastructure of the area. As such, Tier I of the proposed project would not contribute any adverse impacts that would contribute to any cumulatively adverse growth issues. Therefore, incremental impacts of the proposed project to population, when added to the related past, present, or reasonably foreseeable, probable future projects listed in Section 2.0, *Project Description*, would not be expected to be significant.

Tier II

While some jobs and housing would be created by the proposed project, this growth would not be adverse or unplanned when compared to population, housing or employment growth projected for the subregion. As such, the proposed project would not contribute any adverse impacts that would contribute to any cumulatively adverse growth issues.

The potential for related projects to have a cumulative impact depends on both geographic location (jurisdiction) as well as the individual components of the project. As noted above, projects considered in this analysis were derived from the traffic study and include those that have recently been completed, are currently under construction, or are in planning. The closest related projects include the South Public Heath Clinic located north of the existing medical campus facility in unincorporated Los Angeles County, a high school located at 11300 Monitor Avenue approximately 0.5 mile from the proposed project in the City of Los Angeles, and the proposed residential development located at 2709 North Wilmington Avenue approximately 0.4 mile from the proposed project in the City of Compton. The high school and the residential development fall under other jurisdiction as do the majority of the related projects. As such, those projects would be subject to their city's respective General Plans as they pertain to population and housing forecasts and requirements. Tier II of the project, which would take place in a mostly built-out area of the County, would result in a nominal increase in the County's population and housing units. As stated above, direct growth from Tier II of the proposed project's residential component falls within SCAG's projections for the unincorporated Gateway Cities Subregion, and would therefore not result in a significant impact with regard to substantial or unplanned population growth. Tier II of the proposed project would not result in individual significant project impacts; therefore, it would not result in cumulatively considerable impacts. The infrastructure proposed to support the Tier II would not, by itself, be growth inducing because the areas surrounding the project site are already built-out and served by existing infrastructure. The minimal population and housing growth generated by Tier II of the project is supported by adopted plans and policies. This growth falls within the growth anticipated in a regional context by SCAG for the region. Therefore, the incremental impacts of the proposed project to population, when added to the related past, present, or reasonably foreseeable, probable future projects listed in Section 2, Project Description, would not be expected to be significant.

3.9.5 Mitigation Measures

Tier I

The analysis undertaken for this document determined that no significant population and housing impacts would be expected to result from development of Tier I of the proposed project. Therefore, no mitigation measures are required.

Tier II

The analysis undertaken for this document determined that no significant population and housing impacts would be expected to result from development of Tier II of the proposed project. Therefore, no mitigation measures are required.

3.10 PUBLIC SERVICES

As a result of the Initial Study, the County of Los Angeles determined that the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to cause impacts related to public services resulting from the provision of, or need for, new or physically altered governmental facilities.[1] Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts from public services.

The analysis of public services consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions at the proposed project area, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to public services has been analyzed in accordance with the methodologies and information provided by the County of Los Angeles (County) General Plan,[2] the Cities of Los Angeles and Compton Web sites,[3,4] the County of Los Angeles Fire Department Web site,[5] and the County of Los Angeles Sheriff's Department Web site.[6]

3.10.1 Regulatory Framework

State

The Leroy F. Greene School Facilities Act of 1998 (Senate Bill 50)

The Leroy F. Greene School Facilities Act of 1998, Senate Bill 50 (SB 50), signed into law in August 1998, became fully effective with the approval of Proposition 1A on November 3, 1998. SB 50 describes three levels of fees that can be statutorily levied against a project for mitigation of school facilities. SB 50 declares that payment of the specified development fees, where necessary, is full and complete mitigation for impacts to school facilities, and prohibits a public agency from denying a legislative or adjudicative act on the basis of refusal to provide school facilities mitigation that exceeds the amounts authorized by SB 50. SB 50 also forbids requiring the use of the Mello-Roos Communities District Act of 1982 as a condition of approval of any legislative or adjudicative act.[7] SB 50 would apply to the proposed project if impacts from school facilities were identified and mitigation measures were required.

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] City of Los Angeles. 2010. Web site. Available at: http://www.ci.la.ca.us/

[4] City of Compton. 2010. Web site. Available at: http://www.comptoncity.org/index.php/Parks-and-Recreation/recreation-facilities.html

[5] County of Los Angeles Fire Department. 2008. Web site. Available at: http://www.fire.lacounty.gov/default.asp

[6] County of Los Angeles Sheriff's Department. 2008. Web site. Available at: http://www.lasd.org/

[7] CASH Facility Resource Center. 1 May 2003. "Senate Bill 50 and School Facility Fees." Available at: www.cashnet.org

Special Taxes

Special taxes (also known as special assessments) can be used to finance various public services and improvements. The California constitution identifies a "special tax" as any tax that is imposed for a specific purpose. Such taxes must be approved by a two-thirds majority of voters in a service area, which is usually the jurisdictional area of the local government agency that initiates the special tax. The California Government Code provides for the creation of special taxes for lighting districts, garbage pick-up, libraries, hospitals, schools, fire prevention, and police protection services. These taxes are usually levied on a per parcel basis, either as a flat fee or based on parcel square footage.[8]

Mello-Roos Community District Act of 1982

The Mello-Roos Community District Act of 1982 enables certain public agencies to designate a Mello-Roos Community Facilities District, which allows for the financing of public improvements and services. These include basic infrastructure, police protection, fire protection, ambulance services, schools, parks, libraries, museums, and other cultural facilities. Mello-Roos Community Facilities Districts are usually created to finance improvements and services when no other funding sources are available, and require a two-thirds majority vote of residents living within the proposed boundaries. They are used especially often (but not exclusively) in new development areas. Upon approval, a special tax lien is placed against each property in the district, and residents pay a special tax each year. This tax is not based on property value, but on formulas that take into account physical characteristics such as square footage and structure size.[9]

Local

County of Los Angeles General Plan

Public Services and Facilities Element

The Public Services and Facilities element of the County of Los Angeles General Plan describes the objectives, goals, and policies intended to promote the orderly and efficient planning of public services as an important component of successful land use development and growth.[10] Within the Public Services and Facilities element, there are goals presented for fire protection, law enforcement protection, schools, and libraries that are relevant to the evaluation of the proposed project:

Goal 1:	Promote phased development, whereby land use proposals are developed in conjunction with approved fire protection facilities or capabilities.
Goal 2:	All projects must comply with Los Angeles County Fire Department requirements, including access, water mains, fire flows, and hydrants.
Goal 3:	Promote phased development, whereby land use proposals are developed in conjunction with approved law enforcement capabilities.

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[8] California Tax Data. 1 May 2003. "What Are Special Taxes?" Available at www.californiataxdata.com.

[9] California Tax Data. 1 May 2003. "What is Mello-Roos?" Available at www.californiataxdata.com.

[10] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

Goal 4: Ensure a desired level of educational facilities through land use and facility planning.

Goal 5: Encourage the shared use of sites for development of schools, parks, libraries, housing, and other compatible uses.

Goal 6: Support phased development and mitigation fees for library facilities and services.

3.10.2 Existing Conditions

3.10.2.1 Fire Protection

The Los Angeles County Fire Department provides fire services to the unincorporated County of Los Angeles. The Los Angeles County Fire Department currently provides its services to the proposed project site.[11] The Los Angeles County Fire Department Station Number 41 is located at 1815 East 120th Street in Los Angeles, which is located less than 0.1 mile north of the proposed project site. Station Number 41 is the closest fire station to the proposed project and, therefore is the first responding fire station. Another fire station that provides additional support to the existing proposed project area is Station Number 147, located at 3161 East Imperial Highway in Lynwood, which is 1.5 miles northeast of the proposed project site. The response time to the proposed project site from a vehicle leaving directly from Fire Station No. 41 is less than 1 minute.[12] Fire Station No. 41 offers a four-person paramedic assessment engine to assess medical needs, as well as a two-person paramedic squad. The response time to the proposed project site from Fire Station No. 146 is approximately 7 minutes. Fire Station No. 146 contains a four-person quint, which provides a pump, water tank, fire hose, aerial device, and ground ladders. The stations, locations, personnel/ equipment, and the distance from each station to the propose project site is described in Table 3.10.2.1-1, *Existing Fire Stations Serving the Proposed Project Site*.

TABLE 3.10.2.1-1
EXISTING FIRE STATIONS SERVING THE PROPOSED PROJECT SITE

Station	Location	Personnel/Equipment	Distance to Site
41	1815 East 120th Street, Los Angeles 90059	4-person assessment engine[a] with limited paramedic capabilities and a 2-Person paramedic squad. A total of six personnel.	Less than 0.1 mile north
147	3161 East Imperial Highway, Lynwood 90262	4-person quint[b] and a 2-person paramedic squad (combination engine/ladder truck apparatus). A total of six personnel.	1.5 mile northeast

SOURCE: County of Los Angeles Fire Department[13]

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[11] County of Los Angeles Fire Department. 2009. Web site: see Battalion 13. Available at: http://www.fire.lacounty.gov/HometownFireStations/HometownFireStations.asp

[12] Bagwell, Loretta, Planning Analyst, Planning Division, County of Los Angeles Fire Department, CA. 21 April 2010. Telephone and e-mail correspondence with Leanna Guillermo, Sapphos Environmental, Inc., Pasadena, CA.

[13] Bagwell, Loretta, Planning Analyst, Planning Division, County of Los Angeles Fire Department, CA. 21 April 2010. Telephone and e-mail correspondence with Leanna Guillermo, Sapphos Environmental, Inc., Pasadena, CA.

3.10.2.2 *Police Protection*

Police protection in the proposed project area is provided by the Los Angeles County Sheriff's Department. In the proposed project area, the Los Angeles County Sheriff's Department's Century Station is responsible for providing law enforcement services. The Century Station is located 0.8 mile northeast of the proposed project site at 11703 Alameda Street, Lynwood, California 90262. The Century Station is responsible for providing law enforcement services to more than 200,000 individuals residing within 13 square miles of southern Los Angles County, including the Willowbrook area where the proposed project is located.[14]

According to the Century Station's crime and arrest statistics for 2007 to 2009, there were 21,269 total reported incidents in 2007, 28,912 total reported incidents in 2008, and 23,869 total reported incidents in 2009 (Table 3.10.2.2-1, *Crime and Arrest Reported Incident Statistics in the Proposed Project Area*). Part I Crimes, which include criminal homicide, forcible rape, robbery, aggravated assault, burglary, larceny theft, grand theft auto, and arson, did not increase significantly between 2007 and 2008, and decreased in 2009 in the Century Station's law enforcement area with 7,430 incidents reported in 2007, 7,366 incidents reported in 2008, and 5,816 incidents reported in 2009 (Table 3.10.2.2-1). Part II Crimes are crimes that are not considered Part I Crimes, including, but not limited to, simple assaults, disorderly conduct, vandalism, driving under the influence, and embezzlement. In the Century Station's service area, there was an increase in Part II Crimes from 2007 to 2008, from 7,512 incidents reported to 13,641 (Table 3.10.2.2-1). However, from 2008 to 2009, the Part II Crime incidents reported decreased to 10,569. Non-criminal incidents, such as traffic-related incidents, increased from 6,417 incidents to 7,905 from 2007 to 2008 (Table 3.10.2.2-1). Part II Crimes or non-criminal incidents did not increase from 2008 to 2009, with 7,484 non-criminal incidents in 2009. The total number of arrests in 2007 in the Century Station's service area was 9,352 while the total number in 2008 was 12,714, and 13,477 in 2009 (Table 3.10.2.2-1).[15,16]

TABLE 3.10.2.2-1
CRIME AND ARREST REPORTED INCIDENT STATISTICS IN THE PROPOSED PROJECT AREA

Crimes	2007	2008	2009
Part I Crimes	7,340	7,366	5,816
Part II Crimes	7,512	13,641	10,569
Non Incidental Crimes	6,417	7,905	7,484
Reported Incidents	21,269	28,912	23,869
Total Arrests	9,352	12,714	13,477

SOURCE: Los Angeles County Sheriff's Department[17]

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[14] County of Los Angeles County Sheriff's Department, Century Station. 2007. Web site. Available at: http://www.lasd.org/stations/for2/century/index.html

[15] County of Los Angeles Sheriff's Department. Crime and Arrest Statistics Summary 2007 to 2008. Century Station. Available at: http://www.lasdhq.org/sites/yir9600/yir2008/218.pdf

[16] County of Los Angeles Sheriff's Department. Crime and Arrest Statistics Summary 2009. Century Station. Available at: http://app1.lasd.org/caas_web/era01/index.cfm?mod=mnu&cur_year=2009&locat=sta_CEN

[17] County of Los Angeles Sheriff's Department. Crime and Arrest Statistics Summary 2007 to 2008. Century Station. Available at: http://www.lasdhq.org/sites/yir9600/yir2008/218.pdf

[17] County of Los Angeles Sheriff's Department. Crime and Arrest Statistics Summary 2009, Century Station. Available at: http://app1.lasd.org/caas_web/era01/index.cfm?mod=mnu&cur_year=2009&locat=sta_CEN

3.10.2.3 Schools

Within the proposed project area, school-age children attend schools in the Los Angeles Unified School District and the Compton Unified School District.[18,19] There are 11 schools and education facilities located within a 0.5-mile radius of the proposed project site: King Drew Magnet High School, Lincoln Drew Elementary School and Headstart, Carver Elementary, Harriet Tubman High School, Cesar Chavez Alternative School, Compton Community Day Middle School, New Designs Charter School, Los Angeles Computer Science Academy, Ronald E. McNair Elementary, Martin Luther King Elementary, and Willowbrook Middle School.

The Los Angeles Unified School District is expected to complete a multiphase program that would provide classroom seats to address the current need for classroom seats within its service area, which includes the proposed project site.[20] King Drew Magnet High School is located adjacent to the MLK campus at 1601 East 120th Street, Los Angeles. King Drew Magnet High School buildings are located on a 3.8-acre property. Currently, 240 students attend the medical magnet high school.[21] There are no current plans for expansion of the King Drew Magnet High School campus. A Head Start program operates on the Lincoln Drew Elementary School site which is located at 1667 East 118th Street, Los Angeles, 0.10 mile to the north of the proposed project site. 332 pupils were enrolled in Lincoln Drew Elementary School during the 2008–2009 school year.[22] Los Angeles Computer Science Academy is located at 2208 East 11th Street, Los Angeles, located 0.36 mile northeast of the proposed project site. According to the 2007 state data, 35 students are enrolled at the Los Angeles Computer Science Academy.[23] Martin Luther King Elementary is located at 2270 East 122nd Street, Compton , located 0.43 mile east of the proposed project site. 556 pupils attend Martin Luther King Elementary School. Harriet Tubman High School is located at 12501 South Wilmington Avenue, Compton, and located 0.25 mile south of the proposed project site. In 2007, six students were enrolled at Harriet Tubman High School. Cesar Chavez Alternative School is located at 12501 South Wilmington Avenue, Compton, and located 0.25 mile south of the proposed project site. As of 2007, the enrollment at Cesar Chavez Alternative School was 359 pupils. Ronald E. McNair Elementary is located at 1450 West El Segundo Boulevard, Compton, located 0.41 mile south of the proposed project site. 519 students attend Ronald E. McNair Elementary. Willowbrook Middle School is located at 2601 North Wilmington Avenue, Compton, located 0.47 mile south of the proposed project site. The enrollment at Willowbrook Middle School is 605 students. Carver Elementary is located at 1425 East 120th Street, Los Angeles, located 0.21 mile west of the proposed project site. 365 pupils attended Carver Elementary according to the 2007 state data.[24] New Designs Charter School is located at 12714 Avalon

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[18] Los Angeles Unified School District. 2009. Local District 7. Available at: http://notebook.lausd.net/portal/page?_pageid=33,135565&_dad=ptl&_schema=PTL_EP

[19] Compton Unified School District. 2009. School/Transportation Information. Available at: http://transport.compton.k12.ca.us/elinkrp/Students/BasicTransBoundarySearch.aspx

[20] Los Angeles Unified School District. January 2009. *Strategic Execution Plan*. Available at: http://www.laschools.org/sepdocs/sep/pdf/sep-2009-web.pdf

[21] Los Angeles Unified School District. King Drew Magnet High School of Medicine and Science. Available at: http://www.lausd.k12.ca.us/King_Drew_Medical_Magnet/index.html

[22] Support Personnel Accountability Report Card. Lincoln Drew Elementary School. Available at: http://www.sparconline.net/sparcs/2009sparcs/es-lincolndrew.pdf

[23] *Los Angeles Times*. Local. Education. *California Schools Guide*. Los Angeles, CA. Available at: http://projects.latimes.com/schools/

[24] *Los Angeles Times*. Local. Education. *California Schools Guide*. Los Angeles, CA. Available at: http://projects.latimes.com/schools/

Boulevard, Los Angeles, and located 0.28 mile northwest of the proposed project site. There are 150 students who attend New Designs Charter School.'[25]

3.10.2.4 Parks

According to the General Plan, the County's threshold for recreation and open space is four acres per 1,000 residents for subdivisions.[26] Currently six parks are located within a 1-mile radius of the proposed project site: 109th Street Recreational Center Park (0.83 miles north of the proposed project), Sibrie Park (0.42 mile south of the proposed project), Enterprise Park (0.77 mile southwest of the proposed project), Mona Park (0.51 mile west of the proposed project), Earvin Magic Johnson Park (0.59 mile west of the proposed project), and George W. Carver Park (0.25 mile northwest of the proposed project).

The 109th Street Recreational Center Park is a City of Los Angeles park containing an auditorium, lighted baseball diamond, lighted indoor and outdoor basketball courts, children's play area, lighted football field, indoor and outdoor gym, outdoor seasonal pool, lighted soccer field, and lighted tennis courts.[27]

Sibrie Park is a 3.8-acre community park of the City of Compton which offers a children's playground apparatus, tetherball, volleyball, barbecue pits, picnic area, junior baseball diamond, and lighted outdoor basketball courts.[28]

The 10-acre Enterprise Park offers lighted baseball/softball fields, children's play area, community recreation room, gymnasium, multi-purpose field, picnic areas with barbeque grill, and a swimming pool.[29]

The 8.4-acre Mona features a children's play area, gymnasium, lighted baseball/softball diamond, outdoor basketball court, shaded picnic shelter, and a swimming pool.[30]

The 94-acre Earvin Magic Johnson Park contains children's play areas, picnic areas with barbeque grills, restrooms, soccer fields, two fishing lakes, and a walking path.[31]

The 7.22-acre George W. Carver Park contains lighted baseball/softball fields, a multipurpose field, a multipurpose room, picnic areas with barbeque grills, and a swimming pool.[32]

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[25] Trulia. New Designs Charter School. *School Overview*. Accessed 5 May 2010. Available at: http://www.trulia.com/schools/CA-Los_Angeles/New_Designs_Charter_School/

[26] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan, Conservation, Open Space and Recreation Element*, p. II-3. Available at: http://planning.lacounty.gov/assets/upl/project/gp_web80-conservation-and-open-space.pdf

[27] City of Los Angeles. Department of Recreation and Parks. Accessed 6 January 2010. Web site. Available at: http://www.laparks.org

[28] City of Compton. Parks and Recreation. Recreation Facilities. Accessed 6 January 2010. Web site. Available at: http://www.comptoncity.org/index.php/Parks-and-Recreation/recreation-facilities.html

[29] County of Los Angeles Parks and Recreation. Accessed 6 January 2010. Web site. Available at: http://parks.lacounty.info

[30] County of Los Angeles Parks and Recreation. Accessed 6 January 2010. Web site. Available at: http://parks.lacounty.info

[31] County of Los Angeles Parks and Recreation. Accessed 6 January 2010. Web site. Available at: http://parks.lacounty.info

[32] County of Los Angeles Department of Parks and Recreation. Accessed 6 January 2010. Web site. Available at:

3.10.2.5 Other Public Services

In the proposed project area, existing public facilities include the Willowbrook Library at 11838 South Wilmington Avenue, Los Angeles. The Willowbrook Library is a 2,200-square-foot building, which is located less than 0.1 mile north of the proposed project site.[33] A U.S. Post Office is located at 2241 East El Segundo Boulevard, approximately 0.6 mile southeast of the proposed project site.[34]

3.10.3 Significance Thresholds

The potential for the proposed project to result in impacts related to public services was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. The project would normally be considered to have a significant impact to public services when the potential for any one of the following five thresholds occurs:

- Cause substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:
    - Fire protection
    - Police protection
    - Schools
    - Parks
    - Other public services

Significant environmental impacts would result when the site of the new or physically altered facility is unknown, or where the site is known but has not been analyzed pursuant to CEQA.

3.10.4 Impact Analysis

3.10.4.1 Fire Protection

Tier I

Tier I of the proposed project would not be expected to have significant direct or indirect impacts to the environment resulting from the provision of, or need for, new or physically altered governmental fire protection facilities. Implementation of Tier I of the proposed project would not be expected to induce population growth or shifts from the neighboring communities to areas surrounding the proposed project site. The new facilities and campus improvements associated with Tier I of the proposed project would substitute and enhance existing facilities on the campus. Tier I is being designed to respond to the existing community need and population. Therefore, the current fire protection services provided to the campus would adequately support Tier I of the proposed project. Tier I of the proposed project does not entail elements that would result in the need for additional fire protection.

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http://parks.lacounty.info

[33] County of Los Angeles Public Library. Accessed 8 October 2009. Web site. Available at: http://www.colapublib.org

[34] United States Postal Service. Accessed 8 October 2009. Web site. "Locator." Available at: http://usps.whitepages.com/post_office

Tier II

Tier II of the proposed project would not be expected to have significant direct or indirect impacts to the environment resulting from the provision of, or need for, new or physically altered governmental fire protection facilities. Tier II is being designed to respond to the existing and projected community needs and population. Implementation of the campus-wide Master Plan, is anticipated to include development of up to 100 residential units and up to 1,814,696 square feet of mixed-use development. The development of up to 100 residential units on the proposed project site would be expected to induce population shifts from the neighboring communities to the proposed project site. The proposed project development, including the new mixed uses in Tier II, would be expected to provide employment opportunities, as described in Section 3.9, *Population and Housing*. The jobs would be expected to be filled with the workforce in the surrounding communities and possibly in other areas within a commuting distance of the project site; therefore, no direct or indirect population growth would be anticipated. Additionally, no growth-inducing extensions of infrastructure, including roadways, are proposed as a part of the proposed project.

As discussed in Section 3.9, *Population and Housing,* the anticipated shift in the proposed project site's estimated population is consistent with the SCAG forecast for the Gateway Cities Subregion. Additionally, the proposed development would not be expected to significantly surpass the entitled or former operational capacity of the existing Martin Luther King, Jr. Medical Center Campus (existing campus). Furthermore, the residential portion of the proposed project would be for hospital employees and would not significantly increase the population within the area of the proposed project. As such, development of the proposed project would not require the provision of new, or the physical alteration of, existing governmental fire protection facilities beyond regional planning expectations. It is anticipated that the campus employment will be provided by residents within the communities surrounding the proposed project site to the extent possible; while there may be an anticipated shift in the populations, the existing and projected fire protection services would be expected to support this population shift. The population shifts are also consistent with the Compass Blueprint 2% Strategy, as discussed in Section 3.9, *Population and Housing*. This guideline encourages modest changes that are consistent with the SCAG Southern California Compass Growth Vision Report (Compass Growth Vision). The 2% Strategy Opportunity Areas are primarily comprised of metro centers, city centers, rail transit stops, bus rapid transit corridors, airports, ports and industrial centers, priority residential in-fill areas, and Compass Blueprint priority communities.[35] The Martin Luther King, Jr. Medical Center is within the 2% Strategy Opportunities Area (City of Los Angeles South Map). Hence, the population from the proposed project would be consistent with the Compass Growth Vision and the need for additional or altered fire protection facilities would not be required. Therefore, because the proposed project would not cause the provision of, or need for, new or physically altered governmental fire protection facilities necessary for maintaining acceptable response times, there would be no significant impacts related to fire protection facilities. It is understood however, that the County of Los Angeles Fire Department will review the specific fire department requirements during the planning phase of the proposed project in order to determine whether Tier II of the proposed project adequately meets the requirements of the County of Los Angeles Fire Department.[36]

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[35] Southern California Association of Governments. Accessed 18 June 2010. "Compass Blueprint, Opportunities Areas Maps." Available at: http://www.compassblueprint.org/opportunityareas

[36] County of Los Angeles Fire Department. Todd, John R., Chief, Forestry Division Prevention Services Bureau. 20 July 2010. Letter Correspondence to the Chief Executive Office (Sabra White). Los Angeles, CA.

3.10.4.2 Police Protection

Tier I

Tier I of the proposed project would not be expected to induce population growth or shifts from the neighboring communities to communities surrounding the proposed project site. The new facilities and campus improvements associated with Tier I of the proposed project would substitute and enhance existing facilities on the campus. The Century Station is located 0.8 mile northeast of the proposed project site at 11703 Alameda Street, Lynwood, California 90262. The Century Station is responsible for providing law enforcement services to more than 200,000 individuals residing within 13 square miles of southern Los Angles County, including the Willowbrook area where the proposed project is located.[37] Tier I is being designed to respond to the existing community need and population. Therefore, the current police services provided to the campus would adequately support Tier I of the proposed project. Therefore, because the proposed project would not cause the provision of, or need for, new or physically altered governmental police protection facilities necessary for maintaining acceptable response times, there would be no significant impacts related to police protection facilities.

Tier II

Tier II of the proposed project would not be expected to have significant direct or indirect impacts to the environment resulting from the provision of, or need for, new or physically altered governmental police protection facilities. Tier II is being designed to respond to the existing and anticipated community needs and population. The proposed project would entail additional development on the existing campus and may include the construction of up to 100 residential units. The current levels of services provided to the proposed project site are based upon the current structure and configuration of the proposed project.[38] It is anticipated that these service allocations would shift and grow in response to the expected population growth in the area. Additionally, as discussed above and in Section 3.9, *Population and Housing*, the development on the proposed project site would not be expected to significantly surpass the entitled or former operational capacity of the existing campus. The estimated population changes from the proposed project would be consistent with population projections in the SCAG forecast for the Gateway Cities Subregion. Furthermore, the residential portion of the proposed project would be for hospital employees and would not significantly increase the population within the area of the proposed project. As such, development of the proposed project would not require the provision of new, or the physical alteration of, existing governmental police protection facilities. The proposed project's population would be consistent with the Compass Growth Vision and the need for additional or altered police protection facilities would not be required. It is anticipated that the campus employment will be provided by residents within the communities surrounding the proposed project site to the extent possible; while there may be an anticipated shift in the population, the existing and projected police protection services would be expected to support this population shift. Therefore, because the proposed project would not cause the provision of, or need for, new or physically altered governmental police protection facilities necessary for maintaining acceptable response times, there would be no significant impacts related to police protection facilities. It is understood, however, that the Los Angeles County Sheriff's Department will review the specific police department requirements

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[37] County of Los Angeles Sheriff's Department, Century Station. 2007. Web site. Available at: http://www.lasd.org/stations/for2/century/index.html

[38] County of Los Angeles Sheriff's Department (Tse, Gary T.K., Director, Facilities Planning Bureau)..24 May 2010. Letter Correspondence to Sapphos Environmental, Inc. (Eimon Raoof). Pasadena, CA.

during the planning phase of the proposed project in order to determine whether Tier II development of the proposed project adequately meets the service parameters and projections of the Los Angeles County Sheriff's Department.[39]

3.10.4.3 Schools

Tier I

Tier I of the proposed project would not be expected to induce population growth or shifts in school aged children from the neighboring communities to the proposed project site. The new facilities and campus improvements associated with Tier I of the proposed project would substitute and enhance existing facilities on the campus. The current school services provided to the residents surrounding the campus would adequately support Tier I of the proposed project. Therefore, because the proposed project would not cause the provision of, or need for, new or physically altered school facilities to maintain acceptable service rations, there would be no significant impacts related to school facilities.

Tier II

Tier II of the proposed project would not be expected to have significant direct or indirect impacts to the environment resulting from the provision of, or need for, new or physically altered governmental school facilities. Although the proposed project is designed to create new employment opportunities and contains a residential component, which would shift the population in the proposed project area, it is anticipated that the existing schools would support the needs of the proposed project. Due to the Los Angeles Unified School District's multiphase program that would provide classroom seats to address the current need for classroom seats within its service area, which includes the proposed project site, the proposed project would not have a significant impact to school facilities. Additionally, as determined by the State of California, mandated payment of school fees for new development in compliance with SB 50, is considered full mitigation under CEQA. School fees are collected prior to project development.[40] As the proposed project's population would be consistent with the SCAG forecast for the Gateway Cities Subregion and the Compass Growth Vision, additional or new park school facilities would not be required. Therefore, because the proposed project would not cause the provision of, or need for, new or physically altered school facilities to maintain acceptable service rations, there would be no significant impacts related to school facilities. It is understood, however, that the Los Angeles Unified School District and the Compton Unified School District will be consulted during the planning phase of the proposed project in order to ensure that Tier II would not significantly impact school facilities.

3.10.4.4 Parks

Tier I

Tier I of the proposed project would not be expected to induce population growth or shifts in from the neighboring communities to the proposed project site. The new facilities and campus improvements associated with Tier I of the proposed project would substitute and enhance existing facilities on the campus. The current park facilities and services provided to the residents surrounding the campus

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[39] County of Los Angeles Sheriff's Department (Tse, Gary T.K., Director, Facilities Planning Bureau). 24 May 2010. Letter Correspondence to Sapphos Environmental, Inc. (Eimon Raoof). Pasadena, CA.

[40] California Department of Education. Accessed on 12 November 2009. Chaptered Senate Bills. Available at: http://www.cde.ca.gov/re/lr/ga/chapsen07.asp

would adequately support Tier I of the proposed project. Therefore, because the proposed project would not cause the provision of, or need for, new or physically altered governmental park facilities to maintain acceptable service rations, there would be no significant impacts related to park facilities.

Tier II

Tier II of the proposed project would not be expected to have significant direct or indirect impacts to the environment resulting from the provision of, or need for, new or physically altered governmental park facilities. While the proposed project includes substantial development and may shift the population slightly within the proposed project area, the proposed project and the surrounding community would be adequately serviced by the park facilities listed above. As the proposed project's population would be consistent with the SCAG forecast for the Gateway Cities Subregion and the Compass Growth Vision, additional or new park facilities would not be required. Additionally, the County of Los Angeles, along with various neighboring jurisdictions, has planned to improve many existing recreational facilities, as described in Section 3.11, *Recreation*.[41] Therefore, because the proposed project would not cause the provision of, or need for, new or physically altered governmental park facilities to maintain acceptable service rations, there would be no significant impacts related to park facilities. It is understood, however, that the County of Los Angeles will review the requirements during the planning phase of the proposed project to ensure that Tier II of the proposed project would not significantly impact park facilities.

3.10.4.5 Other Public Services

Tier I

Tier I of the proposed project would not be expected to induce population growth or shifts in from the neighboring communities to the proposed project site. The new facilities and campus improvements associated with Tier I of the proposed project would substitute and enhance existing facilities on the campus. The current other public services or governmental facilities provided to the residents surrounding the campus would adequately support Tier I of the proposed project. Therefore, because the proposed project would not cause the provision of, or need for, other new or physically altered governmental facilities to maintain acceptable service rations or response times, there would be no significant impacts related to other public services or governmental facilities.

Tier II

Tier II of the proposed project would not be expected to have significant direct or indirect impacts to the environment resulting from the provision of, or need for, other new or physically altered governmental facilities. The proposed project would not require the alteration or construction of new government facilities. The proposed project and the surrounding community would be adequately serviced by the existing public facilities. As the proposed project's population would be consistent with the SCAG forecast for the Gateway Cities Subregion and the Compass Growth Vision, additional or new governmental facilities would not be required. Therefore, because the proposed project would not cause the provision of, or need for, other new or physically altered governmental facilities to maintain acceptable service rations or response times, there would be no significant impacts related to other public services or governmental facilities. It is understood, however, that the County of Los Angeles will review the requirements during the planning phase of the proposed project to ensure that

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[41] County of Los Angeles Department of Parks and Recreation. Accessed on 14 June 2010. "Regional Open Space District, Find Open Space District Project in Your Area." Available at: http://gis.lacounty.gov/rposd/

Tier II of the proposed project would not significantly impact other public services or governmental facilities.

3.10.4.6 Cumulative Impacts

Tier I

The incremental impacts of the proposed project from public services, when added to the related past, present, or reasonably foreseeable, probable future projects listed in Section 2.0, *Project Description*, would not be expected to be significant. Tier I of the proposed project would not be expected to induce population growth in the proposed project area. Tier I of the proposed project is being designed to accommodate the existing community. These hospital services would not be expected to create an additional need but rather respond to the existing community. Therefore, when Tier I is paired with any of the related projects, the impact would not be significant. Therefore, Tier I would not cause the need for addition fire protection, police protection, school facilities, park facilities, or other public services.

Tier II

Tier II of the proposed project is may include development of up to 100 residential units and up to 1,814,696 square feet of mixed-use development. The development of up to 100 residential units on the proposed project site would be expected to induce population shifts from the neighboring communities to the proposed project site. The proposed project development would be expected to provide employment opportunities, as described in Section 3.9, *Population and Housing*. The jobs would be expected to be filled with the workforce in the surrounding communities and possibly in other areas within a commuting distance of the project site. Tier II of the proposed project is being designed to accommodate the existing community and its forecasted population. The proposed commercial/retail uses are intended to serve the proposed 100 residential units, the existing and proposed medical facilities, and the surrounding neighborhoods. Employees are less likely to relocate for jobs in the retail industry. Given the small number and type of jobs, substantial population impacts are not anticipated due to operation of the commercial/ retail component of Tier II. Additionally the growth of service-sector jobs, in particular, population-serving jobs, is likely to continue in the future."[42] The medical and health facility services created in Tier II of the proposed project fall under service-sector jobs. The proposed project would foster the Los Angeles subregion's ability to meet existing and continual medical and health needs of the area. The proposed project's impact would not be considered significant because the additional jobs would fall within the subregional forecast and therefore would be consistent with the regional forecast. Therefore, no direct or indirect population growth would be anticipated. Additionally, no growth-inducing extensions of infrastructure, including roadways, are proposed as a part of the proposed project.

The proposed project would not create substantial population growth that would increase or exacerbate public services conditions when added to the related past, present, or reasonably foreseeable, probable future projects listed in Section 2.0, *Project Description*. The anticipated population shifts would come from individuals currently residing within and near the proposed project area. Additionally, Tier II of the proposed project is being designed to respond to the existing community and its forecasted population growth. The medical and health facility services created in Tier II would not create the need for more public services but accommodate the existing population

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[42] Southern California Association of Governments. 2008. *Regional Transportation Plan*. Available at: http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_Complete.pdf

and its growth. Therefore, when Tier II of the proposed project is paired with the related projects within an approximate 3-mile radius, Tier II would not cause a cumulative impact to public services. As such, the proposed project would not considerably contribute to the need for new or physically altered governmental facilities.

3.10.5 Mitigation Measures

Tier I

The analysis undertaken for this document determined that no significant public services impacts would be expected from Tier I of the proposed project. Therefore, no mitigation measures are required.

Tier II

The analysis undertaken for this document determined that no significant public services impacts would be expected from Tier II of the proposed project. Therefore, no mitigation measures are required.

3.11 RECREATION

As a result of the Initial Study, the County of Los Angeles (County) determined that the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in impacts to recreation.[1] Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potentially significant impacts to recreation.

The analysis of recreation consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions at the proposed project area, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. Recreation at the proposed project site was evaluated with regard to state, regional, and local data and forecasts for recreation, and the County of Los Angeles General Plan (General Plan).[2]

3.11.1 Regulatory Framework

This regulatory framework identifies the federal, state, and local statutes and policies that relate to recreation and must be considered by the County during the decision-making process for the proposed project.

Federal

Section 4(f) of the Department of Transportation Act

Section 4(f) of the Department of Transportation Act [Section 4(f), re-codified at 49 USC 303], analyzes whether a proposed project has the potential to result in a "use" of public parks and recreation lands, wildlife and waterfowl refuges, and any historic sites as defined by the U.S. Department of Transportation. Use, within the context of Section 4(f), occurs when a proposed project requires a physical taking or other direct control of the land for the purpose of the proposed project. Use also includes adverse environmental impacts, also termed "constructive use". Constructive use may occur when impacts substantially impair the activities, features, or attributes of the resource that contribute to its significance or its enjoyment. As outlined for the proposed project, no such "use" would be considered applicable for project completion.

State

Quimby Act

State Subdivision Map, Section 66477 (The Quimby Act), allows the legislative body of a city or county, by ordinance, to require the dedication of land, the payment of fees in lieu of the dedication of land, or a combination of both, for park and recreational purposes as a condition of approval of a final tract map or parcel map. The Quimby Act requires that developers set aside land, donate conservation easements, or pay fees for park improvements. The goal of the Quimby Act is to require developers to help mitigate the impacts of property improvements. The Board of Supervisors has amended the

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study.* Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

County Subdivision Ordinance to require park fees if all or any portion of the local park space obligation for a residential subdivision is not satisfied by the existing local park space. Park fees are assessed as a condition of final approval of the subdivision.[3] This open space requirement applies only to residential subdivisions and only in the case where there are not enough parks and open space in surrounding areas.[4]

Regional

The Southern California Association of Government's (SCAG's) *Regional Comprehensive Plan and Guide* states that urban-type land uses and facilities need to support future additional population growth that will consume a large portion of the remaining privately held land in the region.[5] The plan emphasizes three primary goals related to the consideration of the proposed project:

- Provide adequate opportunities to meet the needs for outdoor recreation, which is considered important to providing a good quality of life for residents who live in highly urbanized areas of the region
- Maintain open space for adequate protection of lives and property against natural and manmade disasters
- Develop well-managed and viable ecosystems or known habitats of rare, threatened, and endangered species

Local

Los Angeles County Proposition A Grants

Formally known as the Los Angeles Safe Neighborhood Parks Act, Proposition A provided for the formation of the Los Angeles County Regional Park and Open Space District, and was created to improve the quality of life in the County through the preservation of beaches; renovations and improvements to new and existing recreational facilities; and restoration of rivers, streams, and trails.

County of Los Angeles General Plan, Conservation, Open Space, and Recreation Element and Land Use Element

The Conservation, Open Space, and Recreation element of the General Plan includes general goals and principles that guide decision making related to recreational resources. In addition, this element of the General Plan sets forth the County's standard of 4 acres of parkland / open space per 1,000 residents for subdivisions.[6] The goals of the Conservation, Open Space, and Recreation element are to protect areas of significant natural resources, to conserve natural amenities, to protect against natural

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[3] *Los Angeles County Subdivision Ordinance*, Section 21.28.140.

[4] County of Los Angeles Department of Regional Planning. Adopted 23 October 2001. *County of Los Angeles General Plan, Housing Element 1998-2005*. Los Angeles, CA.

[5] Southern California Association of Governments. Adopted April 1995. *Regional Comprehensive Plan and Guide, Chapter 9*, "Open Space and Conservation." Available at: http://www.scag.ca.gov/rcp/pdf/pastprojects/1996RCPGOpenSpaceChapter.pdf

[6] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan, Conservation, Open Space and Recreation Element*, p. II-3. Available at:http://planning.lacounty.gov/assets/upl/project/gp_web80-conservation-and-open-space.pdf

hazards, and to meet the public's desire for open-space experiences. Specific principles related to the proposed project include the following:[7]

- Promote the acquisition or preservation of areas identified in the Regional Recreation Areas Plan
- Provide diverse recreational opportunities
- Refine and reestablish standards in accordance with the current understanding of the needs and use of regional recreation areas and facilities
- Provide a wider range of recreational areas and facilities identified as having regional significance.

3.11.2 Existing Conditions

County Parks

The proposed project is located within an unincorporated area of the County. The County Department of Parks and Recreation headquarters is located at 433 South Vermont Avenue in Los Angeles. Within the County, there are approximately 65,528 recreational areas composed of lakes and lagoons, 10 regional parks, 17 community parks, 67 local parks, and 19 golf courses, among other recreational areas and facilities.[8]

Local

The proposed project site is located within a 1-mile radius of six parks: 109th Street Recreational Center Park, Sibrie Park, Enterprise Park, Mona Park, Earvin Magic Johnson Park, and George W. Carver Park.

The 109th Street Recreational Center Park is located at 1464 East 109th Street in the City of Los Angeles, and is located approximately 0.83 mile north of the proposed project site. The 109th Street Recreational Center Park is a City of Los Angeles park containing an auditorium, lighted baseball diamond, lighted indoor and outdoor basketball courts, children's play area, lighted football field, indoor and outdoor gym, outdoor seasonal pool, lighted soccer field, and lighted tennis courts.[9]

Sibrie Park is located at 1300 West El Segundo Boulevard in the City of Compton, and is approximately 0.42 mile south of the proposed project site. Sibrie Park is a 3.8-acre community park managed by the City of Compton that offers a children's playground, tetherball, volleyball courts, barbecue pits, picnic area, junior baseball diamond, and lighted outdoor basketball courts.[10]

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[7] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[8] County of Los Angeles, Department of Parks and Recreation. *Annual Report 2005–2006*. Available at: http://parks.lacounty.gov/cms1_069242.pdf?Title=2005-2006%20Annual%20Report

[9] City of Los Angeles, Department of Recreation and Parks. "109th Street Recreation Center." Web site. Available at: http://www.laparks.org/dos/reccenter/facility/109thStreetRC.htm

[10] City of Compton, Parks and Recreation Department. "Recreation Facilities: Sibre Park." Web site. Available at: http://www.comptoncity.org/index.php/Parks-and-Recreation/recreation-facilities.htm

Enterprise Park is a 10-acre County park located at 13055 Clovis Avenue in the City of Los Angeles. This park is located approximately 0.77 mile southwest of the proposed project site. The park offers lighted baseball/softball fields, a children's play area, community recreation room, gymnasium, multi-purpose field, picnic areas with barbeque grills, and a swimming pool.[11]

Mona Park is an 8.4-acre County park located at 2291 East 121st Street in the City of Compton. This park is located approximately 0.51 mile west of the proposed project site. The park features a children's play area, gymnasium, lighted baseball/softball diamond, outdoor basketball court, shaded picnic shelter, and a swimming pool.[12]

Earvin Magic Johnson Park is a 94-acre County park located at 905 East El Segundo Boulevard in the City of Los Angeles. This park is located approximately 0.59 mile west of the proposed project site. The park contains children's play areas, picnic areas with barbeque grills, restrooms, soccer fields, two fishing lakes, and a walking path.[13]

George W. Carver Park is a 7.22-acre County park located at 1400 East 118th Street in the City of Los Angeles, California. This park is located 0.25 mile northwest of the proposed project site. The park contains lighted baseball/softball fields, a multi-purpose field, multi-purpose room, picnic areas with barbeque grills, and a swimming pool.[14]

Future Parks and Recreational Improvements

The County, along with various neighboring jurisdictions, has planned to improve many existing recreational facilities. Within a 5-mile radius of the Martin Luther King, Jr. Medical Center Campus, there are numerous park renovations occurring and several park expansion projects proposed. Table 3.11.2-1, *Future Park Expansion and Improvements Project*, presents highlights (but not an exhaustive list) of the proposed improvements.

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[11] County of Los Angeles, Department of Parks and Recreation. "Enterprise Park." Available at: http://parks.lacounty.info/Parkinfo.asp?URL=cms1_033398.asp&Title=Enterprise

[12] County of Los Angeles, Department of Parks and Recreation. "Mona Park." Available at: http://parks.lacounty.info/Parkinfo.asp?URL=cms1_033411.asp&Title=Mona

[13] County of Los Angeles, Department of Parks and Recreation. "Earvin 'MAGIC' Johnson Recreation Area." Available at: http://www.lacountyparks.org/Parkinfo.asp?URL=cms1_033409.asp&Title=Earvin%20%22MAGIC%22%20Johnson%20Recreation%20Area

[14] County of Los Angeles, Department of Parks and Recreation. "George Washington Carver Park." Available at: http://www.lacountyparks.org/Parkinfo.asp?URL=cms1_033393.asp&Title=George%20Washington%20Carver%20Park

TABLE 3.11.2-1
FUTURE PARK EXPANSION AND IMPROVEMENTS PROJECTS[15]

Park/ Facility name	Location	Description of Improvement
Paramount Park Expansion	14400 Paramount Boulevard, Paramount	$2.3 million comprehensive park improvement project that involves the conversion of 4.5 acres of utility right-of-way into park space; project includes landscaped park improvements; refurbishment of existing sport facilities; construction of new sport and playground facilities; installation of new drainage and irrigation systems, a new parking lot, and a wrought iron fence[16]
Various Carson Parks Improvements (Anderson Park)	19101 Wilmington Avenue, Carson	Improvements to various parks to rehabilitate and/or restore facilities or bring them into compliance with the Americans with Disabilities Act (ADA)
Playing Field Refurbishment at Carson and Hemingway Park	700 E Gardena Boulevard, Carson	Refurbish one playing field at Carson Park and two adjacent playing fields at Hemingway Park (in planning)
South Central Sports Activates Center	7020 Figueroa Street, Los Angeles	Acquisition and development of a regional sports activity center
Watts Willowbrook Boys and Girls Club Renovation and Expansion	1339 East 120th Street, Los Angeles	Rehabilitation and construction of the existing Boys and Girls Club; improvements to the facility including: remodeling of gymnasium to a multi-purpose room, installation of security features and lighting, and reorientation of entrance and parking, construction of a new gymnasium and weight room
Housing Authority—Nickerson Gardens	11251 Compton Avenue, Watts / Los Angeles	Site redevelopment including irrigation, turfing, landscaping, lighting, court and field improvements, ADA improvements, and recreation center/community center building refurbishments
Imperial Courts Recreation Center	2250 East 114th Street, Los Angeles	Demolition and removal of the existing community building and construction of a replacement building of the same size at the current location
Mona Park—General Rehabilitation	2291 East 121st Street, Compton	Mona Park: Improvements to restrooms, picnic areas, irrigation system, parking lot, hard court, ball field, roofs, and related facilities; Carver Park: improvements to the community center, irrigation system, hard court, ball field, picnic areas and related facilities
Mona and Carver Parks—General Rehabilitation—Carver Park Carver Park—Various Parks Surfacing Projects Carver Park: Various 2nd District Parks: Intrusion	1400 East 118th Street, Los Angeles	Refurbish hard courts, parking lots and restore landscape and irrigation where needed at Alondra, Carver, Earvin "Magic" Johnson, Keller, Ladera, Mona, Watkins, Victoria, Athens and Bethune Parks

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[15] County of Los Angeles, Department of Parks and Recreation. "Los Angeles County Regional Open Space District: Find Open Space District Project in Your Area." Web site. Available at: http://gis.lacounty.gov/rposd/

[16] County of Los Angeles, Department of Parks and Recreation. Accessed on: 14 June 2010. "Los Angeles County Regional Open Space District: Find Open Space District Project in Your Area." Web site. Available at: http://gis.lacounty.gov/rposd/

TABLE 3.11-1
FUTURE PARK EXPANSION AND IMPROVEMENTS PROJECTS, Continued

Park/ Facility name	Location	Description of Improvement
Alarms George Washington Carver Drinking Fountains (Various Parks) George Washington Carver Park-Ball Field Renovation (Various Parks)		
Sibrie Park	1300 West El Segundo Boulevard, Compton	Installation of outdoor lighting at Gonzales Park, Kelly Park, Oaks Park, and Sibrie Park; general improvements to Sibrie Park

SOURCE: Los Angeles County Regional Park and Open Space District.

On Site

The proposed project would be located on the existing 38-acre Martin Luther King, Jr. Medical Center Campus at 12021 Wilmington Avenue in the unincorporated community of Willowbrook in the County. The proposed project site is less than 1 mile north of the City of Compton, less than 1 mile west of the City of Lynwood, and less than 1 mile south of the City of Los Angeles.

The proposed project site is a public facility that contains landscaped areas and open lawns (or green spaces) that are dispersed throughout the campus. Although they are not specifically designated as recreational areas, these green spaces, which are located at the entrance of the campus off Wilmington Avenue and throughout the campus, are accessible to the general public, staff, and visitors.

3.11.3 Significance Thresholds

The potential for the proposed project to result in impacts related to recreation was analyzed in relation to the questions contained in Appendix G of the State California Environmental Quality Act (CEQA) Guidelines. A project would normally be considered to have a significant impact to recreation when the potential for any one of the following two thresholds occurs:

- Increase in the use of existing neighborhoods and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated

- The construction or expansion of recreational facilities, which might have an adverse physical effect on the environment

3.11.4 Impact Analysis

The proposed project has been evaluated for conformity with the goals, objectives, and policies of the General Plan related to recreation. The potential for adverse impacts to recreational services has been evaluated based on information concerning current recreational services and the increased demand created by the proposed project. This analysis considered existing General Plan policies, goals, and applicable regulations, as well as existing and proposed parks, open space, and recreation facilities within the proposed project area. The proposed project could potentially increase the use of existing parks and recreational areas, including state, County, and neighborhood parks. The proposed project includes the construction of a residential and a commercial/retail component that could result in population growth, which in turn could cause an increase in demand for parks and recreational services.

Substantial Physical Deterioration of Existing Facilities

Tier I

Tier I of the proposed project would generate temporary jobs during the construction phase of the proposed project, and would not be expected to result in the creation of long-term jobs during the operational phase of the proposed project. Neither temporary nor long-term employees of the proposed project would be anticipated to use recreational facilities extensively. Employees of the medical campus would most likely live in the nearby area or region and would continue to access recreational facilities near their respective personal residences. Therefore, there would be no anticipated significant direct impacts from Tier I of the proposed project that would cause substantial deterioration of any recreational facility. In addition, as indicated in Table 3.11-1, the County plans to renovate and expand numerous parks and recreational facilities within the proposed project vicinity, thus increasing the total recreational facilities and open space available.

Tier II

Tier II of the proposed project would develop up to 100 residential units, and thus would directly result in a relatively small amount of new residential population in the area. This new population would also be in the vicinity of recreational parks and facilities. As discussed in Section 3.9, Population and Housing, of this EIR, in 2000, the Willowbrook community, a census-designated place (CDP) in the unincorporated County, had an average of 3.97 persons per household. However, the average persons per household increased to 4.10 between 2006 and 2008.[17] Based on the Willowbrook community standard occupancy rate of 4.10 persons per unit, the proposed project would generate approximately 410 additional residents. According to the General Plan, the County's threshold for recreation and open space for subdivisions is 4 acres per 1,000 residents.[18] Thus, the proposed project would be expected to generate the need for 1.64 acres of recreational/open-space area. It is anticipated that the population growth from the proposed project would be expected to fall within the projected growth for the area. Therefore Tier II would not be expected to result in an increase in the use of existing neighborhoods and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Tier II of the proposed project would generate temporary jobs during the construction phase of the proposed project, and long-term jobs during the operational phase of the proposed project. Neither temporary nor long-term employees of the proposed project would be anticipated to use recreational facilities extensively. Employees of the medical campus would most likely live in the nearby area or region and would continue to access recreational facilities near their respective personal residences.

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[17] The 2006–2008 estimates represent the average characteristics of population and housing between January 2006 and December 2008 and do no represent any single point in time.

[18] County of Los Angeles, Department of Regional Planning. November 1980. *County of Los Angeles General Plan, Conservation, Open Space and Recreation Element*, p. II-3. Available at: http://planning.lacounty.gov/assets/upl/project/gp_web80-conservation-and-open-space.pdf

Therefore, there would be no anticipated significant direct impacts from the non-residential component of Tier II of the proposed project that would cause substantial deterioration of any recreational facility.

As discussed in Section 3.09, *Population and Housing,* of this EIR, neither temporary employees needed during the construction phase of the project nor permanent employees needed for long-term operation of the proposed project are anticipated to constitute substantial increases in new population to the area beyond adopted population projections. Employees are less likely to relocate for jobs in the retail industry. There tends to be a higher turnover in retail jobs due to the nature of these jobs; many of the jobs are hourly, part time and/or filled by students or employees that would be expected to terminate employment over time to take on more complex or different jobs in the future. Therefore, there would be no significant indirect impacts expected from employees of the medical and health facility in relation to an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. In addition, as indicated in Table 3.11.2-1, the County plans to renovate and expand numerous parks and recreational facilities within the proposed project vicinity, thus increasing the total recreational facilities and open space available.

Construction or Expansion of Recreational Facilities

Tier I

Tier I of the proposed project would not have an adverse physical effect on the environment as result of construction or expansion of recreational facilities. Tier I of the proposed project would not include construction of recreational facilities on the site and would not require the construction or expansion of new facilities. Open areas and landscaped areas within Tier I development of the campus may be utilized for walking or other passive recreational activities. These areas would occur within the existing campus, would not generate traffic beyond that anticipated for the Tier I portion of the proposed project, and would only serve employees and visitors coming to the campus for other primary purposes, thereby not attracting additional users beyond those using the medical facilities of the campus. Therefore, Tier I development would not have an adverse physical effect on the environment as result of construction or expansion of recreational facilities.

Tier II

Tier II of the proposed project would not have an adverse physical effect on the environment as result of construction or expansion of recreational facilities. Tier II of the proposed project would not include construction of recreational facilities on the site and would not require the construction or expansion of new facilities; however, Tier II may include various open space areas, pathways, and landscaped areas on site that could be used by campus visitors. The medical campus is approximately 38 acres in size. As illustrated in Table 2.4-1, the proposed project would retain 10 percent open space through use of landscape for the purpose of aesthetic designs / beautification and overall health and sustainability. In addition, the County Zoning Code requires a minimum of 10 percent open space. Thus, in order to comply with the County Zoning Code, the proposed project would need to maintain approximately 3.8 acres of open space (including undeveloped areas without structures such as buildings or parking structures). Tier II of the proposed project would be expected to entail recreational components such as the open space and other areas described above, that would serve the campus but these elements would be constructed in a manner that would avoid any adverse physical effect on the environment.

The proposed project includes pedestrian walkways and open space throughout portions of the proposed project area. These walkways would be primarily used by residents or visitors accessing the proposed dwelling units and by employees. Landscaping would include the planting of trees, shrubs, and groundcover around buildings and along pathways. These areas would occur within the existing campus, would not generate traffic beyond that anticipated for the Tier II portion of the proposed project, and would only serve employees and visitors coming to the campus for other primary purposes, thereby not attracting additional users beyond those using the medical facilities of the campus. Additionally, the County and surrounding jurisdictions have plans to complete improvements and to expand the existing recreational facilities in the area surrounding the proposed project site. Therefore, Tier II development would not have an adverse physical effect on the environment as result of construction or expansion of recreational facilities.

Cumulative Impacts

Tier I

The incremental impacts of the proposed project to recreational facilities and open space, when added to the related past, present, or reasonably foreseeable future projects listed in Section 2, *Project Description,* of this EIR, would be expected to be below the level of significance. The proposed project would not create substantial population growth that would increase the use of or require the construction or expansion of recreational or open space areas when added to cumulative future projects. As discussed above, there are numerous park renovations occurring and several park expansion projects proposed within a 5-mile radius of the proposed project. Tier I development would not result in a significant impact either in relation to an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, or in relation to the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment. All related projects would undergo CEQA review, and if warranted, would be expected to provide the appropriate amount of open space / recreational facilities, or provide mitigation as necessary.

Tier I of the proposed project would not have an individually significant impact on recreational resources and would not have a cumulatively considerable contribution that would cause the need for additional recreation facilities. When paired with related projects within an approximate 2.5-mile radius, Tier I of the proposed project would not have a cumulative impact related to recreational services. Residential projects when paired with Tier I of the proposed project could cause a cumulative impact. However, the residential-related projects in the surrounding area would not cause an unanticipated population growth that would cause the need for additional recreation facilities. Therefore, Tier I of the proposed project would not have a significant cumulative impact related to recreational services.

Tier II

Tier II of the proposed project is anticipated to include development of up to 100 residential units and up to 1,814,696 square feet of mixed-use development. The development of up to 100 residential units on the proposed project site would be expected to induce population shifts from the neighboring communities to the proposed project site. Tier II development would not result in a significant impact either in relation to an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, or in relation to the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment. As Tier II of the proposed project would not have an individually significant impact on recreational resources and would not have a cumulatively considerable contribution that would cause the need for additional recreation facilities. When paired with related projects within an approximate 3-mile radius, Tier II of the proposed project would not have a cumulative impact related to recreational services. Residential projects when paired with Tier II of the proposed project could cause a cumulative impact. However, the residential-related projects in the surrounding area would not cause an unanticipated population growth that would cause the need for additional recreation facilities. Therefore, the proposed project would not have a significant cumulative impact related to recreational services.

3.11.5 Mitigation Measures

Tier I

An EIR is required to describe feasible mitigation measures that could minimize potentially significant adverse impacts. The analysis undertaken for this document determined that no potentially significant impacts to recreation would be expected to result from development of Tier I of the proposed project. Therefore, no mitigation measures are required.

Tier II

An EIR is required to describe feasible mitigation measures that could minimize potentially significant adverse impacts. The analysis undertaken for this document determined that no potentially significant impacts to recreation would be expected to result from development of Tier II of the proposed project. Therefore, no mitigation measures are required.

3.12 TRANSPORTATION AND TRAFFIC

As a result of the Initial Study, the County of Los Angeles (County) determined that the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in impacts to transportation and traffic.[1] Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts to transportation and traffic.

The analysis of transportation and traffic includes a description of the regulatory framework that guides the decision-making process, the existing conditions of the proposed project area, the thresholds used for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and the level of significance after mitigation is incorporated. The potential for impacts to transportation and traffic has been analyzed in accordance with Appendix G of the State California Environmental Quality Act (CEQA) Guidelines and the methodologies and significance thresholds provided by the County and incorporated within the traffic related studies that were prepared for the proposed project (see Appendix H, *Traffic Study for the Martin Luther King Jr. Medical Campus Center Project*).[2,3] Additionally, the traffic analysis was completed according to four traffic impact analysis methodologies: the California Department of Transportation (Caltrans) methodology was used to evaluate highway segments and ramps that are located within Caltrans' jurisdiction; the County of Los Angeles methodology was used for roads and intersections located within County of Los Angeles' jurisdiction; the Congestion Management Program (CMP) methodology was used to evaluate the analysis locations within non-County jurisdictions including the Cities of Compton and Lynwood; and the City of Los Angeles methodology was used to evaluate study intersections located within the City of Los Angeles' jurisdiction.

3.12.1 Regulatory Framework

State

California Water Code

The proposed project is subject to the State of California Water Code, Division 12, Part 5, Chapter 1, Article 4, Section 31060, titled "Construction of Rights of Way."[4] Any mitigation measure required to be implemented in a state right-of-way would require a Caltrans Encroachment Permit. Caltrans recommends that large-sized trucks transporting construction materials and equipment be limited to off-peak commute periods and any heavy construction equipment that requires the use of oversize transport vehicles on state roadways or facilities would require a Caltrans transportation permit. The construction scenario defined for the proposed project would not require the transport of oversized vehicles on state facilities; however, highways that are under state jurisdiction and are operated by

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study.* Prepared by: Sapphos Environmental, Inc. Pasadena, CA.

[2] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[3] Linscott, Law, Greenspan Engineers. 27 May 2010. *Martin Luther King, Jr. Medical Center Updated Parking Review.* Prepared for: County of Los Angeles. Pasadena, CA.

[4] West's Annotated California Codes, 1984. *Water Code Sections 30000 to 38999. Official California Water Code Classification.* Vol. 69. St. Paul, Minnesota: West Publishing Company.

Caltrans may be used by oversized vehicles in order to travel to and access the site during construction related activities.

Regional

Southern California Association of Governments Regional Transportation Plan

The proposed project lies within the jurisdiction of the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP). The 2008 RTP presents the transportation vision for the six-county region through the year 2035. The focus of the RTP is to maintain and improve the existing transportation system that considers system preservation, system operation and management, improved coordination between land-use decisions and transportation investments, and strategic expansion of the system to accommodate future growth.[5] The RTP consists of two sections: a financially constrained plan and a strategic plan. Together, these two plans have seven goals:

- Maximize mobility and accessibility for all people and goods in the region
- Ensure travel safety and reliability for all people and goods in the region
- Preserve and ensure a sustainable regional transportation system
- Maximize the productivity of our transportation system
- Protect the environment, improve air quality and promote energy efficiency
- Encourage land use and growth patterns that complement our transportation investments and improve the cost-effectiveness of expenditures
- Maximize the security of our transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.[6]

Local

Metropolitan Transportation Authority Congestion Management Plan

The CMP is a State-mandated program passed in 1990 in the form of Proposition 111. The County of Los Angeles Metropolitan Transportation Authority (LACMTA) has implemented the CMP locally. The CMP system consists of a specific system of arterial roadways in addition to all freeways. The Los Angeles County CMP requires individual development projects of regional significance to be analyzed for traffic impacts. Under the Los Angeles County CMP guidelines, a Traffic Study / Traffic Impact Assessment (TIA) has been prepared for the proposed project to determine potential impacts.[7] The Los Angeles County's CMP standard is Level of service (LOS) D or better for roads and highways in the vicinity of the proposed project site. LOS is a measure of traffic operation condition whereby a letter grade, A through F, corresponding to progressively worsening operation conditions, is assigned to an intersection or roadway segment.

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[5] Southern California Association of Governments. May 2008. *Regional Transportation Plan*. Available at: http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_Complete.pdf

[6] Southern California Association of Governments. May 2008. *Regional Transportation Plan*. Available at: http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_Complete.pdf

[7] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project*. Prepared for: County of Los Angeles. Pasadena, CA.

County of Los Angeles General Plan

The Transportation element of the County of Los Angeles General Plan provides a summary of the existing conditions in the planning area, major issues, goals, and policies, as well as pertinent action programs related to traffic and circulation related to a variety of transportation systems (highway and local road networks, bus, rail, high speed rail, aviation network, harbors, bicycles, pedestrians, and rideshare). The Transportation element describes the major locations and corridors for existing and future travel based on land use patterns in order to develop a comprehensive, coordinated, and continuing transportation system for the County of Los Angeles. This document sets forth County policy on the transportation system by identifying a series of 41 policies. The following policies may be applicable to the proposed project:[8]

- **Policy 17.** Encourage provision of transit service at a reasonable cost to the users and the community.
- **Policy 24.** Encourage the efficient use and conservation of energy used in transportation.
- **Policy 31.** Support the development of a mass transportation system that will provide a viable alternative to the automobile.
- **Policy 33.** Support a public transit system that provides accessible service, particularly to the transit dependent.

3.12.2 Existing Conditions

The existing Martin Luther King, Jr. Medical Center Campus is located in a highly urbanized area that is accessible by an established transportation network. The transportation network includes regional and street systems. Staff, visitors, and other individuals accessing the proposed project site do so by using the regional and street systems which are described below.

The proposed project site is also serviced by a public transportation system that includes: the Metropolitan Transportation Authority, Downtown Area Short Hop, Renaissance Transit System, Gardena Municipal Bus Line, Rosewood Smart Shuttle, Lynwood Trolley, Torrance Transit System, Carson Circuit System, Long Beach Transit, and the Hahn Trolley Shuttle Service. The public transportation system is discussed further in this section.

Currently, the existing campus is not fully operational, but does provide various outpatient and administrative support services. The transportation systems mentioned above are used to access the current proposed project site.

Regional Roadway System

The proposed project is located approximately 3 miles north of State Route 91 (SR-91; Artesia Freeway), approximately 3 miles northeast of Interstate 710 (I-710; Long Beach Freeway), approximately 2 miles east of SR-110, less than 1 mile south of East Imperial Highway, and less than 1 mile south of I-105 (Glen Anderson Freeway). Primary regional access to the proposed project site is provided by these freeways. The I-105 Freeway, which runs in the east-west direction, south of the project site, connects with the SR-110 and I-710 Freeways, which run north-south. The SR-91 Freeway, which also runs east-west south of the project site, connects with the I-110 and I-710 Freeways.

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[8] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

The arterials in the vicinity of the proposed project area provide regional and sub-regional access to the proposed project site include Imperial Highway, Wilmington Avenue, Central Avenue, El Segundo Boulevard, Alameda Street, 108th Street, 111th Street, 119th Street, 120th Street, Compton Avenue, Avalon Avenue, Willowbrook Avenue, Mona Boulevard, Rosecrans Avenue, Slater Street, and Success Avenue.

Local and sub-regional access and circulation opportunities within the proposed project area are provided by a grid network of major highways, secondary highways, collector streets, and selected local streets. These roads generally provide two to four travel lanes and allow parking on either side of the street. Typically, the speed limits range between 25 miles per hour (mph) and 35 mph.[9]

As part of the CMP and Caltrans analysis, 12 freeway segments are also analyzed. These locations include segments of the I-105 Freeway, the SR-110 Freeway, the I-710 Freeway, and the SR-91 Freeway.[10] A detailed Memorandum of Understanding (MOU) was prepared in coordination with the County of Los Angeles Department of Public Works. The MOU was used to establish the scope of the proposed project as well as other details related to traffic that were used to analyze the traffic related impacts of the proposed project (Appendix H).

Street System

The proposed project site is bounded on the north by East 120th Street; on the east by Wilmington Avenue; on the south by a narrow alley, which separates the proposed project site from the residential neighborhood that is largely located north of East 122nd Street; and on the west by Compton Avenue.

The roads that serve the immediate vicinity of the proposed project area along with their street classifications (per the County of Los Angeles' and City of Los Angeles' General Plan designation) are described below:

- Compton Avenue: Compton Avenue is a secondary arterial roadway. It runs in a north-south direction across several jurisdictions and defines the western boundary of the project site. The posted speed limit is 35 mph in the vicinity of the proposed project area. Within the proposed project area, the roadway generally offers four travel lanes, two lanes in each direction with a double yellow median. Parking is generally allowed along this roadway.

- 120th Street: 120th Street is a secondary arterial roadway that traverses in an east-west direction and defines the northern boundary of the proposed project site. This roadway provides four travel lanes, two lanes in each direction with a double yellow median. The posted speed limit is 25 mph. In the vicinity of the proposed project site, parking is allowed along this roadway. At Wilmington Avenue, this roadway becomes 119th Street. The 120th Street roadway continues east of Wilmington Avenue, south of 119th Street. This segment of 120th Street is a local street and provides two lanes, one lane in each direction. Parking is allowed along this roadway.

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[9] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[10] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

- 119th Street: 119th Street begins east of Wilmington Avenue and is a continuation of 120th Street. 119th Street is a secondary arterial roadway that traverses in an east-west direction. This roadway offers two travel lanes, one lane per direction with a center left-turn median. Parking is allowed along this roadway. The posted speed limit along this facility is 25 mph.

- Wilmington Avenue: Wilmington Avenue is a major arterial roadway that runs in a north-south direction and defines the eastern boundary of the proposed project site. This roadway offers four travel lanes, two lanes per direction, and provides connection to the I-105 Freeway eastbound on-off ramps. Parking is allowed along this roadway. North of El Segundo Boulevard, the posted speed limit is 35 mph.

- El Segundo Boulevard: El Segundo Boulevard is an east-west major arterial roadway. The posted speed limit varies from 35 to 40 mph. The roadway generally offers six travel lanes, three lanes in each direction, with a central left-turn median. Parking is generally allowed along many stretches of this roadway within the project area. This roadway provides on- and off-ramps to the 110 Freeway.

- Imperial Highway: Imperial Highway is classified as a major arterial roadway and runs in an east-west direction north of the proposed project site. The posted speed limit is 40 mph. The roadway generally offers six travel lanes, three lanes in each direction, with a central left-turn median. Restricted on-street parking is allowed along this roadway. This roadway provides on- and off-ramps to the I-105 Freeway.

- Rosecrans Avenue: Rosecrans Avenue is a major arterial roadway that traverses in an east-west direction. This roadway offers four travel lanes, two lanes per direction with a raised median. This roadway provides connection to both the 110 Freeway and I-710 Freeway on-off ramps. Parking is allowed along this roadway. The posted speed limit is 40 mph.

- Avalon Boulevard: Avalon Boulevard is a major arterial roadway that runs in a north-south direction and offers four travel lanes, two lanes per direction. Parking is allowed along many stretches of this roadway. The posted speed limit is 35 mph.

- Central Avenue: Central Avenue is classified as a major arterial roadway that traverses in a north-south direction. The posted speed limit is 35 mph. The roadway generally offers four travel lanes, two lanes in each direction, with a central left-turn median and provides on- and off-ramps to the I-105 Freeway. Parking is allowed along this roadway within the proposed project area.

- Willowbrook Avenue (West): Willowbrook Avenue (West) is classified as a secondary arterial roadway that traverses in a north-east to south-west direction. The posted speed limit is 35 mph. The roadway generally offers two travel lanes, one lane in each direction, with a single, dashed, yellow median. Parking is allowed along the east side of this roadway within the proposed project area.

- Willowbrook Avenue (East): Willowbrook Avenue (East) is classified as a secondary arterial roadway that traverses in a north-east to south-west direction. The posted speed limit is 35 mph. The roadway generally offers two travel lanes, one lane in each direction, with a single, dashed, yellow median. Parking is allowed along the west side of this roadway within the proposed project area.

- Mona Boulevard: Mona Boulevard is classified as a secondary arterial roadway that runs in a north-east to south-west direction. The posted speed limit is 40 mph. The roadway generally offers two travel lanes, one lane in each direction, with an undivided median. Parking is allowed along this roadway within the proposed project area.

- Alameda Street: Alameda Street is classified as a secondary arterial roadway that traverses in a north-east to south-west direction. The posted speed limit is 40 mph. The roadway generally offers four travel lanes, two lanes in each direction, with a central left-turn median. Parking is allowed along many stretched of this roadway within the proposed project area.

- 108th Street: 108th Street is classified as a secondary arterial roadway that traverses in east-west direction. The posted speed limit is 35 mph. The roadway generally offers two travel lanes, one lane in each direction, with a central left-turn median. Restricted on-street parking is allowed along this roadway within the proposed project area.

- 111th Street: 111th Street is classified as a collector roadway that traverses in an east-west direction. The posted speed limit is 25 mph. The roadway generally offers two travel lanes, one lane in each direction, with an undivided median. Restricted on-street parking is allowed along this roadway within the proposed project area.

- Success Avenue: Success Avenue is a local street that runs in a north-south direction. The speed limit is 25 mph. The roadway generally offers two travel lanes, one lane in each direction, with a single, dashed median. Restricted on-street parking is allowed along this roadway within the proposed project area.

- Slater Avenue: Slater Avenue is a local street that runs in a north-south direction. The speed limit is 25 mph. The roadway generally offers two travel lanes, one lane in each direction, with a single, dashed median. Restricted on-street parking is allowed along this roadway within the proposed project area.[11]

The roadway segment characteristics and existing lane configurations at each of the analyzed intersections are included in Appendix H of this EIR.

Levels of Service

Level of service is a qualitative measure used by the County of Los Angeles' CMP to describe conditions of traffic flow with a letter grade ranging from LOS A indicating excellent conditions to LOS F indicating overloaded conditions. The minimum acceptable LOS in the County of Los Angeles is LOS D in urban areas. The LOS definitions for signalized intersections are provided in Table 3.12.2-1, *Level of Service Definition for Signalized Intersections*. All of the analyzed intersections are controlled by traffic signals.

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[11] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

TABLE 3.12.2-1
LEVEL OF SERVICE DEFINITION FOR SIGNALIZED INTERSECTIONS

Level of Service	Volume/Capacity Ratio	Definition
A	0.000-0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	>0.600-0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	>0.700-0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	>0.800-0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	>0.900-1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	>1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

SOURCE: Transportation Research Board, *Transportation Research Circular No. 212, Interim*

The Intersection Capacity Utilization (ICU) method of intersection analysis, per the County of Los Angeles traffic impact study guidelines for analyzing intersection conditions, was used to determine the intersection volume to capacity (V/C) ratio and corresponding level of service at each study intersection. A capacity of 1,600 vehicles per lane per hour and 2,880 for dual left-turn lanes was assumed in the capacity calculations in accordance with the guidelines.[12]

Existing Traffic Volumes

The 64 key intersections and highway segments were selected for evaluation based on coordination with the Los Angeles County Department of Public Works, Traffic and Lighting Division. Current and future traffic analyses were examined at these 64 intersections, which are located within the County of Los Angeles and several non-County jurisdictions as a part of this evaluation.[13] At these locations, traffic operations were studied prior to and after implementation of the proposed project, and deficiencies and impacts were identified. The intersections and highways that were evaluated within the roughly 2.5-mile-radius study area surrounding the proposed project site are located in, maintained and operated by Caltrans, the County of Los Angeles, and Cities of Compton, Los Angeles, and Lynwood jurisdictions.[14]

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[12] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[13] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[14] For the purposes of the traffic analysis prepared for the proposed project, the ongoing campus improvements were evaluated as an existing baseline condition of the campus rather than a related project. Additionally, the related projects that were assessed at the intersections/streets, mostly appear within an approximately 2.5-mile radius.

As part of this analysis, detailed morning and evening peak period traffic counts on a commuter weekday were conducted and the peak hour traffic demands on the roadway system were identified. Weekday morning and evening peak hour traffic counts were compiled from data collected at the 64 analyzed intersections in January and April 2010.[15] These traffic volumes reflect typical weekday operations during current year 2010 conditions (Table 3.12.2-2, *Summary of Intersections Evaluated: Existing Conditions*, and Appendix H).[16]

TABLE 3.12.2-2
SUMMARY OF INTERSECTIONS EVALUATED: EXISTING CONDITIONS

#	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
County of Los Angeles					
52	Alameda Street/103rd Street [1]	0.760	C	0.824	D
55	Alameda Street/El Segundo Boulevard [2]	0.621	B	0.731	C
54	Alameda Street/Imperial Highway [1]*	0.735	C	0.819	D
11	Avalon Boulevard/El Segundo Boulevard	0.603	B	0.738	C
12	Avalon Boulevard/Rosecrans Avenue	0.597	A	0.707	C
4	Broadway/El Segundo Boulevard	0.489	A	0.534	A
19	Central Avenue/El Segundo Boulevard [2]	0.748	C	0.821	D
20	Central Avenue/Rosecrans Avenue [2]	0.772	C	0.894	D
26	Compton Avenue/118th Street	0.365	A	0.314	A
27	Compton Avenue/120th Street	0.547	A	0.471	A
28	Compton Avenue/124th Street	0.309	A	0.257	A
25	Compton Avenue/Imperial Highway [3]**	0.795	C	0.669	B
49	I-105 Westbound Ramps/Imperial Highway [3,4]	0.814	D	0.790	C
5	Main Street/El Segundo Boulevard	0.529	A	0.588	A
51	Mona Boulevard/El Segundo Boulevard	0.541	A	0.560	A
50	Mona Boulevard/Imperial Highway [1,3]	0.725	C	0.780	C
7	San Pedro Street/El Segundo Boulevard	0.522	A	0.528	A
23	Success Avenue - Slater Avenue/120th Street	0.403	A	0.316	A
46	Willowbrook Avenue/119th Street	0.487	A	0.654	B
47	Willowbrook Avenue/El Segundo Boulevard	0.534	A	0.599	A
35	Wilmington Avenue/118th Street	0.686	B	0.670	B
36	Wilmington Avenue/120th Street-119th Street	0.718	C	0.703	C
38	Wilmington Avenue/124th Street	0.529	A	0.472	A
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.725	C	0.726	C
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	0.479	A	0.482	A
39	Wilmington Avenue/El Segundo Boulevard [2]	0.758	C	0.808	D
33	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.443	A	0.442	A
City of Compton					
56	Alameda Street/Compton Boulevard *	0.639	B	0.629	B
22	Central Avenue/Alondra Boulevard	0.639	B	0.681	B
21	Central Avenue/Compton Boulevard	0.671	B	0.689	B
29	Compton Avenue/El Segundo Boulevard	0.724	C	0.559	A

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[15] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[16] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

TABLE 3.12.2-2
SUMMARY OF INTERSECTIONS EVALUATED: EXISTING CONDITIONS, Continued

#	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
61	Slater Avenue/El Segundo Boulevard	0.553	A	0.499	A
48	Willowbrook Avenue/Rosecrans Avenue	0.709	C	0.761	C
42	Wilmington Avenue/Alondra Boulevard	0.584	A	0.661	B
41	Wilmington Avenue/Compton Boulevard	0.641	B	0.685	B
43	Wilmington Avenue/Greenleaf Boulevard	0.660	B	0.708	C
40	Wilmington Avenue/Rosecrans Avenue	0.803	D	0.829	D
44	Wilmington Avenue/Artesia Boulevard (N) [4]	0.779	C	0.772	C
45	Wilmington Avenue/Artesia Boulevard (S) [4]	0.698	B	0.729	C
City of Los Angeles					
10	Avalon Boulevard/120th Street	0.647	B	0.750	C
8	Avalon Boulevard/Century Boulevard	0.659	B	0.728	C
9	Avalon Boulevard/Imperial Highway**	0.606	B	0.713	C
14	Central Avenue/103rd Street**	0.684	B	0.750	C
18	Central Avenue/120th Street	0.724	C	0.696	B
13	Central Avenue/Century Boulevard**	0.715	C	0.752	C
15	Central Avenue/Imperial Highway**	0.656	B	0.747	C
17	Central Avenue/I-105 Eastbound Ramps [4]	0.747	C	0.694	B
16	Central Avenue/I-105 Westbound Ramps [4]	0.795	C	0.762	C
24	Compton Avenue/103rd Street**	0.455	A	0.526	A
62	Compton Avenue/108th Street	0.763	C	0.655	B
63	Compton Avenue/111th Street	0.649	B	0.613	B
3	Figueroa Street/El Segundo Boulevard	0.556	A	0.717	C
2	I-110 Northbound Ramps/El Segundo Boulevard [4]**	0.731	C	0.836	D
1	I-110 Southbound Ramps/El Segundo Boulevard [4]**	0.781	C	0.661	B
6	San Pedro Street/120th Street	0.598	A	0.594	A
30	Wilmington Avenue/103rd Street	0.621	B	0.507	A
64	Wilmington Avenue/111th Street	0.650	B	0.627	B
31	Wilmington Avenue/Santa Ana Boulevard (N)	0.576	A	0.597	A
32	Wilmington Avenue/Santa Ana Boulevard (S)	0.612	B	0.639	B
City of Lynwood					
53	Alameda Street/Martin Luther King Jr. Boulevard	0.748	C	0.686	B
58	Long Beach Boulevard/Imperial Highway	0.930	E	1.021	F
57	Long Beach Boulevard/Martin Luther King Jr. Boulevard	0.785	C	0.824	D
60	Long Beach Boulevard/I-105 Eastbound Ramps [4]	0.665	B	0.590	A
59	Long Beach Boulevard/I-105 Westbound Ramps [4]	0.475	A	0.660	B

SOURCE:

* Los Angeles County Congestion Management Program (CMP) monitoring location.

** Existing City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.

KEY:

[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

Existing on-site peak hour traffic counts were conducted at the existing driveways along 120th Street and Wilmington Avenue. Based on the observed driveway counts, the existing project site generates a total of 706 trips (528 inbound, 178 outbound) during the morning peak hour and 527 trips (124 inbound, 403 outbound) during the evening peak hour.[17]

Since the existing site is not fully operational, only a portion of the trips that the existing site can potentially generate are currently on the street system and accounted for in the existing traffic counts. The existing medical campus' has the potential to generate a net total of approximately 17,443 daily trips of which 1,184 trips (699 inbound, 485 outbound) would occur during the morning peak hour and 1,206 trips (507 inbound, 699 outbound) during the evening peak hour.

Currently, 63 of the 64 analyzed intersection locations are operating at acceptable LOS ratings (LOS D or better) both during the morning and evening peak hours.[18] At these locations, motorists experience little to tolerable amounts of delay. The remaining intersection, Long Beach Boulevard and Imperial Highway, is operating at LOS E in the AM peak hour and is operating at LOS F in the PM peak hour.[19]

Nine of the 64 signalized study intersections analyzed are controlled by the City of Los Angeles' Automated Traffic Surveillance and Control (ATSAC) System and Adaptive Traffic Control System (ATCS) and are part of the Harbor-Gateway ATSAC system. A capacity increase of 10 percent (0.07 V/C adjustments for ATSAC and 0.03 V/C adjustments for ATCS) was applied to reflect the benefits of ATSAC/ATCS control at these intersections.[20] The nine locations include:

- I-110 Northbound Ramps/El Segundo Boulevard
- I-110 Southbound Ramps/El Segundo Boulevard
- Avalon Boulevard/Imperial Highway
- Central Avenue/Century Boulevard
- Central Avenue/103rd Street
- Central Avenue/Imperial Highway
- Compton Avenue/Imperial Highway
- Compton Avenue/103rd Street
- Wilmington Avenue/Imperial Highway

LADOT has indicated that an additional nine of the intersections evaluated will become part of the Harbor-Gateway ATSAC system in mid-2010:[21]

- Avalon Boulevard/Century Boulevard
- Avalon Boulevard/120th Street
- Central Avenue/I-105 Westbound Ramps

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[17] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[18] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[19] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[20] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[21] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

- Central Avenue/I-105 Eastbound Ramps
- Central Avenue/120th Street
- Compton Avenue/108th Street
- Compton Avenue/111th Street
- I-105 Westbound Ramps/Imperial Highway
- Mona Avenue/Imperial Highway

Air Traffic

The nearest airport to the proposed project site is the Compton/Woodley Airport located at 961 Alondra Boulevard, approximately 2.1 miles south of the proposed project in the City of Compton. The Compton Airport is a County-owned public-use airport that offers flight training, accommodations for more than 200 planes, and several aviation clubs.

Existing Vehicular Emergency Access/Egress

Two fire stations are located within 2 miles of the proposed project site. Police protection services in the proposed project area are provided by the Los Angeles County Sheriff's Department's Century Station located approximately 0.8 mile northeast of the proposed project site. Existing roadways were planned and designed to support the needs of the facility. As a medical center campus, the existing campus is properly designed for emergency vehicle access.

Existing Parking Conditions

Parking is provided at the Martin Luther King, Jr. Medical Campus in seven designated parking areas including an on-site multi-level parking structure available for parking. A parking forecast prepared for the existing campus determined that approximately 1,915 parking spaces were required for Tier I of the proposed project on the existing campus due to the proximity of public transportation.[22] Additionally, parking utilization observations and counts at the existing campus have noted that there is a parking surplus on the campus of more than 41 percent during the peak parking demand hour (11:00 a.m.).[23] The following is a summary of the existing on-site parking spaces, which are either striped and/or signed:[24]

- Parking Lot Area A (Surface Parking – East):
  - 6 handicap-accessible parking spaces
  - 198 standard parking spaces
  - *204 total parking spaces*

- Parking Lot Area B (Surface Parking – East):
  - 18 handicap-accessible parking spaces
  - 110 standard parking spaces
  - *128 total parking spaces*

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[22] Linscott, Law, Greenspan Engineers. 27 May 2010. *Martin Luther King, Jr. Medical Center Updated Parking Review.* Prepared for: County of Los Angeles. Pasadena, CA.

[23] Linscott, Law, Greenspan Engineers. 27 May 2010. *Martin Luther King, Jr. Medical Center Updated Parking Review.* Pasadena, CA. Utilization counts were conducted over the course of several days in April 2009 and May 2010 and were performed by Linscott, Law, Greenspan Engineers and The Traffic Solution for Linscott, Law, Greenspan Engineers.

[24] Linscott, Law, Greenspan Engineers. 27 May 2010. *Martin Luther King, Jr. Medical Center Updated Parking Review.* Pasadena, CA.

- Parking Lot Area C (Surface Parking – East):
    - 4 handicap-accessible parking spaces
    - 320 standard parking spaces
    - *324 total parking spaces*

- Parking Structure:
    - 11 handicap-accessible parking spaces
    - 490 standard parking spaces
    - *501 total parking spaces*

- Emergency Parking:
    - 2 handicap-accessible parking spaces
    - 1 standard parking spaces
    - 6 temporary parking spaces
    - *9 total parking spaces*

- Parking Lot Area E (Surface Parking – West):
    - 34 handicap-accessible parking spaces
    - 335 standard parking spaces
    - *369 total parking spaces*

- Parking Lot Area F (Surface Parking – West):
    - 8 handicap-accessible parking spaces
    - 140 standard parking spaces
    - *148 total parking spaces*

- Miscellaneous Surface Parking:
    - 84 loading dock and standard parking spaces
    - *84 total parking spaces*

Based on the parking summary listed above, approximately 1,767 parking spaces are currently provided on site in seven designated parking areas, as well as miscellaneous surface parking interspersed throughout the campus. The total 1,767 parking spaces are comprised of 1,678 standard spaces, 83 accessible spaces, and 6 temporary parking spaces.[25] Following completion of the CEQA-exempt ongoing project, there will be approximately 1,925 parking spaces on the campus.[26]

Existing Alternative Transportation Systems

The existing campus is currently accessible by public transportation. Twenty-four bus lines, including a 'Rapid Bus Line', currently serve in the vicinity of the study area. These bus lines are operated by the Metropolitan Transportation Authority (MTA), Los Angeles Department of Transportation Downtown Area Short Hop (LADOT-DASH), Renaissance Transit System, Gardena Municipal Bus Line, Rosewood Smart Shuttle, Lynwood Trolley, Torrance Transit System, Carson Circuit System, Long Beach Transit (LBT), and the Hahn Trolley Shuttle Service.

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[25] HMC Architects. 18 August 2010. *Martin Luther King, Jr. Medical Center Parking Inventory*. Prepared for: County of Los Angeles. Pasadena, CA.

[26] HMC Architects. 18 September 2009. Mart in Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report. Los Angeles, CA.

Bus transit service in the proposed project vicinity is available along the following travel corridors[27]:

- Rosecrans Avenue travel corridor
- Avalon Boulevard travel corridor
- Central Avenue travel corridor
- Wilmington Ave travel corridor
- Willowbrook Avenue travel corridor
- 120th Street travel corridor
- Imperial Highway travel corridor
- El Segundo Boulevard travel corridor

There are two bus stations located on the existing campus boundary: one bus station is located on the northern boundary on 120th Street, and one bus station is located on the eastern boundary on Wilmington Avenue.[28] A brief description of the bus lines that provide service in the vicinity of the proposed project site is provided below:

- MTA 26: Line 26 is a local north/south line that provides service from Los Angeles to Gardena and travels primarily along Avalon Boulevard within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 10 minutes. The northern terminus is located at the intersection of Hollywood Boulevard and Rodney Drive in Los Angeles. The southern terminus is located at the Artesia Transit Center in Gardena.

- MTA 51/52/352: Lines 51/52/352 are local north/south lines that provide service from Los Angeles to Compton and travels primarily along Avalon Boulevard within the study area. These lines run everyday, including holidays, at a peak frequency of approximately 10 minutes. The northern terminus is located at the intersection of Wilshire/Vermont Metro Station in Los Angeles. The southern terminus is located at MLK, Jr. Transit Center Station in Compton.

- MTA 48: Line 48 is a local north/south line that provides service from Downtown Los Angeles to Willowbrook and travels primarily along 120th Street, Avalon Boulevard, and Imperial Highway within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 10 minutes. The northern terminus is located at the intersection of Temple Street and Figueroa Street in Downtown Los Angeles. The southern terminus is located at the Avalon Green Line Station in Willowbrook.

- MTA 53: Line 53 is a local north/south line that provides service from Carson to Downtown Los Angeles and travels primarily along Central Avenue, 120th Street, Avalon Boulevard, and Imperial Highway within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 10 minutes. The northern terminus is located at the intersection of Beaudry Avenue and 5th Street in

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[27] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[28] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

Downtown Los Angeles. The southern terminus is located at California State University, Dominguez Hills in Carson.

- MTA 55/355: Line 55/355 is a local north/south line that provides service from Downtown Los Angeles to Willowbrook and travels primarily along Compton Avenue, 120th Street, and Wilmington Avenue within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 15 minutes during peak commute hours. The northern terminus is located at the intersection of Sunset Boulevard and Figueroa Street in Downtown Los Angeles. The southern terminus is located at the Imperial/Wilmington/Rosa Parks Green Line Station in South Los Angeles.

- MTA 121: Line 121 is a local east/west line that provides service from Willowbrook to Whittier and travels primarily along Willowbrook Avenue and 119th Street within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 20 minutes. The eastern terminus is located at the Whittwood Center in Whittier. The western terminus is located at the Imperial/Wilmington Station.

- MTA 125: Line 125 is a local east/west line that provides service from Norwalk to El Segundo and travels primarily along Rosecrans Avenue within the study area. This line runs everyday, including some holidays, at a peak frequency of approximately 15 minutes. The eastern terminus is located at the Norwalk Station in South Los Angeles. The western terminus is located at El Segundo Plaza in El Segundo.

- MTA 202: Line 202 is a local north/south line that provides service from Willowbrook to Wilmington and travels primarily along Willowbrook Avenue within the study area. This line runs Monday through Friday, including some holidays, at a peak frequency of approximately 30 minutes. The northern terminus is located at the Imperial/Wilmington/Rosa Parks Green Line Station in South Los Angeles. The southern terminus is located at the intersection of Avalon Boulevard and D Street in Wilmington.

- MTA 205: Line 205 is a local north/south line that provides service from Willowbrook to San Pedro and travels primarily along Wilmington Avenue within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 20 minutes. The northern terminus is located at the Imperial/Wilmington/Rosa Parks Green Line Station in South Los Angeles. The southern terminus is located at the intersection of Gaffey Street/13th Street in San Pedro.

- MTA 305: Line 305 is a local north/south line that provides service from Willowbrook to Westwood and travels primarily along Wilmington Avenue, 119th Street, and Willowbrook Avenue within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 40 minutes. The northern terminus is located at the UCLA Ackerman Loop in Westwood. The southern terminus is located at the Imperial/Wilmington/Rosa Parks Green Line Station in South Los Angeles.

- MTA 612: Line 612 is a local circulator route that provides service around Willowbrook area and primarily travels along Wilmington Avenue and Imperial Highway within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 45 minutes.

- MTA 753: Line 753 is a north/south ‘Rapid Bus Line’ that provides service from Willowbrook to Downtown Los Angeles and travels primarily along Wilmington Avenue, 190th Street, Willowbrook Avenue, and Imperial Highway within the study area. This line runs Monday through Friday at a peak frequency of approximately 15 minutes. The northern terminus is at the intersection of Beaudry Avenue and 5th Street in Downtown Los Angeles. The southern terminus is at the Imperial/Wilmington Green Line Station in South Los Angeles.

- LADOT Dash Watts: This is a LADOT Dash line that provides service to the Watts area of Los Angeles. This line is a local circulator route that travels primarily along 120th Street within the study area. This line runs Monday through Saturday, including some holidays, at a peak frequency of approximately 20 minutes. The terminus is located at the Kenneth Hahn Plaza in Willowbrook.

- HTSS 1 – Line 1 is a local circulator route that provides service around the Willowbrook area and travels primarily along Wilmington Avenue within the study area. This line runs Monday through Saturday, including some holidays, at a peak frequency of approximately 30 minutes. The terminus is located at the Kenneth Hahn Plaza in Willowbrook.

- HTSS 2: Line 2 is a local circulator route that provides service around the Willowbrook area and travels primarily along Wilmington Avenue and 120th Street within the study area. This line runs Monday through Saturday, including some holidays, at a peak frequency of approximately 30 minutes. The terminus is at the Kenneth Hahn Plaza in Willowbrook.

- HTSS 3: Line 3 is a local circulator route that provides service around the Willowbrook area and travels primarily along Wilmington Avenue and 120th Street within the study area. This line runs Monday through Saturday, including some holidays, at a peak frequency of approximately 10 minutes. The terminus is at the Kenneth Hahn Plaza in Willowbrook.

- CRT Route 1: Route 1 is a local circulator route that provides service around the Willowbrook and Compton area and travels primarily along Rosecrans Avenue, Central Avenue and El Segundo Boulevard within the study area. This line runs Monday through Saturday, at a peak frequency of approximately 30 minutes. The terminus is at the transit center in Downtown Los Angeles.

- CRT Route 3: Route 3 is a local circulator route that provides service around the Willowbrook area and travels primarily along Central Avenue and El Segundo Boulevard within the study area. This line runs Monday through Saturday, at a peak frequency of approximately 30 minutes. The terminus is at the transit center in Downtown Los Angeles.

- CRT Route 5: Route 5 is a local circulator route that provides service around the Willowbrook area and travels primarily along Alameda Street and El Segundo Boulevard within the study area. This line runs Monday through Saturday, at a peak frequency of approximately 60 minutes. The terminus is at the transit center in Downtown Los Angeles.

- RSS: Rosewood Smart Shuttle is a local circulator route that provides service around the Willowbrook area and travels primarily along Avalon Boulevard and Imperial Highway within the study area. This line runs Monday through Friday, at a peak frequency of approximately 30 minutes. The terminus is at the Campanella Park (Stanford Avenue and Santa Rita Street) in South Los Angeles.

- GMB Line 5: Line 5 is a local east/west line that provides service from Willowbrook to El Segundo and travels primarily along El Segundo Boulevard within the study area. This line runs Monday through Friday, at a peak frequency of approximately 30 minutes. The eastern terminus is at the Imperial/Wilmington Station in South Los Angeles. The western terminus is at the intersection of El Segundo Boulevard and Sepulveda Boulevard in El Segundo.[29]

In addition, both the Metro Blue Line and Green Line have metro stations located approximately 0.5 mile northeast of the existing Martin Luther King, Jr. Medical Campus; the Blue Line and Green Line metro stations have a shuttle bus that transports individuals between the medical campus and Metro stations. The Rosa Parks Transit Station is located northeast of the proposed project site. This station houses the Blue Line and Green Line Metro stations. These rail lines are described below:

- MTA Green Line: The Green Line is a local east/west line that provides service from Norwalk to Redondo Beach and travels primarily along Glenn Anderson Freeway within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 8 minutes during peak commute hours. The eastern terminus is located at Norwalk Green Line station. The western terminus is located at Redondo Beach Green Line station.

- MTA Blue Line: The Blue Line is a local north/south line that provides service from Long Beach to Los Angeles and travels primarily along Willowbrook Avenue within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 10 minutes during peak commute hours. The northern terminus is located at the intersection of 7th Street/Metro Center in Downtown Los Angeles. The southern terminus is located at the Long Beach Transit Mall in Long Beach.[30]

The County Board of Supervisors currently funds the Hahn's Trolley and Shuttle Service, which provides shuttle services to the community surrounding the existing campus. Hahn's Trolley and Shuttle Service operates three interconnecting routes. The County also funds a van service, L.A. County Dial-A-Ride, in the community surrounding the campus that provides transportation service for senior citizens and people with disabilities who reside within the unincorporated areas of Willowbrook, Walnut Park, Florence/Graham, Athens, Rosewood, and Rancho Dominguez.

3.12.3 Significance Thresholds

The potential for the proposed project to result in impacts related to transportation and traffic was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. The

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[29] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[30] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

project would normally be considered to have a significant impact to traffic and transportation systems when the potential for any one of the following thresholds occurs:

- Conflict with applicable plan, ordinance, or policy establishing measures of effectiveness for performance of circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit
- Conflict with applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities

As previously noted, the traffic impact analysis was also completed according to four impactfour analysis methodologies: the Caltrans methodology was used to evaluate highway segments and ramps that are within Caltrans' jurisdiction; the County of Los Angeles methodology was used for roads and intersections located within the County of Los Angeles' jurisdiction; the CMP methodology was used to evaluate the locations within the non-County jurisdiction intersections including those within the Cities of Compton and Lynwood; and the City of Los Angeles methodology was used to evaluate the impacts for the analysis of locations within the City of Los Angeles jurisdiction.

The County of Los Angeles Department of Public Works has established threshold criteria that determine if a project has a significant traffic impact at a specific intersection. According to the criteria provided by the County of Los Angeles, a project impact is considered significant if the following conditions are met:

Pre-Project Conditions		Project-Related Increase in V/C Ratio
LOS	V/C Ratio	
C	0.71 – 0.80	equal to or greater than 0.040
D	0.81 – 0.90	equal to or greater than 0.020
E, F	> 0.91	equal to or greater than 0.010

Using these criteria, a project would not have a significant impact at an intersection if it is operating at LOS D after the addition of project traffic and the incremental change in the V/C ratio is less than 0.020. However, if the intersection is operating at a LOS F after the addition of project traffic and the incremental change in the V/C ratio is 0.010 or greater, the project would be considered to have a significant impact.[31]

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[31] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

The L.A. County CMP threshold criteria were used to determine if the proposed project would have a significant impact at a specific intersection located within the Cities of Compton and Lynwood jurisdictions. According to the CMP criterion, the proposed project would result in significant traffic impact at an intersection if the intersection is operating at LOS F with the proposed project's traffic and the incremental increase due to the proposed project is equal to 0.02 or greater.

The City of Los Angeles Department of Transportation (LADOT) has established threshold criteria that determine if a project has a significant traffic impact at a specific intersection located within the City of Los Angeles' jurisdiction. According to the City of LA thresholds, a project impact is considered significant if the following conditions are met:

Intersection Condition with Project Traffic		Project-Related Increase in V/C Ratio
LOS	V/C Ratio	
C	0.701 – 0.800	equal to or greater than 0.040
D	0.801 – 0.900	equal to or greater than 0.020
E, F	> 0.901	equal to or greater than 0.010

Using these criteria, a project would not have a significant impact at an intersection if it is operating at LOS D after the addition of project traffic and the incremental change in the V/C ratio is less than 0.020. However, if the intersection is operating at a LOS F after the addition of project traffic and the incremental change in the V/C ratio is 0.010 or greater, the project would be considered to have a significant impact.[32]

3.12.4 Impact Analysis

This section analyzes the potential for significant impacts on transportation and traffic that would occur from implementation of the proposed project. A project's transportation and traffic impacts can be separated into three components: (1) short-term impacts due to construction, (2) long-term permanent impacts from project operation, and (3) cumulative impacts when taken into consideration with related projects.

Consistent with the traffic study that was completed for the proposed project, the impacts analysis includes an assessment of existing conditions, evaluation of future horizon year (2014) conditions without and with the Tier I project components, an evaluation of future horizon year (2020) conditions without and with the Tier II project components, determination of the proposed project's trip generation, distribution and assignment on the roadway network, an analysis of future conditions with the proposed project, identification of significant impacts, and identification of mitigation measures as applicable. [33]

Impacts

Due to the significant difference in the required approach to analyzing the two project tiers, transportation- and traffic-related impacts related to the proposed project are discussed with respect to Tier I impacts and Tier II impacts of the proposed project and are discussed according to the County,

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[32] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[33] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

City of Los Angeles, and non-County jurisdictions consisting of the Cities of Compton and Lynwood, where appropriate.

This section analyzes the potential for significant impacts on transportation and traffic that would occur from implementation of the proposed project. As stated earlier, the impact analyses analysis include an assessment of existing conditions, evaluation of future horizon year (2014) conditions without and with the Tier I project components, an evaluation of future horizon year (2020) conditions without and with the Tier I and Tier II project components, determination of the proposed project's trip generation, distribution and assignment on the roadway network, an analysis of future conditions with the proposed project prior, identification of significant impacts and identification of mitigation measures as applicable.[34]

Construction Impacts

Tier I

Tier I of the proposed project would be expected to result in construction-related impacts. Tier I construction activities would contribute to temporary increases in the number of vehicles accessing the roads surrounding the proposed project site. The construction vehicles may be expected to cause delays that reduce the existing traffic service levels during peak hours and may be expected to result in impacts to transportation and traffic with regard to the traffic volumes and capacity on the surrounding street system. Construction of the proposed project would be expected to require a construction workers and hauling and delivery trucks to travel to and from the proposed project site over the construction period. However, no road closures would be anticipated as a result of Tier I of the proposed project. There will be no loss of access.

Construction-related trips associated with trucks and employees traveling to and from the site during Tier I of the proposed project construction, during the weekday and weekend hours of operations may result in some minor traffic delays; however, the potential traffic interference by construction vehicles would create temporary/short-term impacts. It would be anticipated that a majority of the construction-related traffic would utilize the neighboring highways to gain regional access to the site. Traffic impacts to the surface streets and adjacent roadway network would be at minimal a nuisance and would not be long-term, nor would they be expected to significantly contribute to traffic-related delays or impacts. Due to the fact that the site is currently not fully operational, and would not be fully operational during Tier I construction, it is anticipated that all roadway segments surrounding the proposed project site would continue to operate in a manner similar to operations under current conditions. However, due to the potential for traffic-related delays during construction, the proposed project would be expected to result in impacts to transportation and traffic on the existing traffic load and capacity of the street system. Incorporation of mitigation measures would be required to reduce these construction-related impacts to transportation and traffic to below the level of significance.

Tier II

Tier II of the proposed project would be expected to result in construction-related impacts. With a large square footage currently scheduled for construction activities, construction of the proposed project would be expected to require a large number of construction workers and a large number of hauling and delivery trucks to travel to and from the proposed project site over a long construction period. However, no road closures would be anticipated as a result of Tier II of the proposed project.

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[34] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

Construction-related trips associated with trucks and employees traveling to and from the site during each tier of the proposed project construction, during the weekday and weekend hours of operations may result in additional traffic delays; however, the potential traffic interference by construction vehicles would create temporary/short-term impacts. It would be anticipated that a majority of the construction-related traffic would utilize the neighboring highways to gain regional access to the site. Traffic impacts to the surface streets and adjacent roadway network would be at anticipated during the construction of Tier II although they would not be long-term, nor would they be expected to significantly contribute to traffic-related delays or impacts. Due to the fact that the site is currently not fully operational, and would not be fully operational at the initiation of Tier II construction, it is possible that all roadway segments surrounding the proposed project site would experience some delays but would generally continue to operate in a manner similar to operations under current conditions, during construction of Tier II of the proposed project. However, Tier II of the proposed project does have the potential to result in traffic-related construction impacts, including, but not limited to, delays and changes in the traffic service levels during peak hours.

Therefore, construction of the proposed project would be expected to generate a large number of additional vehicle trips to and from the proposed project site and would be expected to result in impacts to transportation and traffic on the existing traffic load and capacity of the street system. Incorporation of mitigation measures would be required to reduce these construction-related impacts to transportation and traffic to below the level of significance.

Operational Impacts

Tier I

Tier I Impacts: County of Los Angeles. This evaluation is directed at the analysis of potential traffic impacts on the street system produced by the proposed project and includes an analysis of the following scenarios, based on the County of Los Angeles traffic study guidelines:

- Existing (2010) Conditions – The analysis of existing traffic conditions is intended to provide a basis for the remainder of this evaluation. The existing conditions analysis includes an assessment of streets, traffic volumes, and operating conditions.

- Existing Baseline with Ambient Growth (2014) Conditions – Future traffic conditions without the proposed project have been developed for the year 2014. The objective of this analysis is to project future traffic growth and operating conditions, which could be expected to result from regional growth in the vicinity of the project area by the year 2014. This scenario serves as the point of reference to compare the Tier I project conditions to, for estimation of traffic impacts.

- Existing Baseline with Ambient Growth (2014) plus Tier I Project Conditions – The net traffic expected to be generated by the proposed Tier I project is estimated and added to the Existing Baseline with Ambient Growth (2014) traffic forecasts. The impacts of the proposed Tier I project on future traffic operating conditions are then identified.

- Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects Conditions – The net traffic expected to be generated by the proposed Tier I project and related projects is estimated and added to the Existing Baseline with Ambient Growth (2014) traffic forecasts. The impacts of the cumulative projects (including the proposed Tier I project) on future traffic operating conditions are then identified.

The traffic scenarios for Cities of Los Angeles, Compton, and Lynwood study locations are based on the non-County operated jurisdictions standards and the CMP for Los Angeles County traffic study guidelines:

- Cumulative (2014) Base Conditions – Future traffic conditions without the proposed project has been developed for the year 2014. The objective of this analysis is to project future traffic growth and operating conditions, which could be expected to result from regional growth and related projects in the vicinity of the project area by the year 2014. This scenario serves as the point of reference to compare the Tier I project conditions to, for estimation of traffic impacts.

- Cumulative (2014) Plus Tier I Project Conditions – Same as Existing Baseline with Ambient Growth (2014) plus Tier I project and Related Projects Conditions.

The construction of Tier I would include construction of 156,700-square-foot MACC and ancillary buildings and the removal of four structures containing approximately 506,485 square feet. Tier I is estimated to generate a net total of -332 trips during the morning peak hour and -338 trips during the evening peak hour.[35]

The Existing Baseline with Ambient Growth (2014) without Tier I project and the Existing Baseline with Ambient Growth (2014) plus Tier I peak hour traffic volumes were analyzed at each of the County of Los Angeles study intersections (Table 3.12.4-1, *Tier I Summary of Intersection LOS: Existing Baseline with Ambient Growth (2014) Traffic Conditions*).

TABLE 3.12.4-1
TIER I SUMMARY OF INTERSECTION LOS: EXISTING BASELINE WITH AMBIENT GROWTH (2014) TRAFFIC CONDITIONS

#	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
County of Los Angeles					
52	Alameda Street/103rd Street [1]	0.783	C	0.850	D
55	Alameda Street/El Segundo Boulevard [2]	0.638	B	0.753	C
54	Alameda Street/Imperial Highway [1]*	0.757	C	0.842	D
11	Avalon Boulevard/El Segundo Boulevard	0.621	B	0.762	C
12	Avalon Boulevard/Rosecrans Avenue	0.612	B	0.727	C
4	Broadway/El Segundo Boulevard	0.501	A	0.552	A
19	Central Avenue/El Segundo Boulevard [2]	0.775	C	0.848	D
20	*Central Avenue/Rosecrans Avenue [2]*	*0.793*	*C*	*0.922*	*E*
26	Compton Avenue/118th Street	0.378	A	0.326	A
27	Compton Avenue/120th Street	0.591	A	0.512	A
28	Compton Avenue/124th Street	0.319	A	0.267	A

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[35] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

TABLE 3.12.4-1
TIER I SUMMARY OF INTERSECTION LOS: EXISTING BASELINE WITH AMBIENT GROWTH (2014) TRAFFIC CONDITIONS, Continued

#	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
25	Compton Avenue/Imperial Highway [3]**	0.826	D	0.702	C
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	0.749	C	0.728	C
5	Main Street/El Segundo Boulevard	0.542	A	0.606	B
51	Mona Boulevard/El Segundo Boulevard	0.556	A	0.579	A
50	Mona Boulevard/Imperial Highway [1,3]**	0.645	B	0.705	C
7	San Pedro Street/El Segundo Boulevard	0.537	A	0.542	A
23	Success Avenue - Slater Avenue/120th Street	0.437	A	0.359	A
46	Willowbrook Avenue/119th Street	0.502	A	0.677	B
47	Willowbrook Avenue/El Segundo Boulevard	0.548	A	0.618	B
35	Wilmington Avenue/118th Street	0.722	C	0.710	C
36	Wilmington Avenue/120th Street-119th Street	0.773	C	0.764	C
38	Wilmington Avenue/124th Street	0.561	A	0.519	A
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.786	C	0.804	D
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	0.573	A	0.571	A
39	Wilmington Avenue/El Segundo Boulevard [2]	0.791	C	0.849	D
33	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.471	A	0.487	A

SOURCE: Raju Associates, Inc. 2010
* Los Angeles County CMP monitoring location.
** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

All 27 analyzed intersections in the morning peak hour and 26 analyzed intersections in the evening peak hour are projected to operate at LOS D or better.[36] The remaining intersection, Central Avenue/Rosecrans Avenue, in the evening peak hour is projected to operate at LOS E.

Based upon the findings of the traffic study, traffic in the vicinity of the proposed project area has been estimated to increase at a rate of about 0.72 percent per year.[37] This growth rate was obtained from the

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[36] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[37] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

2004 CMP for Los Angeles County. Future increases in background traffic volumes due to regional growth and development are expected to continue at this rate. With an estimated Tier I completion date of 2014, the existing 2010 traffic volumes were adjusted upward by a factor of 2.88 percent to reflect this area-wide regional growth.[38]

The traffic generated by the Tier I project components would improve operating conditions from base conditions. The Tier I peak hour traffic volumes were analyzed at each of the County of Los Angeles study intersections (Appendix H*)*.

Following implementation of the proposed project, all analyzed County of Los Angeles intersections are projected to operate at LOS D or better during both the morning and evening peak hours.[39] During the evening peak hour, the intersection of Central Avenue/Rosecrans Avenue is projected to operate at LOS E. However, overall, Tier I would result in the reduction of trips, all of the intersections would experience better operating conditions under Tier I. Therefore, Tier I would not cause a significant project traffic impact at any of the analyzed intersections.

Tier I Impacts: Non-County Jurisdictions. The traffic impact analysis for the study intersection in the Cities of Los Angeles, Compton, and Lynwood was completed by using the specified significant impact criteria included in their respective traffic study guidelines**.** Using the specified significant impact criteria, the traffic impacts at the 37 analysis locations in the Cities of Los Angeles, Compton, and Lynwood were determined for cumulative (2014) plus Tier I project conditions (Table 3.12.4-2, *Tier I: Non-County Operated Jurisdictions Impacts*, and Appendix H*)*.

Tier I Freeway Impacts. According to the 2004 CMP impact criteria, a project impact is considered to be significant if the proposed project increases traffic demand on a CMP facility by 2% of capacity (V/C > = 0.02), causing or worsening LOS F (V/C > 1.00). Under this criterion, a project would not be considered to have a significant impact if the analyzed facility is operating at LOS E or better after the addition of project traffic. However, if the facility is operating at LOS F with project traffic and the incremental change in the V/C ratio caused by the project is 0.02 or greater, the project would be considered to have a significant impact. Using the CMP significant impact criteria, Tier I of the proposed project will not have any significant impacts during the AM and PM peak hours.

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[38] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[39] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

TABLE 3.12.4-2
TIER I: NON-COUNTY JURISDICTIONS IMPACTS

#	Intersection	Peak Hour	Cumulative (2014) Base Conditions V/C	Cumulative (2014) Base Conditions LOS	Cumulative (2014) Plus Tier I Project V/C	Cumulative (2014) Plus Tier I Project LOS	Project Increase in V/C	Significant Impact
City of Compton [1]								
1	Alameda Street/Compton Boulevard *	AM	0.675	B	0.675	B	0.000	No
		PM	0.664	B	0.663	B	-0.001	No
2	Central Avenue/Alondra Boulevard	AM	0.668	B	0.668	B	0.000	No
		PM	0.717	C	0.717	C	0.000	No
3	Central Avenue/Compton Boulevard	AM	0.703	C	0.702	C	-0.001	No
		PM	0.727	C	0.726	C	-0.001	No
4	Compton Avenue/El Segundo Boulevard	AM	0.765	C	0.762	C	-0.003	No
		PM	0.586	A	0.583	A	-0.003	No
5	Slater Avenue/El Segundo Boulevard	AM	0.577	A	0.576	A	-0.001	No
		PM	0.519	A	0.518	A	-0.001	No
6	Willowbrook Avenue/Rosecrans Avenue	AM	0.767	C	0.765	C	-0.002	No
		PM	0.806	D	0.804	D	-0.002	No
7	Wilmington Avenue/Alondra Boulevard	AM	0.618	B	0.616	B	-0.002	No
		PM	0.701	C	0.698	B	-0.003	No
8	Wilmington Avenue/Compton Boulevard	AM	0.673	B	0.670	B	-0.003	No
		PM	0.723	C	0.721	C	-0.002	No
9	Wilmington Avenue/Greenleaf Boulevard	AM	0.686	B	0.684	B	-0.002	No
		PM	0.735	C	0.734	C	-0.001	No
10	Wilmington Avenue/Rosecrans Avenue	AM	0.850	D	0.844	D	-0.006	No
		PM	0.879	D	0.873	D	-0.006	No
11	Wilmington Avenue/Artesia Boulevard (N) [2]	AM	0.804	D	0.802	D	-0.002	No
		PM	0.802	D	0.800	C	-0.002	No
12	Wilmington Avenue/Artesia Boulevard (S) [2]	AM	0.718	C	0.718	C	0.000	No
		PM	0.754	C	0.753	C	-0.001	No
City of Los Angeles [3]								
13	Avalon Boulevard/120th Street**	AM	0.588	A	0.578	A	-0.010	No
		PM	0.697	B	0.689	B	-0.008	No
14	Avalon Boulevard/Century Boulevard**	AM	0.585	A	0.585	A	0.000	No
		PM	0.655	B	0.655	B	0.000	No
15	Avalon Boulevard/Imperial Highway**	AM	0.635	B	0.634	B	-0.001	No
		PM	0.745	C	0.744	C	-0.001	No
16	Central Avenue/103rd Street**	AM	0.711	C	0.711	C	0.000	No
		PM	0.782	C	0.781	C	-0.001	No
17	Central Avenue/120th Street**	AM	0.686	B	0.661	B	-0.025	No
		PM	0.672	B	0.647	B	-0.025	No
18	Central Avenue/Century Boulevard**	AM	0.752	C	0.751	C	-0.001	No
		PM	0.783	C	0.782	C	-0.001	No
19	Central Avenue/Imperial Highway**	AM	0.685	B	0.681	B	-0.004	No
		PM	0.783	C	0.781	C	-0.002	No
20	Central Avenue/I-105 Eastbound Ramps [2]**	AM	0.679	B	0.674	B	-0.005	No
		PM	0.626	B	0.621	B	-0.005	No
21	Central Avenue/I-105 Westbound Ramps [2]**	AM	0.726	C	0.723	C	-0.003	No
		PM	0.690	B	0.686	B	-0.004	No

TABLE 3.12.4-2
TIER I: NON-COUNTY OPERATED JURISDICTIONS IMPACTS, Continued

#	Intersection	Peak Hour	Cumulative (2014) Base Conditions		Cumulative (2014) Plus Tier I Project		Project Increase in V/C	Significant Impact
			V/C	LOS	V/C	LOS		
22	Compton Avenue/103rd Street**	AM	0.473	A	0.472	A	-0.001	No
		PM	0.547	A	0.547	A	0.000	No
23	Compton Avenue/108th Street**	AM	0.701	C	0.699	B	-0.002	No
		PM	0.595	A	0.592	A	-0.003	No
24	Compton Avenue/111th Street**	AM	0.581	A	0.579	A	-0.002	No
		PM	0.543	A	0.540	A	-0.003	No
25	Figueroa Street/El Segundo Boulevard	AM	0.577	A	0.576	A	-0.001	No
		PM	0.749	C	0.748	C	-0.001	No
26	I-110 Northbound Ramps/El Segundo Boulevard [2]**	AM	0.770	C	0.768	C	-0.002	No
		PM	0.877	D	0.874	D	-0.003	No
27	I-110 Southbound Ramps/El Segundo Boulevard [2]**	AM	0.813	D	0.812	D	-0.001	No
		PM	0.694	B	0.692	B	-0.002	No
28	San Pedro Street/120th Street	AM	0.624	B	0.621	B	-0.003	No
		PM	0.617	B	0.615	B	-0.002	No
29	Wilmington Avenue/103rd Street	AM	0.641	B	0.641	B	0.000	No
		PM	0.530	A	0.528	A	-0.002	No
30	Wilmington Avenue/111th Street	AM	0.688	B	0.682	B	-0.006	No
		PM	0.670	B	0.664	B	-0.006	No
31	Wilmington Avenue/Santa Ana Boulevard (N)	AM	0.606	B	0.601	B	-0.005	No
		PM	0.634	B	0.631	B	-0.003	No
32	Wilmington Avenue/Santa Ana Boulevard (S)	AM	0.645	B	0.640	B	-0.005	No
		PM	0.676	B	0.673	B	-0.003	No
City of Lynwood [1]								
33	Alameda Street/Martin Luther King Jr. Boulevard	AM	0.783	C	0.782	C	-0.001	No
		PM	0.723	C	0.719	C	-0.004	No
34	Long Beach Boulevard/Imperial Highway	AM	0.964	E	0.962	E	-0.002	No
		PM	1.060	F	1.058	F	-0.002	No
35	Long Beach Boulevard/Martin Luther King Jr. Boulevard	AM	0.814	D	0.814	D	0.000	No
		PM	0.854	D	0.853	D	-0.001	No
36	Long Beach Boulevard/I-105 Eastbound Ramps [2]	AM	0.690	B	0.690	B	0.000	No
		PM	0.610	B	0.610	B	0.000	No
37	Long Beach Boulevard/I-105 Westbound Ramps [2]	AM	0.493	A	0.493	A	0.000	No
		PM	0.685	B	0.685	B	0.000	No

SOURCE: Raju Associates, Inc., 2010.

KEY:

* Los Angeles County Congestion Management Program (CMP) monitoring location.

** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.

[1] Determination of significant impacts based on Los Angeles County Congestion Management Program (CMP) significant impact criteria.

[2] Shares jurisdiction with Caltrans.

[3] Determination of significant impacts based on City of Los Angeles significant impact criteria.

Of the 37 analyzed intersections in non-County jurisdictions, none would be significantly impacted by the components of the proposed Tier I project. Therefore, impacts are considered to be less than significant and no mitigation measures are required.

Tier II

Tier II of the proposed project, by itself, is anticipated to generate a net total of 1,572 trips during the morning peak hour and 2,091 trips during the evening peak hour. Due to the mixed-use nature of the project, some of the proposed project trips would remain internal. Thus, the Tier II project components of the proposed project would have a total net trip generation of 1,240 trips (918 inbound, 322 outbound) during the morning peak hour and 1,753 trips (571 inbound, 1,182 outbound) during the evening peak hour. Table 3.12.4-3, *Estimated Project Trip Generation: Tier I and Tier II*, summarizes the trip generation of the project including both Tier I and Tier II components.

TABLE 3.12.4-3
ESTIMATED PROJECT TRIP GENERATION: TIER I AND TIER II

			AM Peak Hour			PM Peak Hour		
	Size	Daily	In	Out	Total	In	Out	Total
Baseline including Existing								
Hospital	1,243,692 s.f.	20,521	822	571	1,393	596	822	1,418
Baseline Trip Generation Total Less Transit Reduction (15%)		17,443	699	485	1,184	507	699	1,206
Proposed Tier I								
Hospital - Removal of Use [1]	(506,485) s.f.	(8,357)	(335)	(232)	(567)	(242)	(335)	(577)
Hospital - Addition	156,700 s.f.	2,586	104	72	176	75	104	179
Tier I Net Trip Generation Total		(5,771)	(231)	(160)	(391)	(167)	(231)	(398)
Tier I Net Trip Generation Less Transit Reduction (15%)		**(4,905)**	**(196)**	**(136)**	**(332)**	**(142)**	**(196)**	**(338)**
Baseline + Tier I Total On-Site Trips		**12,538**	**503**	**349**	**852**	**365**	**503**	**868**
Proposed Tier II								
Hospital (Additional Campus Support)	1,134,695 s.f.	18,722	750	521	1,271	543	751	1,294
Commercial/Retail	80,000 s.f.	5,874	82	53	135	269	279	548
Single Family Residential	100 d.u.	1,040	20	60	80	66	39	105
Medical Office	300,000 s.f.	10,839	545	145	690	280	758	1,038
General Office	150,000 s.f.	1,823	228	31	259	42	205	247
Tier II Trip Generation Total		38,298	1,625	810	2,435	1,200	2,032	3,232
Tier II Trip Generation Total Less Transit Reduction (15%)		32,553	1,381	689	2,070	1,020	1,727	2,747
*Internal Capture Trip Credit (15% - Existing + Tier I + II)		(6,764)	(219)	(220)	(439)	(271)	(271)	(542)
**Pass-By Trip Credit [2]		(1,207)	(45)	(15)	(60)	(39)	(75)	(114)
Tier II Net Trip Generation Total		**24,582**	**1,117**	**455**	**1,572**	**710**	**1,381**	**2,091**
Tier I + Tier II Net Trip Generation Total		**19,677**	**921**	**319**	**1,240**	**568**	**1,185**	**1,753**
Baseline + Tier I + Tier II Total On-Site Trips		**37,120**	**1,620**	**804**	**2,424**	**1,075**	**1,884**	**2,959**

SOURCE: Raju Associates, Inc., 2010.

KEY:

* Internal capture credit taken after reduction of transit trips.
** Pass-by trip reduction taken after transit trip and internal capture credits.
[1] Demolition of this facility would occur in Tier II.
[2] Includes 10% pass-by credit for medical office use and retail use.

The traffic study completed for the proposed project evaluates the County of Los Angeles intersection locations, following completion of both Tier I and Tier II of the proposed project in the year 2020 (Appendix H, and Table 3.12.4-4, *Proposed Project and Ambient Growth).*

3.12.4-4
PROPOSED PROJECT AND AMBIENT GROWTH

#	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
County of Los Angeles					
1	Alameda Street/103rd Street [1]	0.820	D	0.890	D
2	Alameda Street/El Segundo Boulevard [2]	0.672	B	0.788	C
3	Alameda Street/Imperial Highway [1]*	0.803	D	0.877	D
4	Avalon Boulevard/El Segundo Boulevard	0.647	B	0.795	C
5	Avalon Boulevard/Rosecrans Avenue	0.638	B	0.755	C
6	Broadway/El Segundo Boulevard	0.523	A	0.573	A
7	Central Avenue/El Segundo Boulevard [2]	0.822	D	0.888	D
8	Central Avenue/Rosecrans Avenue [2]	0.830	D	0.964	E
9	Compton Avenue/118th Street	0.400	A	0.356	A
10	Compton Avenue/120th Street	0.673	B	0.669	B
11	Compton Avenue/124th Street	0.335	A	0.285	A
12	Compton Avenue/Imperial Highway [3]**	0.887	D	0.752	C
13	I-105 Westbound Ramps/Imperial Highway [3,4]**	0.830	D	0.795	C
14	Main Street/El Segundo Boulevard	0.564	A	0.632	B
15	Mona Boulevard/El Segundo Boulevard	0.588	A	0.611	B
16	Mona Boulevard/Imperial Highway [1,3]**	0.686	B	0.751	C
17	San Pedro Street/El Segundo Boulevard	0.556	A	0.566	A
18	Success Avenue - Slater Avenue/120th Street	0.491	A	0.442	A
19	Willowbrook Avenue/119th Street	0.543	A	0.718	C
20	Willowbrook Avenue/El Segundo Boulevard	0.580	A	0.654	B
21	Wilmington Avenue/118th Street	0.848	D	0.826	D
22	Wilmington Avenue/120th Street-119th Street	0.927	E	0.969	E
23	Wilmington Avenue/124th Street	0.653	B	0.601	B
24	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.917	E	0.990	E
25	Wilmington Avenue/MLK Hospital Driveway – 120th Street	0.833	D	0.915	E
26	Wilmington Avenue/El Segundo Boulevard [2]	0.840	D	0.923	E
27	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.564	A	0.563	A

SOURCE: Raju Associates, Inc., 2010.
* Los Angeles County Congestion Management Program (CMP) monitoring location.
** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.
KEY:
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

Twenty-five (25) of the 27 analyzed County of Los Angeles intersections are projected to operate at LOS D or better during the morning peak hour. [40] However, during the evening peak hour, five intersections are projected to operate at LOS E:

- Central Avenue/Rosecrans Avenue: PM Peak Hour – LOS E
- Wilmington Avenue/120th Street-119th Street: AM and PM Peak Hours – LOS E
- Wilmington Avenue/I-105 Eastbound Ramps: AM and PM Peak Hours – LOS E
- Wilmington Avenue/MLK Hospital Driveway-120th Street: PM Peak Hour – LOS E
- Wilmington Avenue/El Segundo Boulevard: PM Peak Hour – LOS E[41]

Tier II Impacts in 2020. The proposed project build-out year, 2020 conditions were analyzed in the traffic study utilizing the methodologies and assumptions of the County of Los Angeles and non-County jurisdictions' (i.e., City of Los Angeles, Cities of Compton and Lynwood) traffic study guidelines. The results were then used to assess the potential project impacts and cumulative impacts of the Proposed Tier II Project on the local street system.[42] Table 3.12.4-5, *Future 2020 with Project*, illustrates the traffic operations under the future 2020 without and with project conditions for County of Los Angeles locations.

Tier II 2020 Freeway Impacts. When both tiers of the proposed project are considered in the project build-out year of 2020, traffic at certain freeway segments of the I-105, I-710 and I-110 would be reduced to LOS E or LOS F conditions during the AM and PM peak hours. However, some of these freeway segments are currently operating at LOS E and LOS F during the peak hours.

Approximately 21% of the analyzed freeway segments located within the study area would operate at LOS D or better during the AM peak hour. Approximately 21% and 58% would operate at LOS E and LOS F, respectively. During the PM peak hour, approximately 29% of the analyzed freeway segment within the study area would operate at LOS D or better and 13% and 58% would operate at LOS E and LOS F, respectively. These impacts are driven by Tier II of the proposed project.

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[40] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[41] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[42] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

TABLE 3.12.4-5
FUTURE 2020 WITH PROJECT

#	Intersection	Peak Hour	Existing (Baseline) + Ambient (2020)		Existing (Baseline) + Ambient (2020) with Tier I & II Project		Project Increase in V/C	Significant Impact
			V/C	LOS	V/C	LOS		
County of Los Angeles								
52	Alameda Street/103rd Street [1]	AM	0.812	D	0.820	D	0.008	No
		PM	0.880	D	0.890	D	0.010	No
55	Alameda Street/El Segundo Boulevard [2]	AM	0.661	B	0.672	B	0.011	No
		PM	0.781	C	0.788	C	0.007	No
54	Alameda Street/Imperial Highway [1]*	AM	0.785	C	0.803	D	0.018	No
		PM	0.872	D	0.877	D	0.005	No
11	Avalon Boulevard/El Segundo Boulevard	AM	0.642	B	0.647	B	0.005	No
		PM	0.788	C	0.795	C	0.007	No
12	Avalon Boulevard/Rosecrans Avenue	AM	0.634	B	0.638	B	0.004	No
		PM	0.753	C	0.755	C	0.002	No
4	Broadway/El Segundo Boulevard	AM	0.520	A	0.523	A	0.003	No
		PM	0.569	A	0.573	A	0.004	No
19	Central Avenue/El Segundo Boulevard [2]	AM	0.803	D	0.822	D	0.019	No
		PM	0.879	D	0.888	D	0.009	No
20	Central Avenue/Rosecrans Avenue [2]	AM	0.824	D	0.83	D	0.006	No
		PM	0.956	E	0.964	E	0.008	No
26	Compton Avenue/118th Street	AM	0.391	A	0.400	A	0.009	No
		PM	0.336	A	0.356	A	0.020	No
27	Compton Avenue/120th Street	AM	0.610	B	0.673	B	0.063	No
		PM	0.527	A	0.669	B	0.142	No
28	Compton Avenue/124th Street	AM	0.330	A	0.335	A	0.005	No
		PM	0.274	A	0.285	A	0.011	No
25	Compton Avenue/Imperial Highway [3]**	AM	0.860	D	0.887	D	0.027	**Yes**
		PM	0.731	C	0.752	C	0.021	No
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	AM	0.779	C	0.830	D	0.051	**Yes**
		PM	0.759	C	0.795	C	0.036	No
5	Main Street/El Segundo Boulevard	AM	0.561	A	0.564	A	0.003	No
		PM	0.628	B	0.632	B	0.004	No
51	Mona Boulevard/El Segundo Boulevard	AM	0.574	A	0.588	A	0.014	No
		PM	0.599	A	0.611	B	0.012	No
50	Mona Boulevard/Imperial Highway [1,3]**	AM	0.673	B	0.686	B	0.013	No
		PM	0.734	C	0.751	C	0.017	No
7	San Pedro Street/El Segundo Boulevard	AM	0.554	A	0.556	A	0.002	No
		PM	0.563	A	0.566	A	0.003	No
23	Success Avenue - Slater Avenue/120th Street	AM	0.452	A	0.491	A	0.039	No
		PM	0.367	A	0.442	A	0.075	No
46	Willowbrook Avenue/119th Street	AM	0.519	A	0.543	A	0.024	No
		PM	0.699	B	0.718	C	0.019	No
47	Willowbrook Avenue/El Segundo Boulevard	AM	0.567	A	0.580	A	0.013	No
		PM	0.641	B	0.654	B	0.013	No
35	Wilmington Avenue/118th Street	AM	0.746	C	0.848	D	0.102	**Yes**
		PM	0.735	C	0.826	D	0.091	**Yes**
36	Wilmington Avenue/120th Street-119th Street	AM	0.800	C	0.927	E	0.127	**Yes**
		PM	0.792	C	0.969	E	0.177	**Yes**
38	Wilmington Avenue/124th Street	AM	0.581	A	0.653	B	0.072	No
		PM	0.533	A	0.601	B	0.068	No

TABLE 3.12.4-5
FUTURE 2020 WITH PROJECT, Continued

#	Intersection	Peak Hour	Existing (Baseline) + Ambient (2020)		Existing (Baseline) + Ambient (2020) with Tier I & II Project		Project Increase in V/C	Significant Impact
			V/C	LOS	V/C	LOS		
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	AM	0.812	D	0.917	E	0.105	**Yes**
		PM	0.830	D	0.990	E	0.160	**Yes**
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	AM	0.585	A	0.833	D	0.248	**Yes**
		PM	0.583	A	0.915	E	0.332	**Yes**
39	Wilmington Avenue/El Segundo Boulevard [2]	AM	0.819	D	0.840	D	0.021	**Yes**
		PM	0.879	D	0.923	E	0.044	**Yes**
33	Wilmington Avenue/Imperial Highway-Willowbrook Ave [3]**	AM	0.492	A	0.564	A	0.072	No
		PM	0.506	A	0.563	A	0.057	No

KEY:
* Los Angeles County Congestion Management Program (CMP) monitoring location.
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

From Table 3.12.4-5, an assessment of project traffic impacts for Los Angeles County locations was conducted. Seven (7) of the 27 analyzed intersections would be significantly impacted by the Tier II project during the morning peak hour and 5 intersections would be significantly impacted during the evening peak hour:[43]

- Compton Avenue/Imperial Highway – AM Peak Hour
- I-105 Westbound Ramps/Imperial Highway – AM Peak Hour
- Wilmington Avenue/118th Street – AM and PM Peak Hours
- Wilmington Avenue/120th Street-119th Street – AM and PM Peak Hours
- Wilmington Avenue/I-105 Eastbound Ramps – AM and PM Peak Hours
- Wilmington Avenue/MLK Jr. Hospital Dwy-120th Street – AM and PM Peak Hours
- Wilmington Avenue/El Segundo Boulevard – AM and PM Peak Hours.[44]

Tier II Freeway Impacts. Using the CMP significant impact criteria, Tier II of the proposed project would have significant impacts at three of the analyzed freeway segments during the AM and/or PM peak hours.

The impacted freeway segments include the following:

- I-105 Freeway west of Long Beach Boulevard – westbound direction (AM Peak Hour)
- I-105 Freeway west of Long Beach Boulevard – eastbound direction (PM Peak Hour)
- I-105 Freeway west of I-710 Freeway – eastbound direction (PM Peak Hour)

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[43] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

[44] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King, Jr. Medical Campus Center Project.* Prepared for: County of Los Angeles. Pasadena, CA.

Thus, the proposed project Tier II would result in significant project traffic impacts that would require the incorporation of mitigation measures to reduce the significant impacts to below the level of significance.

Air Traffic Patterns

Tier I

Tier I of the proposed project would not result in impacts to transportation and traffic in relation to a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. The nearest airport to the proposed project site is the Compton/Woodley Airport located approximately 2.1 miles south of the proposed project in the City of Compton. There would be no change in relation to existing air traffic patterns as a result of the proposed project. Therefore, Tier I of the proposed project would not result in significant impacts in relation to air traffic patterns that would result in substantial safety risks.

Tier II

Tier II of the proposed project would not result in impacts to transportation and traffic in relation to a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. The nearest airport to the proposed project site is the Compton/Woodley Airport located approximately 2.1 miles south of the proposed project in the City of Compton. There would be no change in relation to existing air traffic patterns as a result of the proposed project. Therefore, Tier II of the proposed project would not result in significant impacts in relation to air traffic patterns that would result in substantial safety risks.

Hazardous Roadway Design

Tier I

Implementation of Tier I the proposed project would result in less than significant impacts from hazards due to a design feature. The proposed project would involve a physical change in the environment; however, any construction-induced traffic would not be expected to result in increased hazards related to traffic engineering design features or incompatible uses. The proposed project site is connected by a network of well-defined and pre-existing paved roads including 120th Street to the north and Wilmington Avenue to the east. The proposed project site would continue to be accessed by these roads following construction of Tier I the proposed project. There impacts related to an increase in hazards due to a design feature would be less than significant.

Tier II

Implementation of Tier II the proposed project would result in less than significant impacts from hazards due to a design feature. The proposed project would involve a physical change in the environment; however, any construction-induced traffic would not be expected to result in increased hazards related to traffic engineering design features or incompatible uses. The proposed project site is connected by a network of well-defined and pre-existing paved roads including 120th Street to the north and Wilmington Avenue to the east. The proposed project site would continue to be accessed by these roads following construction of Tier II the proposed project. There impacts related to an increase in hazards due to a design feature would be less than significant.

Emergency Vehicle Access/Egress

Tier I

As stated above, Tier I the proposed project would not significantly alter any existing emergency access routes nor change existing patterns of emergency access. The proposed project may require the identification of multiple alternate ingress/egress access points for the circulation of traffic and emergency response vehicles. However, it is anticipated that these access points will be readily available as the campus is designed as an services emergency provider/destination.

There are two fire stations are located within 2 miles from the proposed project site. Additionally, law enforcement protection services in the proposed project area are provided by the Los Angeles County Sheriff's Department's Century Station, located approximately 0.8 mile northeast from the proposed project site. Although there would be additional traffic generated by implementation of the proposed project, the proposed project would result in traffic levels that significantly surpass the amount of traffic entitled in such a manner that it would result in inadequate emergency access to the proposed project site. Existing roadways were planned and designed to support the anticipated needs of the facility and it is anticipated that these roadways would be able to provide adequate emergency access to the proposed project site, and no additional access roads would need to be constructed to assist in the provision of adequate emergency access. As a medical center campus, the proposed project would be required to ensure that the project is properly designed for emergency vehicle access (e.g., driveway widths and turning radius allowances). Therefore, Tier I of the proposed project would not result in less than significant impacts with regard to inadequate emergency access.

Tier II

As stated above, Tier II of the proposed project would not significantly alter any existing emergency access routes nor change existing patterns of emergency access. The proposed project may require the identification of multiple alternate ingress/egress access points for the circulation of traffic and emergency response vehicles. However, it is anticipated that these access points will be readily available as the campus is designed as an emergency services provider/destination.

There are two fire stations located within 2 miles from the proposed project site. Additionally, law enforcement protection services in the proposed project area are provided by the Los Angeles County Sheriff's Department's Century Station, located approximately 0.8 mile northeast from the proposed project site. Although there would be additional traffic generated by implementation of the proposed project, the proposed project would result in traffic levels that significantly surpass the amount of traffic entitled in such a manner that it would result in inadequate emergency access to the proposed project site. Existing roadways were planned and designed to support the anticipated needs of the facility and it is anticipated that these roadways would be able to provide adequate emergency access to the proposed project site, and no additional access roads would need to be constructed to assist in the provision of adequate emergency access. As a medical center campus, the proposed project would be required to ensure that the project is properly designed for emergency vehicle access (e.g., driveway widths and turning radius allowances). Therefore, Tier II of the proposed project would not result in less than significant impacts with regard to inadequate emergency access.

Parking Capacity

Tier I

Although a detailed discussion of the anticipated parking impacts related to the project is not required by CEQA, it is anticipated that the proposed project site work would consist of a new parking terrace, new parking lots, re-striping of existing lots, and new landscaping at the entry of the new Multi-Service Ambulatory Care Center (MACC) and its surrounding area. Tier I would provide a parking terrace to allow sufficient parking for patients, client, visitors, employees, and medical staff; site work; and landscaping. Therefore, Tier I of the proposed project would not result in impacts with regard to parking capacity.

Tier II

Tier II would be anticipated to provide sufficient parking for the anticipated mixed-use development. This is a County identified objective for Tier II of the proposed project and as such Tier II of the proposed project would not result in impacts with regard to parking capacity.

Alternative Transportation

Tier I

Tier I of the proposed project would not be expected to result in impacts to transportation and traffic in relation to conflict with adopted policies, plans, or programs regarding alternative modes of transportation. The proposed project would not involve construction- or operation-related traffic activities that would be expected to significantly interfere with regular operation of the established alternative transportation plans or policies. Moreover, the proposed project site is connected by a network of well-defined, pre-existing, and traffic-controlled paved roads. These roads include 120th Street to the north and Wilmington Avenue to the east, traversing through and around the proposed project site. These paved roads incorporate ample design and planning to allow for alternative transportation methods, such as bicycles and buses, to share access to the existing site with automobile vehicles. As noted above, there is an existing public transportation network surrounding the proposed project site that would continue to function after completion of the proposed project. It is anticipated that the proposed project would be designed to support alternative modes of transportation by incorporating project elements such as pedestrian-friendly site passages and campus access. Furthermore, the County would continue to support and enhance the use of existing alternative transportation modes. The proposed project would be consistent with the County's goals and policies to improve the efficiency of the transportation system, and to reduce transportation energy consumption and transportation-related degradation of the environment.

There are a total of approximately 66 to 82 buses during the peak hours that serve the study area, as well as 40 trains (Metro Green Line and Blue Line) that operate during the peak hours. There would be residual capacity available on a daily basis, both on the existing bus and train lines, serving the study area. Further, the existing residual transit system supply would accommodate the proposed project's anticipated transit demands.

It is anticipated that Tier I of the proposed project would generate a net total reduction of approximately -5,771 daily trips of which -391 trip ends occur during the morning peak hour and - 398 trip ends occur during the evening peak hour, prior to any transit and internal trip adjustments.

Therefore, Tier I of the proposed project would not result in significant impacts to transportation and traffic related to a conflict with adopted policies, plans, or programs regarding public transit.

Tier II

Tier II of the proposed project would not be expected to result in impacts to transportation and traffic in relation to conflict with adopted policies, plans, or programs regarding alternative modes of transportation. The proposed project would not involve construction- or operation-related traffic activities that would be expected to significantly interfere with regular operation of the established alternative transportation plans or policies. Moreover, the proposed project site is connected by a network of well-defined, pre-existing, and traffic-controlled paved roads. These roads include 120th Street to the north and Wilmington Avenue to the east, traversing through and around the proposed project site. These paved roads incorporate ample design and planning to allow for alternative transportation methods, such as bicycles and buses, to share access to the existing site with automobile vehicles. As noted above, there is an existing public transportation network surrounding the proposed project site that would continue to function after completion of the proposed project. It is anticipated that the proposed project would be designed to support alternative modes of transportation by incorporating project elements such as pedestrian-friendly site passages and campus access. Furthermore, the County would continue to support and enhance the use of existing alternative transportation modes. The proposed project would be consistent with the County's goals and policies to improve the efficiency of the transportation system, and to reduce transportation energy consumption and transportation-related degradation of the environment. Therefore, Tier II of the proposed project would not result in significant impacts to transportation and traffic related to a conflict with adopted policies, plans, or programs regarding public transit.

The transit trips expected to be generated by the proposed project was estimated based on the number of vehicle trips, per the guidelines outlines in the CMP document. These estimates assume an Average Vehicle Occupancy (AVO) of 1.40 and a maximum of 15% reduction in auto trips resulting in 15% of the total person trips using transit. This analysis assumes a conservative worst-case usage of 15% transit. Tier I of the proposed project would generate a net total reduction of approximately -1,212 daily person transit trips including -82 morning peak hour transit trips and -84 evening peak hour transit trips.

Under cumulative project conditions, the Tier II of the proposed project would generate approximately 6,831 daily person transit trips including 429 morning peak hour transit trips and 595 evening peak hour transit trips.

There are a total of approximately 66 to 82 buses during the peak hours that serve the study area, as well as 40 trains (Metro Green Line and Blue Line) that operate during the peak hours. There would be residual capacity available on a daily basis, both on the existing bus and train lines, serving the study area. Further, the existing residual transit system supply would accommodate the proposed project's anticipated transit demands.

Cumulative Impacts

The area surrounding the proposed project site was examined in order to determine whether there are currently any projects in progress or proposed for the future that could potentially add to the impacts of the proposed project, creating cumulative significant impacts.

It was determined that there are at least forty-two (42) projects (excluding the Martin Luther King, Jr. Medical Center Campus improvements) that could affect the cumulative impacts analysis of the proposed project that are anticipated to be implemented within construction period for both tiers of the proposed project occurring within an approximate 2.5- to 3-mile radius of the proposed project site.[45]

A forecast of on-street traffic conditions prior to the occupancy of the proposed project was prepared by incorporating the potential trips associated with other known development projects (related projects) in the area. The trip generation estimates for the related projects were developed using trip generation rates contained in the Institute of Transportation Engineers (ITE), *Trip Generation Informational Report*, 8th Edition. The related projects are anticipated to generate approximately 2,827 trips during the morning peak hour and 2,191 trips during the evening peak hour.

Cumulatively, the proposed project (both Tier I and Tier II) generates a net total of approximately 32,527 daily trips of which 2,044 trip ends occur during the morning peak hour and 2,834 trip ends occur during the evening peak hour, prior to any reductions due to transit and internal trips.

Tier I Cumulative Impacts

Under Tier I of the proposed project, trip generation would be reduced over current conditions, as existing campus buildings are vacated, and therefore neither the intersections nor the highway segments located within the County or in the non-County operated jurisdictions would be adversely impacted by completion of the proposed project elements[46]. Further, none of the analyzed intersections would be significantly impacted by the effects of proposed Tier I project components and related projects. As such, Tier I would not cause a significant traffic impact at any of the analyzed intersections or highway segments. Tier I would result in a reduced number of trips on the freeways and surrounding streets. Therefore, no mitigation measures would be required under cumulative conditions.

Tier II Cumulative Impacts

Tier II of the proposed project would cause a significant cumulative traffic impact at 13 of the 27 analyzed County of Los Angeles intersections (ten in the AM peak hour and twelve in the PM peak hour) following completion of Tier II components, in the year 2020 (Table 3.12.4-6, *Cumulative LOS Summary with Ambient Growth, Related Projects, Tier I, and Tier II*).

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[45] For the purposes of the traffic analysis prepared for the proposed project, the ongoing campus improvements were evaluated as an existing condition of the campus rather than a related project. Additionally, the distances of the related projects to the campus were assessed at the intersections/streets, as a result, the distances of the related projects all appear within an approximately 2.5-mile radius.

[46] Under the Existing (Baseline) with Ambient Growth (2014) plus Tier I Project (or Cumulative (2014) plus Tier I Project) conditions.

3.12.4-6

CUMULATIVE LOS SUMMARY WITH AMBIENT GROWTH, RELATED PROJECTS, TIER I, AND TIER II

#	Intersection	Existing Baseline with Ambient Growth				Existing Baseline with Ambient Growth and Tier I Project			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
County of Los Angeles									
52	Alameda Street/103rd Street [1]	0.783	C	0.850	D	0.781	C	0.847	D
55	Alameda Street/El Segundo Boulevard [2]	0.638	B	0.753	C	0.635	B	0.752	C
54	Alameda Street/Imperial Highway [1]*	0.757	C	0.842	D	0.754	C	0.841	D
11	Avalon Boulevard/El Segundo Boulevard	0.621	B	0.762	C	0.619	B	0.760	C
12	Avalon Boulevard/Rosecrans Avenue	0.612	B	0.727	C	0.611	B	0.726	C
4	Broadway/El Segundo Boulevard	0.501	A	0.552	A	0.500	A	0.550	A
19	Central Avenue/El Segundo Boulevard [2]	0.775	C	0.848	D	0.771	C	0.845	D
20	*Central Avenue/Rosecrans Avenue [2]*	*0.793*	*C*	*0.922*	*E*	*0.792*	*C*	*0.919*	*E*
26	Compton Avenue/118th Street	0.378	A	0.326	A	0.376	A	0.323	A
27	Compton Avenue/120th Street	0.591	A	0.512	A	0.576	A	0.492	A
28	Compton Avenue/124th Street	0.319	A	0.267	A	0.317	A	0.265	A
25	Compton Avenue/Imperial Highway [3]**	0.826	D	0.702	C	0.820	D	0.697	B
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	0.749	C	0.728	C	0.737	C	0.720	C
5	Main Street/El Segundo Boulevard	0.542	A	0.606	B	0.541	A	0.604	B
51	Mona Boulevard/El Segundo Boulevard	0.556	A	0.579	A	0.554	A	0.577	A
50	Mona Boulevard/Imperial Highway [1,3]**	0.645	B	0.705	C	0.642	B	0.703	C
7	San Pedro Street/El Segundo Boulevard	0.537	A	0.542	A	0.536	A	0.541	A
23	Success Avenue - Slater Avenue/120th Street	0.437	A	0.359	A	0.426	A	0.345	A
46	Willowbrook Avenue/119th Street	0.502	A	0.677	B	0.496	A	0.674	B
47	Willowbrook Avenue/El Segundo Boulevard	0.548	A	0.618	B	0.545	A	0.616	B
35	Wilmington Avenue/118th Street	0.722	C	0.710	C	0.700	B	0.695	B
36	Wilmington Avenue/120th Street-119th Street	0.773	C	0.764	C	0.741	C	0.736	C
38	Wilmington Avenue/124th Street	0.561	A	0.519	A	0.543	A	0.503	A
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.786	C	0.804	D	0.757	C	0.772	C

TABLE 3.12.4-6
CUMULATIVE LOS SUMMARY WITH AMBIENT GROWTH, RELATED PROJECTS, TIER I, AND TIER II, Continued

#	Intersection	Existing Baseline with Ambient Growth				Existing Baseline with Ambient Growth and Tier I Project			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
County of Los Angeles									
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	0.573	A	0.571	A	0.512	A	0.516	A
39	Wilmington Avenue/El Segundo Boulevard [2]	0.791	C	0.849	D	0.784	C	0.839	D
33	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.471	A	0.487	A	0.454	A	0.473	A

SOURCE: Raju Associates, Inc., 2010.
KEY:
* Los Angeles County Congestion Management Program (CMP) monitoring location.
** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

At the County of Los Angeles locations, the Tier II of the proposed project in the buildout year 2020 would cause a significant cumulative traffic impact at 13 of the 27 analyzed intersections (10 in the AM peak hour and 12 in the PM peak hour).[47] The impacted intersections include the following[48]:

- Alameda Street/103rd Street – AM and PM Peak Hours
- Alameda Street/El Segundo Boulevard – PM Peak Hour
- Alameda Street/Imperial Highway – AM and PM Peak Hours
- Avalon Boulevard/El Segundo Boulevard – PM Peak Hour
- Central Avenue/El Segundo Boulevard – AM and PM Peak Hours
- Central Avenue/Rosecrans Avenue – PM Peak Hour
- Compton Avenue/Imperial Highway – AM Peak Hour
- I-105 Westbound Ramps/Imperial Highway – AM and PM Peak Hours.
- Wilmington Avenue/118th Street – AM and PM Peak Hours
- Wilmington Avenue/120th Street-119th Street – AM and PM Peak Hours
- Wilmington Avenue/I-105 Eastbound Ramps – AM and PM Peak Hours
- Wilmington Avenue/MLK Jr. Hospital Dwy-120th Street – AM and PM Peak Hours
- Wilmington Avenue/El Segundo Boulevard – AM and PM Peak Hours

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[47] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King Jr. Medical Campus*. Pasadena, CA.

[48] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King Jr. Medical Campus*. Pasadena, CA.

Therefore, Tier II of the proposed project would result in significant cumulative traffic impacts that would require the incorporation of mitigation measures to reduce these impacts below the level of significance.

Non-County Jurisdictions

Tier I

Using the specified significant impact criteria, Tier I of the proposed project would not result in significant impacts on the freeways and surrounding streets. Additionally, Tier I would not result in significant impacts to the transit system. Therefore, Tier I cumulative impacts would be less than significant.

Tier II

Using the specified significant impact criteria, Tier II of the proposed project would be expected to result in the traffic impacts at the 37 analysis locations in the Cities of Los Angeles, Compton, and Lynwood were determined for Tier II proposed project conditions. The Tier II proposed project resulted in significant impacts at 1 of the 37 analyzed intersections. The intersection of Central Avenue/120th Street would be significantly impacted by the proposed project in the AM and PM peak hours.[49]

Tier II impacts would not result in significant impact to the transit system. However, Tier II would be expected to result in cumulative impacts when combined with the related projects such as the Jordan Downs Redevelopment Project. Therefore, cumulative impacts would be significant and mitigation measures would be required to reduce these impacts below the level of significance.

3.12.5 Mitigation Measures

Tier I

Measure Traffic-1

To reduce the traffic-related construction impacts, the County of Los Angeles shall require the construction contractor to provide a Construction Traffic Management Plan that is prepared in accordance with the California Department of Transportation's Construction Manual and Manual on Uniform Traffic Control Devices. The Construction Traffic Management Plan shall at the minimum address:

- Timing of deliveries of heavy equipment and building materials;
- Directing construction traffic with a flag person;
- Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic;
- Identifying if improvements to the intersection of 120th Street, Wilmington Avenue, or Compton Avenue are necessary to accommodate the turning radii needed by large trucks accessing site;
- Identifying multiple alternate ingress/egress access point for the circulation of traffic and emergency response vehicles;

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[49] Raju Associates, Inc. July 2010. *Draft Traffic Study for the Martin Luther King Jr. Medical Campus*. Pasadena, CA.

- Determining the need for construction work hours and arrival/departure times outside peak traffic periods;
- Ensuring access for emergency vehicles to the project site;
- Temporary closure of travel lanes or disruptions to street segments and intersections during materials delivery, transmission line stringing activities, or any other utility connections;
- Maintaining access to adjacent property;
- Specification of both construction-related vehicle travel and oversize load haul routes, the minimization of construction traffic during the AM and PM peak hour, distributing construction traffic flow across alternative routes to access the proposed project site, and avoiding residential neighborhoods to the maximum extent feasible; and
- Identification of vehicle safety procedures for entering and exiting site access roads.

Tier II

Measure Traffic-1

To reduce the traffic-related construction impacts, the County of Los Angeles shall require the construction contractor to provide a Construction Traffic Management Plan that is prepared in accordance with the California Department of Transportation's Construction Manual and Manual on Uniform Traffic Control Devices. The Construction Traffic Management Plan shall at the minimum address:

- Timing of deliveries of heavy equipment and building materials;
- Directing construction traffic with a flag person;
- Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic;
- Identifying if improvements to the intersection of 120th Street, Wilmington Avenue, or Compton Avenue are necessary to accommodate the turning radii needed by large trucks accessing site;
- Identifying multiple alternate ingress/egress access point for the circulation of traffic and emergency response vehicles;
- Determining the need for construction work hours and arrival/departure times outside peak traffic periods;
- Ensuring access for emergency vehicles to the project site;
- Temporary closure of travel lanes or disruptions to street segments and intersections during materials delivery, transmission line stringing activities, or any other utility connections;
- Maintaining access to adjacent property;
- Specification of both construction-related vehicle travel and oversize load haul routes, the minimization of construction traffic during the AM and PM peak hour, distributing construction traffic flow across alternative routes to access the proposed project site, and avoiding residential neighborhoods to the maximum extent feasible; and
- Identification of vehicle safety procedures for entering and exiting site access roads.

Measure Traffic-2

In order to address the Tier II project impacts, the County of Los Angeles shall complete the following improvements:

- <u>Compton Avenue/Imperial Highway – County of Los Angeles / City of Los Angeles</u>: Re-stripe westbound approach to provide a separate right-turn lane.

- <u>I-105 / Imperial Highway</u>: Provide a third northbound, left-turn lane by widening off-ramp by 10 feet for approximately 150 to 200 feet.

- <u>Wilmington Avenue / El Segundo Boulevard</u>: Re-stripe eastbound and westbound approaches to have separate right-turn lanes. Allow buses to go through the intersection from the right-turn lanes.

- <u>Central Avenue / 120th Street</u>: Re-stripe northbound approach to provide a separate right-turn lane. Also, widen the east leg by 3 feet on each curbside (i.e., reduce sidewalk along 120th Street east of Central Avenue by 3 feet for approximately 120 feet and re-stripe westbound 120th Street approach to provide a left-turn, two through lanes and a separate right-turn lane.

- <u>Wilmington Avenue / I-105 Eastbound Ramps – County of Los Angeles / California Department of Transportation</u>: Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach would have a left-turn lane, shared left-right turn lane, and a separate right-turn lane. The sidewalks on either side of Wilmington Avenue (as noted above) would be reduced by 2 feet and the Wilmington Avenue roadway would be widened by 2 feet on either side (a total of 4 feet) from the south leg of this intersection. Provide an additional northbound left-turn lane by widening (reducing the medians). The northbound approach would have dual left-turn lanes and three through lanes.

- <u>Wilmington Avenue/118th Street – County of Los Angeles</u>: Widen Wilmington Avenue roadway by 2 feet on either side and re-stripe to provide two through lanes, a shared through right-turn lane and dual left-turn lanes along the southbound approach. Re-stripe the westbound approach to provide a separate right-turn land and a share left-through lane. Northbound approach would have the same lane geometry as existing conditions. Under cumulative conditions, widen 118th Street roadway by 4 feet and re-stripe to provide a separate right-turn lane and shared left-through lane along the eastbound approach.

- <u>Wilmington Avenue / 120th Street-119th Street – County of Los Angeles</u>: Widen Wilmington Avenue roadway by 2 feet on either side and re-stripe the southbound approach to provide a separate right-turn lane, three through lanes, and a left-turn lane.

Re-stripe northbound approach to provide a shared through-right turn lane, two through lanes, and a left-turn lane. Remove median adjacent to northbound approach to facilitate three southbound receiving lanes. Restrict parking along Wilmington Avenue roadway during morning and evening peak periods along the eastside of Wilmington between 120th Street and Martin Luther King, Jr. Hospital Driveway entrance.

Widen 120th Street west of Wilmington Avenue for 250 feet, on the south side by 2 feet, and re-stripe the eastbound approach to provide a separate right-turn lane, dual left-turn lanes, and a through lane. The westbound approach of 119th Street would have the same lane geometry as existing conditions.

- Wilmington Avenue / Martin Luther King, Jr. Hospital Entrance-120th Street – County of Los Angeles: Re-stripe southbound approach to provide a separate right-turn lane, two through lanes, and a left-turn lane. Provide three northbound receiving lanes and restrict on-street curb parking along the eastside of Wilmington Avenue between Martin Luther King, Jr. Hospital Driveway and 120th Street and 120th Street and 119th Street during morning and evening peak hours.

  Remove the median within the hospital entrance and re-stripe the driveway to provide dual left-turn lanes, a through lane, and a separate right-turn lane along the eastbound approach. Re-stripe to provide one receiving lane.

The appropriate conceptual signing and striping plans shall be submitted to the County of Los Angeles Department of Public Works, Traffic and Lighting Division for review and approval during the planning phase.

Measure Traffic-3

In order to address the Tier II cumulative projects impacts, using County of Los Angeles traffic study guidelines, the following mitigation measures shall be implemented to alleviate the cumulative significant impacts:

- Avalon Boulevard/El Segundo Boulevard – County of Los Angeles: Widen northbound approach by 2 feet and re-stripe the approach to provide a left turn lane, two through lanes, and a separate right-turn lane (10 feet, 10 feet, 10 feet, 12 feet). The approach could be widened by narrowing the 5-foot-wide median to a 3-foot-wide median, or by reducing the 12-foot-wide sidewalk to a 10-foot-wide sidewalk. This widening would need to occur all the way to an alley located approximately 100 feet south of the intersection. The bus stop at this approach would continue to be located at the same location; however, buses would be allowed to go straight through the intersection.

- Alameda Street/El Segundo Boulevard – County of Los Angeles/Compton: Re-stripe northbound/southbound approaches and provide a southbound right-turn lane. The lanes along the north leg would be re-striped to provide 13-foot and 11-foot receiving lanes; 10-foot, 11-foot, 10-foot, and 12-foot approach lanes for southbound right, both southbound turns, and southbound right lanes, respectively. The lanes along the south leg would have a 13-foot shared right through-way, 11-foot through lane, 10-foot left-turn lane, 12-foot receiving lane, and a 20-foot receiving lane. Remove two on-street parking spaces along the southbound approach during peak hours.

- Alameda Street/103rd Street – County of Los Angeles/Lynwood: Re-stripe eastbound approach to provide a 10-foot, left-turn lane and a 12-foot, left-right shared lane. The receiving lane would be re-striped for 18.5 feet.[50]

- Central Avenue/Rosecrans Avenue – County of Los Angeles/Compton: Re-stripe westbound approach to provide a separate right-turn lane. Allow buses to go through the intersection from the right-turn lane.

- Central Avenue/El Segundo Boulevard – County of Los Angeles/Compton: Re-stripe southbound approach to provide a separate right-turn lane. Widen northbound approach by reducing median by 1 foot to 2 foot. Provide re-striping to show a separate northbound right-turn lane. Allow buses to go through the intersection from the right-turn lane.

- Alameda Street/Imperial Highway – County of Los Angeles/City of Lynwood: Re-stripe southbound approach to provide the following roadway geometry: dual left-turn lanes, a through lane, a shared through-right turn lane, and a separate right-turn lane.

The appropriate conceptual signing and striping plans shall be submitted to the County of Los Angeles Department of Public Works, Traffic and Lighting Division for review and approval during the planning phase.

3.12.6 Level of Significance after Mitigation

Tier I

Implementation of mitigation measure Traffic-1 would reduce impacts generated during the construction of Tier I. Therefore, impacts from Tier I would be less than significant.

Tier II

Implementation of the mitigation measures Traffic-1, Traffic-2, and Traffic-3 would reduce construction-related Tier II and construction and operational Tier II project impacts and cumulative project impacts to below the level of significance.

As indicated in the Table 3.12.6-1, *Traffic Impact Analysis – Future 2020 Cumulative Conditions Los Angeles County Locations*, the recommended improvements would fully mitigate the cumulative projects related impacts at all the impacted intersections.

If for some reason these improvements can not be implemented as described in the mitigation measures above, the significant traffic and transportation impacts for Tier I and Tier II would remain.

TABLE 3.12.6-1
FUTURE 2020 CUMULATIVE CONDITIONS FOR LOS ANGELES COUNTY LOCATIONS

			Existing (Baseline) + Ambient (2020)		Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects				Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects and Mitigation			
#	**Intersection**	**Peak Hour**	**V/C**	**LOS**	**V/C**	**LOS**	**Project Increase in V/C**	**Significant Impact**	**V/C**	**LOS**	**Project Increase in V/C**	**Significant Impact**
52	Alameda Street/103rd Street [1]	AM	0.812	D	0.864	D	0.052	**Yes**	0.752	C	-0.060	No
		PM	0.880	D	0.950	E	0.070	**Yes**	0.834	D	-0.046	No
55	Alameda Street/El Segundo Boulevard [2]	AM	0.661	B	0.703	C	0.042	No	0.666	B	0.005	No
		PM	0.781	C	0.820	D	0.039	**Yes**	0.778	C	-0.003	No
54	Alameda Street/Imperial Highway [1]*	AM	0.785	C	0.825	D	0.040	**Yes**	0.792	C	0.007	No
		PM	0.872	D	0.935	E	0.063	**Yes**	0.871	D	-0.001	No
11	Avalon Boulevard/El Segundo Boulevard	AM	0.642	B	0.682	B	0.040	No	0.682	B	0.040	No
		PM	0.788	C	0.814	D	0.026	**Yes**	0.765	C	-0.023	No
12	Avalon Boulevard/Rosecrans Avenue	AM	0.634	B	0.649	B	0.015	No				
		PM	0.753	C	0.771	C	0.018	No				
4	Broadway/El Segundo Boulevard	AM	0.520	A	0.530	A	0.010	No				
		PM	0.569	A	0.581	A	0.012	No				
19	Central Avenue/El Segundo Boulevard [2]	AM	0.803	D	0.837	D	0.034	**Yes**	0.772	C	-0.031	No
		PM	0.879	D	0.902	E	0.023	**Yes**	0.838	D	-0.041	No
20	Central Avenue/Rosecrans Avenue [2]	AM	0.824	D	0.838	D	0.014	No	0.790	C	-0.034	No
		PM	0.956	E	0.975	E	0.019	**Yes**	0.953	E	-0.003	No
26	Compton Avenue/118th Street	AM	0.391	A	0.419	A	0.028	No				
		PM	0.336	A	0.382	A	0.046	No				
27	Compton Avenue/120th Street	AM	0.610	B	0.690	B	0.080	No				
		PM	0.527	A	0.676	B	0.149	No				
28	Compton Avenue/124th Street	AM	0.330	A	0.343	A	0.013	No				
		PM	0.274	A	0.290	A	0.016	No				
25	Compton Avenue/Imperial Highway [3]**	AM	0.860	D	0.905	E	0.045	**Yes**	0.836	D	-0.024	No
		PM	0.731	C	0.769	C	0.038	No	0.759	C	0.028	No
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	AM	0.779	C	0.857	D	0.078	**Yes**	0.765	C	-0.014	No
		PM	0.759	C	0.815	D	0.056	**Yes**	0.725	C	-0.034	No
5	Main Street/El Segundo Boulevard	AM	0.561	A	0.571	A	0.010	No				
		PM	0.628	B	0.640	B	0.012	No				
51	Mona Boulevard/El Segundo Boulevard	AM	0.574	A	0.593	A	0.019	No				
		PM	0.599	A	0.616	B	0.017	No				
50	Mona Boulevard/Imperial Highway [1,3]**	AM	0.673	B	0.697	B	0.024	No				
		PM	0.734	C	0.763	C	0.029	No				
7	San Pedro Street/El Segundo Boulevard	AM	0.554	A	0.566	A	0.012	No				
		PM	0.563	A	0.575	A	0.012	No				
23	Success Avenue - Slater Avenue/120th Street	AM	0.452	A	0.495	A	0.043	No				
		PM	0.367	A	0.447	A	0.080	No				
46	Willowbrook Avenue/119th Street	AM	0.519	A	0.575	A	0.056	No				
		PM	0.699	B	0.739	C	0.029	No				
47	Willowbrook Avenue/El Segundo Boulevard	AM	0.567	A	0.595	A	0.028	No				
		PM	0.641	B	0.664	B	0.023	No				

TABLE 3.12.6-1
FUTURE 2020 CUMULATIVE CONDITIONS FOR LOS ANGELES COUNTY LOCATIONS, Continued

#	Intersection	Peak Hour	Existing (Baseline) + Ambient (2020)		Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects		Project Increase in V/C	Significant Impact	Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects and Mitigation		Project Increase in V/C	Significant Impact
			V/C	LOS	V/C	LOS			V/C	LOS		
35	Wilmington Avenue/118th Street	AM	0.746	C	0.895	D	0.149	**Yes**	0.637	B	-0.109	No
		PM	0.735	C	0.870	D	0.135	**Yes**	0.754	C	0.019	No
36	Wilmington Avenue/120th Street-119th Street	AM	0.800	C	0.948	E	0.148	**Yes**	0.700	B	-0.100	No
		PM	0.792	C	0.998	E	0.206	**Yes**	0.749	C	-0.043	No
38	Wilmington Avenue/124th Street	AM	0.581	A	0.674	B	0.093	No				
		PM	0.533	A	0.619	B	0.086	No				
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	AM	0.812	D	0.962	E	0.150	**Yes**	0.797	C	-0.015	No
		PM	0.830	D	1.052	F	0.222	**Yes**	0.765	C	-0.065	No
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	AM	0.585	A	0.843	D	0.258	**Yes**	0.686	B	0.101	No
		PM	0.583	A	0.934	E	0.351	**Yes**	0.742	C	0.032	No
39	Wilmington Avenue/El Segundo Boulevard [2]	AM	0.819	D	0.858	D	0.039	**Yes**	0.808	D	-0.011	No
		PM	0.879	D	0.949	E	0.070	**Yes**	0.862	D	-0.017	No
33	Wilmington Avenue/Imperial Highway-Willowbrook Ave [3]**	AM	0.492	A	0.599	A	0.107	No				
		PM	0.506	A	0.606	B	0.100	No				

KEY:
* Los Angeles County Congestion Management Program (CMP) monitoring location.
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

3.13 UTILITIES AND SERVICE SYSTEMS

As a result of the Initial Study,[1] the County of Los Angeles (County) determined that the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would have the potential to result in impacts from utilities and service systems. Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts to utilities and service systems. This analysis considers impacts that may result from all phases of the proposed project in relation to utilities and service systems, including construction activities and operation.

The analysis of utilities and service systems consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions at the proposed project area, thresholds for determining if the proposed project would result in significant impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to utilities and service systems has been analyzed in accordance with the methodologies and information provided by the County General Plan.[2] This section therefore describes current capacities, as appropriate, for construction and operation of the project. Utilities and service systems for the proposed project are assessed in terms of location of the services, existing and projected service ratios, and other service objectives as applicable. Cumulative impacts are determined with consideration of projected development in the area. Where impacts on services are determined to be potentially significant, mitigation measures are recommended to ensure adequate delivery of utilities to the project.

3.13.1 Regulatory Framework

State

California Administrative Code/California Urban Water Management Act

Title 24 of the California Administrative Code includes the California Building Standards, which in turn includes the California Plumbing Code (Part 5), which promotes water conservation. Title 20 of the California Administrative Code addresses public utilities and energy and includes appliance and efficiency standards that promote water conservation. In addition, a number of state laws require water-efficient plumbing fixtures in structures.

Section 10610 of the California Water Code established the California Urban Water Management Planning Act (CUWMPA). CUWMPA requires urban water suppliers to initiate planning strategies that make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its customers during normal, dry, and multiple dry-water years.[3] Specifically, the CUWMPA states that every urban water supplier that provides water to 3,000 or more customers, or that provides more than 3,000 acre-feet[4] of water service annually, should make every effort to ensure the appropriate level of reliability in its water service to meet the needs of its various categories of

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[1] County of Los Angeles. 8 March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study.* Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan.* Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] California Water Code. Section 10610 et. seq.: "Urban Water Management Planning Act." Available at: http://www.leginfo.ca.gov/calaw.htm

[4] An acre-foot of water is approximately 326,000 gallons.

customers during normal, dry, and multiple-dry years. The CUWMPA describes the contents of Urban Water Management Plans, as well as methods for urban water suppliers to adopt and implement the plans. Under the CUWMPA, the proposed project would be subject to the County Stormwater Ordinance.[5]

Senate Bill 221 and 610

Senate Bill (SB) 221 requires that a jurisdiction approving certain subdivisions must obtain written verification of a sufficient water supply from the applicable public water agency. Sufficient water supply is defined as the total water supply available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand associated with a proposed project. SB 221 applies to subdivisions of more than 500 units, or those that are served by small water agencies that increase service by at least 10 percent. SB 221's requirements for documenting sufficient water supply parallel SB 610's requirements for a water supply assessment, described below.

SB 610 requires that for residential, commercial, or industrial projects meeting certain size requirements, lead agencies must either request a Water Supply Assessment from the applicable water supply agency, or, if no water supply agency exists, prepare the assessment. The water supply assessment shall be prepared within 90 days of a request, and must show how total projected water supplies would meet the proposed project's water demands in normal and dry years.

SB 610 applies to all project types, and is triggered by State California Environmental Quality Act (CEQA) Guidelines Section 15083.5 early in the planning process. SB 221 applies only to certain residential subdivisions, occurs immediately prior to final subdivision map approval, and is meant as a back-up to the Water Supply Assessment performed pursuant to SB 610. The written verification of water supply provided by SB 221 helps to ensure that adequate water is available for each development rather than a more general assessment of water supply to a jurisdiction.

California Solid Waste Reuse and Recycling Access Act

The California Solid Waste Reuse and Recycling Access Act of 1991 required each jurisdiction to adopt a solid waste reuse and recycling ordinance by September 1, 1994. This act requires each "development project" to provide an adequate storage area for collection and removal of recyclable materials. Development and operation of the proposed project would be subject to the requirements of this act.

Local

County of Los Angeles General Plan

The Water and Waste Management element of the County General Plan describes existing systems in the County that provide water supply and distribution, flood protection, water conservation, sewerage, water reclamation, and solid waste disposal.[6] This document sets forth the County policy on these systems by identifying a series of 4 broad objectives and 25 supporting policies. There are 5 goals presented in the Water and Waste Management element that are relevant to new development:

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[5] County of Los Angeles Department of Public Works. 2002. *County of Los Angeles Department of Water and Power Urban Water Management Plan, Fiscal Year 2001-2002 Annual Update*. Los Angeles, CA.

[6] County of Los Angeles Department of Regional Planning. January 1993. *County of Los Angeles Streamlined General Plan, Public Facilities Element*. Los Angeles, CA.

Goal 1: To mitigate hazards and avoid adverse impacts in providing water and waste services and to protect the health and safety of all residents.

Goal 2: Protection of the health, safety, and welfare of all residents in providing water and waste services

Goal 3: To develop improved systems of resource use, recovery, and reuse.

Goal 4: To provide efficient water and waste management services.

Goal 5: To maintain the high quality of our coastal, surface, and ground waters.

Policies in support of these goals include improving coordination among operating agencies of all water and waste management systems, promoting the advancement of technology to reduce the volume of liquid waste, and facilitating the recycling of wastes, such as metal, glass, paper, and textiles.

Los Angeles County Hydrology Manual

The County of Los Angeles Hydrology Manual provides information relevant to conducting hydrologic study within the County of Los Angeles.[7] This manual provides examples and methods to explain the steps involved in converting rainfall to runoff flow rates and volumes using Public Works' standards. In addition, this manual contains procedures and standards developed and revised by the Water Resources Division of the County Department of Public Works based on historic rainfall and runoff data collected within the County.[8] The techniques in this manual apply to the design of local storm drains, retention and detention basins, pump stations, and major channel projects. The techniques also apply to storm drain deficiency and flood hazard evaluations. Low flow hydrology methods related to water quality standards are also discussed.[9]

Los Angeles County Integrated Waste Management Plan

The California Integrated Waste Management Act of 1989 (AB 939) requires that the responsibility for solid waste management be shared between state and local governments. The State of California has directed the County to prepare and implement a local integrated waste management plan in accordance with AB 939. The Los Angeles County Integrated Waste Management Plan Executive Summary presents the Countywide goals and objectives for integrated solid waste management and describes the County's system of governmental solid waste management infrastructure and the current

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[7] County of Los Angeles, Department of Public Works. January 2006. *County of Los Angeles Hydrology Manual.* Accessed at: http://dpw.lacounty.gov/wrd/publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf

[8] County of Los Angeles, Department of Public Works. January 2006. *County of Los Angeles Hydrology Manual.* Accessed at: http://dpw.lacounty.gov/wrd/publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf

[9] County of Los Angeles, Department of Public Works. January 2006. *County of Los Angeles Hydrology Manual.* Accessed at: http://dpw.lacounty.gov/wrd/publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf

system of solid waste management in the cities and unincorporated areas of the County. This document also summarizes the types of programs planned for individual jurisdictions and describes countywide programs that could be consolidated.[10]

The Los Angeles County Integrated Waste Management Plan, 2000 Annual Report on the Countywide Summary Plan and Countywide Siting Element, describes the County's approach to dealing with a broad range of solid waste issues, including processing capacity; markets for recovered materials; waste reduction mandates; waste disposed at Class I (i.e., hazardous waste–only landfills) and Class II (i.e., landfills that accept specified hazardous waste and non-hazardous wastes) disposal facilities; allocation of "orphan" waste (waste that comes from an unknown origin); the accuracy of the State Disposal Reporting System (DRS); and the California Integrated Waste Management Board (CIWMB) enforcement policy. This document also includes the Los Angeles County Integrated Waste Management task force recommendations that can be implemented at the state and local levels to improve the current waste management system. The task force's recommendations focus on improving the quality of programs, rather than relying on quantity measurements in complying with the state's waste reduction mandates.[11] The proposed project would be subject to the Los Angeles County Integrated Waste Management Plan.

3.13.2 Existing Conditions

The existing campus is connected to the public utilities, water, gas, and sewer through a system of underground piping, valves, and access points to all the buildings. This complex piping system is used to maintain the connectivity from the buildings to the utilities in the streets.[12] Existing utilities for the campus are provided through the following equipment and structures: underground utility tunnel, cooling towers, electrical equipment, bulk oxygen (O_2) storage, gas cylinders, generator fuel storage, central plant, underground fuel tanks, and emergency generators.

Wastewater Treatment

The proposed project lies within the Sanitation Districts of Los Angeles County (Districts). Wastewater generated within project area is discharged to local sewer lines for conveyance to the Districts trunk sewer network. The Sanitation Districts consists of 24 independent special districts that serve approximately 5.7 million people in Los Angeles County.[13] Approximately 1,400 miles of main trunk sewer and 11 wastewater treatment plants treat about half the wastewater within the County.

The Industrial Waste (IW) Unit of the County of Los Angeles Department of Public Works (LACDPW), Environmental Programs Division (EPD) permits and inspects industrial waste discharges into over 3,000 miles of local sewers within the unincorporated areas of Los Angeles County and 37 contract cities. The IW Unit also regulates industrial wastewater collected and hauled to a legal point of disposal or discharged into the ground (where permissible). The LACDPW Sewer Maintenance Division is responsible for two County Sewer Maintenance Districts, which operate local sanitary sewer systems serving a population of 2.5 million people within the County's unincorporated area and

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[10] County of Los Angeles Department of Public Works. 1997. *Los Angeles County Integrated Waste Management Summary Plan, Executive Summary*. Alhambra, CA.

[11] County of Los Angeles Department of Public Works. 2001. *Los Angeles County Integrated Waste Management Plan, 2000 Annual Report on the Countywide Summary Plan and Countywide Siting Element*. Alhambra, CA.

[12] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[13] Los Angeles County Sanitation Districts. Web site. Accessed 19 April 2010. Available at: www.lacsd.org/about

its incorporated cities. The system consists of 5,100 miles of collector sanitary sewers, 154 pump stations, and four wastewater treatment plants.[14]

Wastewater generated by the proposed project would be treated at the Hyperion Treatment Plant.[15] The Hyperion Treatment Plant is located at 12000 Vista del Mar in Playa del Rey and is one of the largest wastewater treatment plants in the Los Angeles area. The facility provides both primary and secondary treatment for approximately 340 million gallons of wastewater per day (MGD).[16] The Hyperion Treatment Plant has a flow capacity of 450 MGD for secondary treatment and an 850 MGD wet weather capacity (during wet conditions, i.e., the rainy season).[17] The Hyperion Treatment Plant currently operates in conformance with the applicable standards of the Los Angeles Regional Water Quality Control Board (LA-RWQCB). The plant serves a population of approximately 4 million people throughout the County of Los Angeles.[18] The Hyperion Treatment Plant currently supports wastewater leaving the proposed project site. Currently, the existing land uses on the proposed project site generates wastewater which is discharged into the existing sewer lines.

Storm Drain System

The proposed project is a part the Los Angeles storm drain system. The LACDPW has implemented measures to initiate storm water pollution reduction programs throughout the County.[19] The proposed project is located on a previously developed site. The proposed project site is served by stormwater drains that convey stormwater away from the site. Currently, impervious surfaces on the proposed project site consist of buildings and paved areas, including parking lots, which cover the soil and do not allow for stormwater to percolate into the soil. Stormwater, which drains off the impervious surface areas of the site, is conveyed by gutters and catch basins into the system of stormdrains surrounding the project site. The County has adopted Stormwater Management Plans (SWMPs) requiring new development to meet the National Pollutant Discharge Elimination System (NPDES) requirements (including those related to storm drain and water discharge from a project site) through best management practices (BMPs).

The existing ground of the proposed project site has elevations ranging from approximately 86 to 88 feet above mean sea level (MSL). The proposed project site has the highest elevation at the eastern edge of the site; the elevation then dips towards the south and west.[20]

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[14] County of Los Angeles Department of Public Works. Accessed 19 April 2010. "Description of Engineering Programs." Available at: http://dpw.lacounty.gov/HRD/CEJobs/CEjobdescriptions.pdf

[15] Carr, Nancy, Hyperion Treatment Plant, Playa del Rey, CA. October 2009. Telephone correspondence with Ms. Eimon Raoof, Sapphos Environmental, Inc., Pasadena, CA.

[16] City of Los Angeles Hyperion Sewage. Accessed 19 October 2009. Web site. *City of Los Angeles Hyperion Sewage*. Available at: http://www.lastormwater.org/siteorg/general/hypern1.htm

[17] City of Los Angeles Hyperion Sewage. Accessed 19 October 2009. Web site. *City of Los Angeles Hyperion Sewage*. Available at: http://www.lastormwater.org/siteorg/general/hypern1.htm

[18] City of Los Angeles Hyperion Sewage. Accessed 19 October 2009. Web site. *City of Los Angeles Hyperion Sewage*. Available at: http://www.lastormwater.org/siteorg/general/hypern1.htm

[19] County of Los Angeles Department of Public Works. Accessed 2 October 2009. *Stormwater Pollution Prevention Home*. Available at: http://ladpw.org/PRG/StormWater/Page_03.cfm

[20] URS. 13 May 2009. *Draft Report Geotechnical Engineering Investigation, Proposed Parking Structure and MACC Building, Martin Luther King, Jr. Multi-Service Ambulatory Care Center (MLK-MACC), 12021 S. Wilmington Avenue, Los Angeles County, California*. Los Angeles, CA.

Water Supply

The proposed project is located in the Central Basin Municipal Water District (CBMWD or Central Basin) service area. The CBMWD is a wholesaler and purchases water from the Metropolitan Water District of Southern California (MWD). The CBMWD currently relies on approximately 90,600 acre-feet per year (AFY) of imported water from the State Water Project (SWP) and the Colorado River through MWD to meet its' demands.[21] The CBMWD service area uses approximately 315,000 acre feet of water annually. Annually, the CBMWD provides approximately 60,000 acre feet of imported water to a 227-square-mile service area, which includes 24 cities and the unincorporated areas of the County.[22] The purpose of the Central Basin's Urban Water Management Plan (UWMP) is to provide a summary of the agency's water supply and demands for their service area. The UWMP is intended to serve as a general, flexible, and open-ended document that periodically can be updated to reflect changes in the region's water supply trends as well as conservation and water use efficiency policies.[23] Table 3.13.2-1, *Central Basin's Current and Project Water Demand (AF)*, displays the Central Basin's current and project water demands.

TABLE 3.13.2-1
CENTRAL BASIN'S CURRENT AND PROJECTED WATER DEMAND (AF)

District Water Demands	2005[1]	2010	2015	2020	2025	2030
Retail Municipal & Industrial Use						
Groundwater[2]	186,549	202,000	202,000	202,000	202,000	202,000
Imported Water	61,033	59,091	64,691	70,462	74,409	82,535
Recycled Water[3]	5,217	12,900	14,150	15,400	16,650	17,900
Total Retail Demand	**252,799**	**273,991**	**280,841**	**287,862**	**295,059**	**302,435**
Replenishment Use						
Imported Water	27,758	27,600	27,600	27,600	27,600	27,600
Recycled Water	50,000	50,000	50,000	50,000	50,000	50,000
Total Replenishment Demand	**77,758**	**77,600**	**77,600**	**77,600**	**77,600**	**77,600**
TOTAL DEMAND	**330,557**	**351,591**	**358,441**	**365,462**	**372,659**	**380,035**

SOURCE: CBMWD, UWMP 2005.
1. The 2005 demands are based on the 2004-05 year, which is also considered one of the "wettest" years on record.
2. Includes groundwater production from the Central and Main San Gabriel Basins (est. 42,000 AF).
3. Includes recycled water sales from Central Basin's service area and Cerritos Water Systems.

The CBMWD's UWMP is also used as a tool to ensure future reliability. The UWMP is required to be updated every five years; the next update would take place in 2010.

The CBMWD serves more than 2 million people (including the unincorporated parts of the County) and would potentially supply water to the proposed project area. Water is transported through the Colorado River Aqueduct system and from Northern California to the Los Angeles area.[24] MWD's

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[21] Central Basin Municipal Water District, 2005. *Urban Water Management Plan*. Carson, CA.

[22] Central Basin Municipal Water District. Accessed 7 October 2009. Web site. *Central Basin Municipal Water District.* Available at: http://www.centralbasin.org/

[23] Central Basin Municipal Water District, 2005. *Urban Water Management Plan*. Carson, CA.

[24] Central Basin Municipal Water District. Accessed on 22 June 2010. Web site. "Central Basin: About the District." Available at: http://www.centralbasin.org/aboutTheDistrict.html

demographic projections indicate that the population is anticipated to increase at an average of 3.01 percent every five years for the next 25 years or 0.64 percent annually (Table 3.13.2-2, *Population Projections for Central Basin's Service Area 2005 to 2030*).[25]

TABLE 3.13.2-2
POPULATION PROJECTIONS FOR CENTRAL BASIN'S SERVICE AREA[1]2005 TO 2030

Year	2005	2010	2015	2020	2025	2030
Population	**1,614,400**	**1,655,200**	**1,712,300**	**1,768,000**	**1,821,200**	**1,872,500**
Single-family	291,200	300,200	301,800	311,400	320,500	323,800
Multi-family	124,900	132,600	147,000	153,400	160,200	172,900
Total Household	**416,100**	**432,800**	**448,800**	**464,800**	**480,700**	**496,700**
Persons per Household	3.84	3.78	3.78	3.77	3.75	3.74
Employment	591,700	659,700	682,600	702,600	720,500	736,900

SOURCE: 1. Information based on MWD Demographic Data, 2005.

NOTE: All units are rounded to the nearest hundred; totals may not sum exactly due to rounding.

The Central Basin has not incurred a significant increase in water demands over the last 15 years despite an increase in population annually (Table 3.13.2-3, *Projected Per Capita Retail Water Usage 2010–2030*)[26]

TABLE 3.13.2-3
PROJECTED PER CAPITA RETAIL WATER USAGE 2010–2030

Year	Estimated Population (1)	Retail Water Usage (AF) (2)	Per Capita (GPCD)
2010	1,655,200	273,991	148
2015	1,712,300	281,122	147
2020	1,768,000	287,400	145
2025	1,821,200	294,650	144
2030	1,872,500	301,900	144
		Average	**146**

NOTES:
1. Information based on MWD Demographic Data, 2005.
2. Retail Water Usage includes recycled water but does not include replenishment sales.

It is anticipated that by 2030, the resource mix on average would be 56 percent groundwater, 23 percent imported, and 5 percent recycled water, with conservation meeting the remaining 16 percent.[27]

In addition to MWD's various reliability initiatives, the Central Basin has also taken important steps during the past decade to reduce potential vulnerability to extended droughts. The CBMWD has made investments in recycled water to replace imported water for non-potable uses and implemented various conservation devices and increased education on conservation, which have resulted in more

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[25] Central Basin Municipal Water District. 2005. *Urban Water Management Plan*, p. 2-2. Carson, CA.

[26] Central Basin Municipal Water District. 2005. *Urban Water Management Plan*, p. 2-2. Carson, CA.

[27] Central Basin Municipal Water District. 2005. *Urban Water Management Plan*, p. 2-2. Carson, CA.

self-reliance.[28] Furthermore, the CBMWD has a phased-level water shortage contingency plan, which includes protocols for a minimum, moderate, severe, or extreme water shortage among other conservation plans and programs (Table 3.13.2-4, *CBMWD's Stages of Action for a Water Shortage*).

TABLE 3.13.2-4
CBMWD'S STAGES OF ACTION FOR A WATER SHORTAGE

Water Shortage Level	Stage of Action
Minimum Shortage	The District would request for a voluntary effort among its customers to reduce imported water deliveries. In addition, the District would pursue an aggressive Public Awareness Campaign to encourage residents and industries to reduce their usage of water.
Moderate Shortage	In addition to the measures listed in the Minimum Storage stage above, the District would work with its customer agencies to promote and adopt water waste prohibitions and ordinances to discourage unnecessary water usage.
Severe Shortage	In addition to the two stages above, the CBMWD would seek to adopt a rate structure that penalizes increased water usage among its customer agencies.
Extreme Shortage	In addition to all the stages above, the CBMWD would call for the discontinuance of imported water based upon an allocation methodology similar to MWD for each of its customer agencies.

SOURCE: CBMWD, UWMP, 2005.

Recycled Water

The source of CBMWD's recycled water is the Sanitation Districts of Los Angeles County (Districts). The Districts operate one wastewater treatment plant and six water recycling plants in the Los Angeles Basin. These systems produce approximately 489 MGD of effluent, of which approximately one-third is available for re-use.[29] The CBMWD purchases a portion of this recycled water from two reclamation plants, Los Coyotes and San Jose Creek, located just outside of the District's service area. Both of these plants provide approximately 55 MGD of tertiary-treated (Title-22) water for distribution.[30] Recycled water is used for landscape maintenance, general irrigation (i.e., concrete mixing, cemetery etc.), and for various industrial uses throughout CBMWD's service area. The CBMWD's projected future uses of recycled water is provided in Table 3.13.2-5, *Projected Future Uses of Recycled Water (Acre Feet)*.

TABLE 3.13.2-5
PROJECTED FUTURE USES OF RECYCLED WATER (ACRE FEET)

Type of Use	2010	2015	2020	2025	2030
Irrigation	7,000	7,750	8,500	9,250	10,000
Commercial	0	0	0	0	0
Industrial	3,500	4,000	4,500	5,000	5,500
Total Projected Use	**10,500**	**11,750**	**13,000**	**14,250**	**15,500**

SOURCE: CBMWD, UWMP 2005.

The Park Water Company-Central Basin Division is the retailer that provides water services for the proposed project site. The Park Water Company (PWC) is an investor-owned, public water utility and

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[28] Central Basin Municipal Water District. 2005. *Urban Water Management Plan*, p. 4-49, Carson, CA.

[29] Central Basin Municipal Water District. 2005. *Urban Water Management Plan*, p. 8-1, Carson, CA.

[30] Central Basin Municipal Water District. 2005. *Urban Water Management Plan*, p. 8-1. Carson, CA.

was incorporated on December 15, 1937. The PWC-Central Basin Division is located in the County of Los Angeles and includes three service areas: Bellflower/Norwalk, Lynwood/Rancho Dominguez (Compton East), and Compton/ Willowbrook (Compton West). PWC's provides for the collection, storage, distribution, and sale of water. The existing distribution system facilities include approximately 41 miles of pipeline ranging in size from 4-inch to 16-inch.[31] The PWC provides the Compton/Willowbrook area with water services and meets 95 percent of the Willowbrook community water demand with imported water. The remaining five percent is obtained from deep wells that pump groundwater from the Central Groundwater Basin. PWC currently delivers water to a population of approximately 132,600 through 27,000 service connections.[32]

The PWC's current water sources include approximately 86 percent of imported water, approximately 11 percent of groundwater, and approximately 3 percent of recycled water. PWC purchases imported domestic water from Metropolitan through CBMWD. The Metropolitan water supply is fed from the SWP water and the Colorado River water via the Colorado River Aqueduct (CRA).[33]

The PWC currently has 13 wells (6 active, 7 standbys) to supply approximately 1,500 AFY of groundwater ranging from 307 gallons per minute (gpm) to 1,250 gpm, with a total system capacity of approximately 9,657 gpm.[34] PWC also has two steel storage tanks with a combined capacity of 750,000 gallons and a 2-million-gallon concrete reservoir.[35] In addition, PWC maintains emergency interconnections with other retail water agencies serving adjacent areas and also has emergency generators for well sites in the event of power failures.

PWC uses a 0.7percent growth rate to project future population for their service area through 2030 (Table 3-13.2-6, *PWC's Central Basin Division Population Projections*).[36]

TABLE 3.13.2-6
PWC'S CENTRAL BASIN DIVISION POPULATION PROJECTIONS

System/ Connections	2000	People/ DU	2005	2010	2015	2020	2025	2030
Compton/ Willowbrook (Compton West) 6,500 connections	24,900	3.70	25,800	26,700	27,600	28.600	29,600	30,600

SOURCE: PWC, UWMP, 2005. 2000 population data based on interpolation of U.S. Census Tract data; future year projections based on Central Basin MWD's June 2005 Draft UWMP population projections for their overall service area, which is based on MWD-MAIN modeling data and SCAG data.

In 2004, approximately 86 percent of PWC's potable water supply came from imported water wholesaled by CBMWD through Metropolitan. PWC's use of recycled water augments groundwater and imported water within their service area (Table 3.13.2-7, *PWC's Current and Projected Water Supply (Acre Feet)*).

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[31] Park Water Company. 2005. *Urban Water Management Plan*. Downey, CA.

[32] Park Water Company. 2005. *Urban Water Management Plan*. Downey, CA.

[33] Park Water Company. 2005. *Urban Water Management Plan*. Downey, CA.

[34] Park Water Company. 2005. *Urban Water Management Plan*. Downey, CA.

[35] Park Water Company. 2005. *Urban Water Management Plan*. Downey, CA.

[36] Park Water Company. 2005. *Urban Water Management Plan*. Downey, CA.

TABLE 3.13.2-7
PWC'S CURRENT AND PROJECTED WATER SUPPLY (ACRE FEET)

Water Supply Sources (gpm)	2005	2010	2015	2020	2025	2030
Imported Water	11,654	15,630	15,470	16,650	16,000	15,360
Groundwater	1,500	1,500	1,500	1,500	1,500	1,500
Recycled Water	470	470	470	470	470470	470
Total	13,624	17,600	17,440	18,620	17,970	17,330

SOURCE: PWC, UWMP, 2005.

The PWC-Central Basin Division is currently in the process of mechanically developing a new well (titled Well 19C) that will be located adjacent to their existing Reservoir titled 19B facility.[37] The PWC anticipates that this well will yield approximately 2,000 gpm and it would be completed in early 2011.[38]

Water use at the proposed project site while the hospital was fully operational, varied over time. Between 2002 to 2006, an average of more than 80 million gallons (or 107 thousand hundred cubic foot (HCF) unit) of water per year was used on the existing campus (Table 3.13.2-8, *Operational Water Use at the Proposed Project Site, 2002–2006*).[39,40]

TABLE 3.13.2-8
OPERATIONAL WATER USE AT THE PROPOSED PROJECT SITE
2002–2006

Fiscal Year	HCF (hundred cubic foot) Units	Gallons	Acre-Feet
2002–2003	104,572	78,219,856	240
2003–2004	118,426	88,582,648	271
2004–2005	104,494	78,161,512	239
2005–2006	103,681	77,553,388	238
4-year Average	**107,793**	**80,629,351**	**247**

SOURCE: Baseline water use information provided by the County of Los Angeles, 2009.

Hospitals use an average of 139,214 gallons per day of water on cooling, domestic, cleaning, kitchen, process, and other miscellaneous uses.[41] When the proposed project site was fully operating, the water consumption for the facility during the 2005–2006 fiscal year was 103,681 hundred cubic feet (approximately 77.6 million gallons).[42]

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[37] Elliott, Jim, Division Chief Engineer, Park Water Company. 18 May 2010. Personal communication with Sapphos Environmental, Inc., Pasadena, CA.

[38] Elliott, Jim, Division Chief Engineer, Park Water Company. 18 May 2010. Personal communication with Sapphos Environmental, Inc., Pasadena, CA.

[39] One (1) HCF equals to 748 gallons of water.

[40] White, Sabra, County of Los Angeles Chief Executive Office. 29 October 2009. E-mail to Eimon Raoof, Sapphos Environmental, Inc., Pasadena, CA.

[41] Southwest Florida Water Management District. "Hospital Checklist."

[42] White, Sabra, County of Los Angeles Chief Executive Office. 10 October 2009. E-mail to Eimon Raoof, Sapphos Environmental, Inc., Pasadena, CA.

Solid Waste

The Sanitation Districts of Los Angeles County operate solid waste collection facilities in the community surround the proposed project site. The Districts solid waste management sites similarly provide about half of the countywide solid waste management needs. The Districts operate three sanitary landfills, four landfill energy recovery facilities, two recycle centers, and three materials recovery/transfer facilities, and participate in the operation of two refuse-to-energy facilities (Table 3.13.2-9, *Solid Waste Facilities in the Los Angeles Area)*.[43,44]

TABLE 3.13.2-9
SOLID WASTE FACILITIES IN THE LOS ANGELES AREA[45,46]

Name / Operator	Address	Open to the Public?	Distance to Site
Angeles Western Paper Fibers Materials Recovery Facility (MRF) & Transfer Station / General Recycling Services	2474 Porter St. Los Angeles, CA 90021	Yes	7 miles north
Central LA Recycling Center and Transfer Station / City of Los Angeles	2201 E. Washington Blvd. Los Angeles, CA 90021	Yes	7 miles north
City Terrace Recycling Transfer Station / Robert M. Arsenian	1511 Fishburn Ave. Los Angeles, CA 90063	No	10 miles northeast
Commerce Refuse-to-Energy Facility / Sanitation Districts of Los Angeles County	5926 Sheila St. Commerce, CA 90040	Yes	7 miles northeast
Downey Area Recycling & Transfer / Sanitation Districts of Los Angeles County	9770 Washburn Rd. Downey, CA 90241	Yes	7 miles east
Downtown Diversion / Downtown Diversion, Inc.	2424 E. Olympic Blvd. Los Angeles, CA 90021	Yes	7 miles north
East Los Angeles Recycling & Transfer / East Los Angeles Transfer	1512 N. Bonnie Beach Pl. Los Angeles, CA 90063	No	10 miles northeast
Innovative Waste Control / Innovative Waste Control	4133 Bandini Blvd. Vernon, CA 90023	Yes	6 miles northeast
Mission Road Recycling & Transfer Station / Waste Management, Inc.	840 S. Mission Rd. Los Angeles, CA 90023	Yes	7 miles north

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[43] Sanitation Districts of Los Angeles County. Accessed 19 April 2010. Web site. Available at: http://www.lacsd.org/about/default.asp

[44] Sanitation Districts of Los Angeles County. Accessed 19 October 2009. Web site. "Solid Waste Information." http://www.lacsd.org/info/solid_waste/default.asp

[45] County of Los Angeles Public Works. Accessed 7 October 2009. Web site. "Solid Waste Facilities in Los Angeles County." Available at: http://dpw.lacounty.gov/swims/general/facilities/nearestfacilitylist.asp

[46] County of Los Angeles Department of Public Works. 10 May 2007. Sanitation Districts of Los Angeles County. Accessed 7 October 2009. "Solid Waste Management In Los Angeles County - Disposal System Overview." Available at: http://ladpw.org/swims/Upload/SWM%20in%20LA%20County_7250.pdf

TABLE 3.13.2-9
SOLID WASTE FACILITIES IN THE LOS ANGELES AREA, Continued

Name / Operator	Address	Open to the Public?	Distance to Site
Paramount Resource Recycling Facility / Paramount Resource Recycling	7230 Petterson Ln. Paramount, CA 90723	Yes	4 miles southeast
Puente Hills Material Recovery Facility / Sanitation Districts of Los Angeles County	13130 Crossroads Pkwy S City of Industry, CA 91746	Yes	18 miles northeast
Salt Lake Transfer Station / City of South Gate	9525 Salt Lake South Gate, CA 90280	No	4 miles northeast
South Gate Transfer Station / Sanitation Districts of Los Angeles County	9530 S. Garfield Ave. South Gate, CA 90280	Yes	4 miles northeast
Waste Management South Gate Transfer Station / Waste Management, Inc.	4489 Ardine St. South Gate, CA 90280	Yes	4 miles northeast

SOURCE: Sanitation Districts of Los Angeles County, Web site 2009.

Landfills in the County of Los Angeles are categorized by three classes: Class I landfills are hazardous waste only landfills, Class II landfills are considered waste management units and accept specified hazardous waste and non-hazardous wastes, and Class III landfills dispose of non-hazardous waste.

Los Angeles County adopted an Integrated Waste Management Plan (IWMP) in 1997 to provide direction for Countywide waste management programs to reduce, reuse, recycle, and divert solid waste generated within the County. The IWMP was prepared in response to the Integrated Waste Management Act of 1989 (AB 939), and its associated regulations, which were developed by the California Integrated Waste Management Board (CIWMB).

Solid waste in the community of Willowbrook, which includes the proposed project site, may be taken to three facilities: the Downey Area Recycling and Transfer facility, the Puente Hills Materials Recovery facility or the South Gate Transfer Station facility. The Downey Area Recycling & Transfer (DART) facility is located at 9770 Washburn Road in the City of Downey, located approximately 7 miles east of the proposed project site. Waste collected is brought to the DART, which is owned by the County Sanitation Districts. This facility has a daily maximum permitted capacity of 5,000 tons of waste per day.[47]

The Puente Hills Materials Recovery facility is located at 13130 Crossroads Parkway South in the City of Industry, approximately 18 miles northeast of the proposed project site. The Puente Hills landfill, located near the City of Whittier, is one of the largest landfills in the nation. The Puente Hills landfill has a current tonnage of 562.34 as of April 19, 2010.[48] The Puente Hills landfill is a Class III landfill and accepts agricultural, ash construction/demolition, industrial, sludge, and tires type of waste, and accepts 13,200 tons of waste per day.[49] The Puente Hills landfill has a maximum permitted capacity of 106,400,000 cubic yards (cy) and a remaining capacity of 49,348,500 cy as of October 2006.[50] The

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[47] Matthew, Staff, Downey Area Recycling & Transfer, Downey, CA. 19 October 2009. Telephone correspondence with Eimon Raoof, Sapphos Environmental, Inc., Santa Monica, CA.

[48] Sanitation Districts of Los Angeles County. Accessed on 19 April 2010. Web site. Available at: http://www.lacsd.org/info/solid_waste/timetoclose.asp

[49] California Department of Resources Recycling and Recovery. Accessed 17 March 2010. Facility Site Summary Details for Puente Hills Landfill. Available at: http://www.calrecycle.ca.gov/SWFacilities/Directory/19-AA-0053/Detail/

[50] California Department of Resources Recycling and Recovery. Accessed 17 March 2010. Facility Site Summary Details for Puente Hills Landfill, accessed at http://www.calrecycle.ca.gov/SWFacilities/Directory/19-AA-0053/Detail/

landfill has an estimated cease operation date of October 2013; however, the other providers have an adequate projected supply to service the proposed project. The South Gate Transfer Station is located at 530 South Garfield Avenue in the City of South Gate, roughly 4 miles northeast of the proposed project site. The South Gate Transfer Station has a daily maximum permitted capacity of 1,000 tons of waste per day.[51]

3.13.3 Significance Thresholds

The potential for the proposed project to result in impacts related to utilities and service systems was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. A project would normally be considered to have a significant impact to utilities and service systems if the proposed project would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;

- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- Lack sufficient water supplies available to serve the project from existing entitlements and resources or will require new or expanded entitlements;

- Result in a determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

- Is not served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs;

- Does not comply with federal, state, and local statutes and regulations related to solid waste;

- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- Lack sufficient water supplies available to serve the project from existing entitlements and resources or will require new or expanded entitlements; or

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[51] Amdahl, Mike, Coordinator, Sanitation Districts of Los Angeles County, South Gate, CA.19 October 2009. Telephone correspondence with Eimon Raoof, Sapphos Environmental, Inc., Santa Monica, CA.

- Result in a determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

3.13.4 Impact Analysis

The proposed project has been evaluated for conformity with the goals and programs of the County's General Plan related to utilities. The potential for adverse impacts on utilities has been evaluated based on information concerning current service levels and the ability of the service providers to accommodate the increased demand created by the project.

Storm Drain System

This issue, along with potential down gradient impacts, is analyzed in Section 3.7, *Hydrology and Water Quality*. The proposed project site is served by storm water drains that convey storm water away from the site.

Tier I

Impacts to storm drains related to the need for Tier I would be less than significant. The quality of storm water runoff is regulated under an existing Countywide NPDES permit. The NPDES storm water permit (CAS614001, Order No. 1-182) issued by the LA-RWQCB provides a mechanism for establishing appropriate controls and monitoring the discharge of pollutants to the storm water runoff system. The County requires all development projects within its jurisdiction on sites of 1 acre or larger to comply with the NPDES requirements for construction and operations as appropriate. The County has adopted SWMPs requiring new development to meet NPDES requirements through BMPs. Construction and demolition activities for the proposed project would be required to be completed in accordance with the County's NPDES permit, including incorporation of BMPs during construction, operation, and maintenance of the proposed project.

The County would be required to ensure that all permit requirements are met for the proposed project with implementation of standard BMPs to reduce or eliminate non-storm discharges to the storm water system for both construction and operation of the proposed project. Therefore, impacts to storm drains related to the need for Tier I would be less than significant.

Tier II

Implementation of the proposed project would increase the impervious surface area on the project site, with the largest change to occur in Tier II with the Master Plan mixed-use development. Currently, impervious surfaces on the proposed project site consist of buildings and paved areas, including parking lots, which cover the soil and do not allow for storm water to percolate into the soil. Storm water, which drains off the impervious surface areas of the site, is conveyed by gutters and catch basins into the system of storm drains surrounding the project site. With the proposed project, some undeveloped portions of the site would be covered with buildings and potentially parking areas, thus increasing the amount of storm water draining from the site. Proper design of landscape and on-site drainage features (such as bio swales and retention / detention basins to slow the runoff from the site) and site grading, as well as implementation of BMPs, would have the potential to assure that storm water runoff from the proposed project site is properly drained in accordance with County requirements. As discussed in section The County shall ensure that the landscape features and site grading for the proposed project comply with standard BMPs set forth by the RWQCB.

The quality of storm water runoff is regulated under an existing Countywide NPDES permit. The NPDES storm water permit (CAS614001, Order No. 1-182) issued by the LA-RWQCB provides a mechanism for establishing appropriate controls and monitoring the discharge of pollutants to the storm water runoff system. The County requires all development projects within its jurisdiction on sites of one acre or larger to comply with the NPDES requirements for construction and operations as appropriate. The County has adopted SWMPs requiring new development to meet NPDES requirements through BMPs. Construction and demolition activities for the proposed project would be required to be completed in accordance with the County's NPDES permit, including incorporation of BMPs during construction, operation, and maintenance of the proposed project.

The County would be required to ensure that all permit requirements are met for the proposed project with implementation of standard BMPs to reduce or eliminate non-storm discharges to the storm water system for both construction and operation of the proposed project. Therefore, impacts to storm drains related to the need for Tier II development would be less than significant.

Water Supply

The CBMWD's 2005 UWMP factored in future growth within the County of Los Angeles and anticipates that the County has a reliable water source to supply future development based on the availability of groundwater resources. The UWMP anticipated the projected growth (generated from the proposed project and /or a combination of projects) when assessing its ability to meet normal, dry and multiple dry year water demand through 2025. The purpose of these plans is to ensure that groundwater supply resources are managed according to provide for the existing as well as future demand.

The proposed project would be expected to increase the water use demands at the proposed project site. A project is subject to SB 610 and requires the preparation of a Waster Supply Assessment (WSA) if it meets one of several criteria including:

> The project demands water use that is comparable to a 500 unit residential development (guidelines for other land uses include: a shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor area; a commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor area; a hotel or motel with more than 500 rooms; an industrial facility employing more than 1,000 persons or having more than 250,000 square feet of floor area; or a mixed use facility that combined meets these guidelines).[52]

Therefore, the proposed project is subject to the requirements of SB 610 and a WSA has been prepared for the proposed project. Ultimately, the requirements of SB 610 and SB 221 mandate that proof of long-term water supply be confirmed by the water purveyor. Since adherence to these requirements is a condition of project approval, should the supplier be unable to supply long-term water to the project, the project would not be approved.

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[52] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Section 15155: "City or County Consultation With Water Agencies."

The proposed project would be expected to increase water usage during both construction and operation; however, it is not anticipated that the proposed project alone would result in the need for new water facilities or entitlements given that the proposed project area is well-served by major pipeline infrastructure for water supply; although a few new on-site infrastructure connections may be required for components in Tier II. Appropriate connections to water systems will be provided and adequately designed to the existing standards and will be approved during the County Building and Safety's site plan review. Therefore, the proposed project would not be expected to result in significant impacts to utilities and service systems requiring or producing construction of new water facilities. The CBMWD groundwater supplies are managed according to the 2005 UWMP, which accounts for future growth within the basin. Several factors would drive future water demands, including population growth, housing density, employment, and household size. As discussed in Section 3.9, *Population and Housing*, projected population and housing growth associated with the proposed project would fall within the County's General Plan and SCAG's area projections and proposed project is located within a 2% Strategy Opportunities Area where population growth is desired and encouraged. As noted above, the current water demand generated by the existing uses within the project site is approximately 88 million gallons per annum. The new Multi-Service Ambulatory Care Center (MACC) building and associated uses, the addition of up to 100 net new residential units and up to 1,462,211 square feet of other uses, as allowed under Tier I and Tier II, would generate an increase in water use. Projected future water use at the proposed project site with implementation of Tier I were estimated and compared to past water usage at the site. Based on data provided for by the County and PWC, the proposed components in Tier I would not substantially increase the historical water usage at the medical campus (Appendix I, *Water Supply Assessment*).[53] Incorporating water conservation into project design for Tier I may result in decreased water consumption from historical usage.

As a whole, the proposed project would intensify the land uses within the project site such that it would increase water demand. The estimated Tier I project water demand is 185.3 AFY, which constitute an approximately one percent of PWC's projected demand for 2030 (Appendix I).[54] PWC projected its water demands would be lower than available projected supplies. The current water use is used as the baseline for existing conditions. When the proposed project's one percent increase to PWC's overall projected water demand is added to existing conditions, it can be concluded that there will be sufficient water supply to satisfy the proposed project's water demands, in association with other existing and planned future uses in the service territory (Appendix I).[55]

Tier I

Based on an evaluation of PWC's 2005 UWMP and MWD's 2005 UWMP, as well as the analysis conducted for this water supply assessment, there would be a sufficient water supply to meet the water demands of the proposed Tier I phase of the project through the 20-year planning period ending in 2030 (Appendix I).[56]

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[53] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr. Project*. Prepared by: RMT, Inc. Los Angeles, CA.

[54] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr. Project*. Prepared by: RMT, Inc. Los Angeles, CA.

[55] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr. Project*. Prepared by: RMT, Inc. Los Angeles, CA.

[56] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr. Project*. Prepared by: RMT, Inc. Los Angeles, CA.

Water use at the existing campus has varied over time. The average water use on the campus between the years 2002 and 2006 was more than 80 million gallons (or 107,793 hundred cubic foot unit) of water per year.[57] The maximum amount of water consumption at the campus was roughly 88 million gallons. It is anticipated that the maximum water consumption amounts for the campus following development of the Tier I component of the proposed project would be less than the historical use. Therefore, Tier I of the proposed project would not require or result in the construction of additional off-site water treatment facilities or expansion of existing facilities, which could cause significant environmental effects. Tier I of the proposed project would result in less than significant impacts with regard to water supply.

Tier II

It is anticipated that water consumption for the Tier II element of the proposed project would be greater than the historical use, without the incorporation of water efficiency and waste reduction measures, for the proposed project.

As stated above, the proposed development in Tier II would until the development of a mixed-use project that provided expanded health services necessary to respond to and address the community's needs. The land use designation for the property, as a medical facility and related services, would remain consistent with the current land use designation of the existing site. The proposed 100 residential units would be developed at a multi-family density, consistent with the surrounding residential area multi-family development densities.

Projected Tier II water demands were forecasted to the year 2030 under varying conditions. Demand projections are based on proposed Tier II activities. In all scenarios, the maximum capacities of proposed site services under Tier II are assumed. Currently, Tier II development includes commercial, retail, office, residential, and other campus support uses. Details for the Tier II phase are not yet complete and general assumptions were made based on planned square footage for each type of planned use, as specified in Section 2.0. The projected water demand for commercial/retail, medical office, general office, and campus support type buildings was estimated based on assumed number of employees, which was based on proposed square footage for each type of building use category (Appendix I and Table 3.13.4-1, *Tier II Projected Water Demand by Use Type*).[58]

TABLE 3.13.4-1
TIER II PROJECTED WATER DEMAND BY USE TYPE

Use Category	Proposed Tier II Square Footage	Projected Daily Water Use (GPD)	Projected Water Use (AFY)
Commercial/Retail	80,000	6,000	7
Residential	150,000	45,000	50
Medical Office	300,000	120,000	134
General Office	150,000	19,286	22
Additional Campus Support Buildings	1,134,695	204,245	229
Total	**1,814,695**	**394,531**	**442**

SOURCE: RMT, July 2010.

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[57] One (1) hundred cubic foot unit equals 748 gallons of water.

[58] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr. Project*. Prepared by: RMT, Inc., Los Angeles, CA, p. 6-4.

Residential demand was based on average water usage per proposed number of units. It is important to note that these demands do not account for potential water use saving associated with implementing efficiency and conservation methods (Appendix I).[59]

The estimated Tier II project water demand is 442 AFY during a single normal year condition. The highest demand estimated for Tier II is 473.4 AFY, which would be during a single dry year or the first dry year of multiple dry year conditions (Appendix I).[60] These values do not account for possible water savings associated with implementing efficiency and conservation methods. Estimated Tier II water demands would constitute approximately 3 percent of PWC's projected demand for 2030.

PWC projected that its water supply would be greater than projected demands in all years through 2030 by at least 8 percent above demand (Appendix I).[61] By the year 2030, PWC estimates that it would have at least 2,340 acre-feet, 1,480 acre-feet and 1,400 acre-feet of water available over demand during a normal, single dry year, and multiple dry years, respectively. MWD also predicted sufficient supplies would be available through 2030. MWD anticipates over 130,000 AFY of surplus water by 2030. The estimated future water demand of the Tier II Phase only reflects approximately 0.3 percent of the surplus water that could be allocated to PWC to meet the demands of the project.

The proposed project would add only a three percent projected increase to the PWC's overall projected demand, thus, there would be sufficient water supply to satisfy the proposed project's water demands, in addition to other existing and planned future uses in the service territory (Appendix I).[62] Based on an evaluation of PWC's 2005 UWMP and MWD's 2005 UWMP, as well as the analysis conducted for this water supply assessment, a sufficient water supply would be available to meet the water demands of the proposed Tier II phase of the project through the 20-year planning period ending in 2030 (Appendix I).[63]

All new buildings in Tier II exceeding 10,000 square feet would be Leadership in Energy and Environmental Design (LEED) certified. It is anticipated that the County would implement sustainable and water efficient features into the Tier II project components. Therefore, the proposed project would not require or result in the construction of additional off-site water treatment facilities or expansion of existing facilities, which could cause significant environmental effects. Tier II of the proposed project would result in less than significant impacts with regard to water supply.

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[59] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr. Project*. Prepared by: RMT, Inc., Los Angeles, CA, p. 6-4.

[60] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr. Project*. Prepared by: RMT, Inc., Los Angeles, CA, p. 8-1.

[61] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr. Project*. Prepared by: RMT, Inc., Los Angeles, CA, p. 8-1.

[62] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr. Project*. Prepared by: RMT, Inc., Los Angeles, CA, p. 8-2.

[63] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr. Project*. Prepared by: RMT, Inc., Los Angeles, CA p. 8-2.

Wastewater Treatment

Tier I

Tier I of the proposed project would generate a small amount of wastewater use during construction. However, this wastewater use would be temporary in nature and would not generate a substantial increase in amount that would require treatment or disposal.

Operation of the proposed project would shift land uses within the proposed project site, would result in a net reduction in operational floor area, and would, therefore, not result in an increased generation of wastewater at the site. The wastewater generation would shift from several of the existing structures to the new facilities on the campus. Additionally, water efficient features and sustainable project design elements would be expected to contribute to a reduction in wastewater generation.

Thus, Tier I of the proposed project would result in less than significant impacts related to wastewater treatment.

Tier II

Tier II of the proposed project would be expected to generate more wastewater use during construction than Tier I. The construction-related wastewater use would be temporary in nature and would not generate a substantial amount of wastewater. However, operation of Tier II of the proposed project would be expected to result in a significant increase in wastewater requiring treatment or disposal, which would require mitigation.

Operation of the proposed project would intensify land uses within the proposed project site and would, therefore, result in an increased generation of wastewater flows at the site. Any increase in wastewater generation would result in increased pressure on the current wastewater treatment system within the Sanitation Districts of Los Angeles County as a whole. The proposed project would be expected to result in less than significant impacts to utilities and service systems in relation to exceeding wastewater treatment requirements of the LA-RWQCB. Wastewater generated by the proposed project would be treated at the Hyperion Treatment Plant,[64] which provides both primary and secondary treatment for approximately 340 MGD.[65] The Hyperion Treatment Plant has an average flow capacity of 450 MGD and a total capacity of 850 MGD,[66] and currently operates in conformance with the applicable standards of the LA-RWQCB. The Hyperion Treatment Plant currently supports the wastewater leaving the medical campus. Although the proposed project would be expected to generate additional wastewater into the existing system, the project would not be anticipated to add additional water quality concerns beyond those already enforced and being met by the Hyperion Treatment Plant. Therefore, the proposed project would not be expected to result in exceedance of wastewater treatment requirements or require the expansion or construction of new water or wastewater treatment facilities.

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[64] Carr, Nancy, Hyperion Treatment Plant, Playa del Rey, CA. October 2009. Telephone correspondence with Eimon Raoof, Sapphos Environmental, Inc., Pasadena, CA.

[65] City of Los Angeles Hyperion Sewage. Accessed 19 October 2009. Web site. *City of Los Angeles Hyperion Sewage.* Available at: http://www.lastormwater.org/siteorg/general/hypern1.htm

[66] City of Los Angeles Hyperion Sewage. Accessed 19 October 2009. Web site. *City of Los Angeles Hyperion Sewage.* Available at: http://www.lastormwater.org/siteorg/general/hypern1.htm

The Hyperion Treatment Plant currently supports wastewater leaving the proposed project site and would continue to do so following the development of the proposed project. During the construction phase and development of Tier I and Tier II, the proposed project would not be expected to exceed the wastewater treatment requirements or standards of the RWQCB. The proposed project would connect to the existing wastewater system and would not include the development of major new sewer lines. While the increases in sewer generation are potentially significant on the proposed project level, it is not anticipated that the project alone would result in the need for substantial new wastewater treatment facilities. The Hyperion Plant collection system conveys over 6,500 miles of sewage ranging from 8 inches to 12 feet in diameter.[67] The community of Willowbrook sanitary sewer system carries wastewater from the proposed project site into the sanitary sewer system where it is conveyed to the Hyperion Treatment Plant.[68] The Hyperion Treatment Plant has the capacity to absorb projects that are consistent with regional growth projections established by the Southern California Association of Governments (SCAG). Although the proposed project would not be expected to significantly increase the population, the proposed project would be expected to increase generation of wastewater at the proposed site.

The general proposed project area is well-served by major pipeline infrastructure for wastewater collection, though some new project related connections on-site may be needed. The County Building and Safety's site plan review would assure that appropriate localized connections to wastewater systems are provided and adequately designed to the approved standards. Therefore, the proposed project would not be expected to result in impacts to utilities and service systems related to requiring or producing the construction of new wastewater treatment facilities.

The proposed project would be able to connect to the local sewer lines adjacent to various areas of the project site and/or convey any wastewater generated by the proposed project to the nearest local sewer or District's trunk sewer. The Districts are authorized by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the Districts' Sewerage System. The fee can also be assessed when a project results in increasing the strength or quantity of wastewater attributable to a particular parcel or operation already connected. This connection fee is a capital facilities fee that is imposed in an amount sufficient to construct an incremental expansion of the sewerage system to accommodate the proposed project.[69] With the payment of these development fees to offset the additional demand imposed by the proposed project, impacts from the proposed project would be less than significant related to wastewater treatment facilities and infrastructure.

All expansions of the Districts' facilities shall be sized and service phased in a manner that will be consistent with the SCAG regional growth forecast for the Counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.[70] Thus, potentially significant impacts related to the proposed project would result in less than significant impacts with incorporation of mitigation measures.

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[67] City of Los Angeles Hyperion Sewage Treatment Plant. Accessed on 15 April 2010. Web site. *City of Los Angeles Department of Public Works, Bureau of Sanitation*. Available at http://www.lastormwater.org/siteorg/general/hypern1.htm

[68] Sanitation Districts of Los Angeles County. Accessed 7 October 2009. Web site. "Joint Water Pollution Control Plant." Available at: http://www.lacsd.org/about/wastewater_facilities/jwpcp/default.asp

[69] Sanitation Districts of Los Angeles County. Connection Fee Form. Accessed 2 July 2010. Available at: http://www.lacsd.org/civica/filebank/blobdload.asp?BlobID=2445

[70] Sanitation Districts of Los Angeles County. 24 July 2007. Letter from Ruth Frazen to County of Los Angeles Chief Executive Office. Subject: County of Los Angeles Data Center. Los Angeles, CA.

Solid Waste

The California Integrated Waste Management Act of 1989 (AB 939) requires the County to attain specific waste diversion goals.[71] In addition, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the proposed project design.[72] The County shall ensure that compliance with the California Integrated Waste Management Act of 1989 and the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, is maintained during construction and operation of the proposed project. Implementation of these measures shall comply with federal, state, and local statutes and regulations to reduce the amount of solid waste. The County shall ensure that the best method of solids disposal and reduction of the solid waste stream is implemented through the development and operation of the proposed project site.

As a County hospital, the proposed project would be required to demonstrate that all solid waste would be disposed of properly at the permitted facilities for solid waste (including medical hazardous waste). Therefore, the proposed project would be expected to result in less than significant impacts to utilities and service systems in relation to compliance with federal, state, and local statutes and regulations related to solid waste.

Tier I

Landfills

Tier I of the project would involve the development of buildings, as well as excavation, site clearance and grading. Construction activities would require the removal of asphalt and concrete, stucco, wood, and other materials from the project area (see Section 3.6, *Hazards and Hazardous Materials*, for a discussion of potential project construction and demolition hazards). In addition to the materials identified above, new construction would also generate solid waste consisting of cardboard and other paper products, metals, plastics and other building materials. Given the small extent of Tier I development, Tier I of the proposed project would not be expected to result in significant impacts to landfills.

Compliance

Tier I of the proposed project would result in net increase in land uses involving the construction of the new buildings and site improvements; however, Tier I of the proposed project would entail construction of a LEED-certified building, which would incorporate project requirements and features that would significantly contribute to the reduction of waste during both the construction and operational phases of this tier. Also, as previously noted, as a County hospital, the proposed project would be required to demonstrate that all solid waste would be disposed of properly at the permitted facilities for solid waste (including medical hazardous waste). Therefore, impacts from Tier I related to compliance would be less than significant.

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[71] California Environmental Protection Agency. Accessed 7 October 2009. "The History of The Environmental Protection Agency, Integrated Waste Management Board." Available at: http://www.calepa.ca.gov/About/History01/ciwmb.htm

[72] *Public Resources Code*. 1991. Assembly Bill 1327, Chapter 18, Sections 42900 through 42911.

Tier II

As with Tier I, Tier II of the project would also involve the removal and development of buildings, as well as excavation, site clearance, and grading. However, Tier II construction activities would require demolition-related activities (associated with the removal of buildings) as well as a substantial amount of construction related activities including the removal of asphalt and concrete, stucco, wood, and other building materials from the project area (see Section 3.6, *Hazards and Hazardous Materials*, for a discussion of potential project construction and demolition hazards). In addition to the materials identified above, new construction would also generate solid waste consisting of cardboard and other paper products, metals, plastics, and other building materials.

Landfills

The primary landfills that would serve the project site are the South Gate Transfer Station, the DART, and the Puente Hills Landfill. Each of the landfills has the capacity to collect solid waste from the proposed project site. Therefore, the proposed project would be served by a landfill with sufficient space to accommodate the project's waste disposal needs. The increased intensity of development anticipated by implementation of the project would result in increased generation of solid waste. However, given the proposed build-out of Tier II, and the remaining capacity at each of the landfills that would service the proposed project; it is unlikely that any building component would exceed landfill capacity.

Compliance

As previously noted, as a County hospital, the proposed project would be required to demonstrate that all solid waste would be disposed of properly at the permitted facilities for solid waste (including medical hazardous waste), however, as a mixed use development, it is anticipated that the Tier II development may include non-County owned buildings, such as pharmacies or other retail establishments. It is therefore anticipated that there could be the potential for impacts associated with compliance of with existing regulations regarding solid waste and it is recommended that the County ensure compliance with existing regulations for all construction contractors during the mixed use development of Tier II of the proposed project. Therefore, impacts from Tier II related to compliance would be less than significant with the incorporation of mitigation measures.

Cumulative Impacts

The incremental impact of the proposed project, when added to the related past, present, or reasonably foreseeable, probable future projects listed in Section 2.0, *Project Description*, of this EIR would not be expected to result in cumulative impacts related to utilities and service systems. There are a total of 42 related projects surrounding the proposed project site, which are located within a 3-mile radius of the proposed project site.

Tier I

Tier I of the proposed project has been designed to result in no significant increase in storm water runoff, would not generate wastewater that would exceed the treatment requirements of the RWQCB, would not lack sufficient water supplies, and would not be served with a landfill that lacks sufficient capacity. With the incorporation of a mitigation measure related to reducing solid waste entering area landfills, Tier I of the proposed project would not result in a significant impact on utilities and would not have a cumulatively considerable contribution that would cause the need for additional utilities or utility infrastructure. The cumulative impacts to utilities and service systems as a result of Tier I would be less than significant.

Tier II

Tier II of the proposed project along with the related projects listed in Section 2.0, *Project Description*, would cumulatively increase the demand for utilities within the region. However, the related projects are within various water provider service areas among other utilities service providers. Tier II of the proposed project is required to be evaluated with the local utilities suppliers' projections for water, wastewater, solid waste, and storm water drains. A WSA prepared for the proposed project, which was based on the UWMP, concluded that there would be enough water to serve Tier II in addition to other anticipated future developments. The proposed project was either within the forecasts or resulted in a less than significant impact after mitigation was incorporated. Tier II of the proposed project would increase the impervious surface area on the project site due to storm water and generate more wastewater than Tier I; however, the County would be required to ensure that all permit requirements are met for the proposed project with implementation of standard BMPs to reduce or eliminate non-storm discharges to the storm water system that would cause the storm water runoff impacts to be less than significant. The wastewater generated from Tier II would not generate a substantial amount that would require treatment or disposal. With the incorporation of mitigation measures for wastewater and solid waste, Tier I of the proposed project would not result in a significant impact on utilities and would not have a cumulatively considerable contribution that would cause the need for additional utilities or utility infrastructure. The cumulative impacts to utilities and service systems as a result of Tier I would be less than significant.

3.13.5 Mitigation Measures

Tier I

The analysis undertaken for this document determined that no significant utilities and service systems impacts would be expected to result from development of Tier I of the proposed project. Therefore, no mitigation measures are required for Tier I.

Tier II

Measure Utilities-1

Prior to issuance of the permits to connect to the sewer system, the County of Los Angeles shall ensure payment of the connection fee for the capital facilities has been submitted to the appropriate Sanitation Districts of Los Angeles County for compliance with the California Health and Safety Code.

Measure Utilities-2

The County of Los Angeles shall review the plans and specifications for the proposed project and the parking facilities to ensure that adequate service areas are provided for trash and recycling receptacles for compliance with applicable federal, state, and local statutes related to solid waste, and to reduce direct and cumulative impacts from project operation and maintenance to below the level of significance. Prior to advertising for construction bids for the new building, the County of Los Angeles shall ensure that the plans and specifications designating locations for trash receptacles and recycling receptacles are in conformance with the California Solid Waste Reuse and Recycling Access Act of 1991. Wherever trash receptacles are provided throughout the project site, a recycling receptacle for plastic, aluminum, and metal shall also be provided. Signs encouraging patrons to recycle shall be posted near each recycling receptacle.

To ensure conformance with the Solid Waste Management Act of 1989, the County of Los Angeles shall require the construction contractor to manage the solid waste generated during construction of each element of the project by diverting at least 50 percent of solid waste from disposal in landfills, particularly Class III landfills, through source reduction, reuse, and recycling of construction and demolition debris. The construction contractor shall submit a construction solid waste management plan to the County of Los Angeles for approval prior to initiation of demolition activities. The construction contractor shall demonstrate compliance with the solid waste management plan through the submission of monthly reports during construction and demolition activities that estimate total solid waste generated and diversion of 50 percent of the solid waste.

3.13.6 Level of Significance after Mitigation

Tier II

Implementation of mitigation measures Utilities-1 and Utilities-2 would reduce impacts to utilities and service systems related to wastewater treatment and solid waste to below the level of significance.

SECTION 4.0
ALTERNATIVES TO THE PROPOSED PROJECT

This section of the Environmental Impact Report (EIR) describes alternatives to the proposed Martin Luther King, Jr., Medical Center Campus Redevelopment project (proposed project). Alternatives have been analyzed consistent with the recommendations of Section 15126.6 of the State California Environmental Quality Act Guidelines (State CEQA Guidelines), which require evaluation of a range of reasonable alternatives to the proposed project, or to the location of the project, which would feasibly attain most of the basic objectives of the proposed project but would avoid or substantially lessen any of the significant effects of the proposed project, and evaluation of the comparative merits of the alternatives. The discussion of alternatives is intended to focus on the following criteria:

- Alternatives to the project or its location that may be capable of avoiding or substantially reducing any significant effects that a project may have on the environment

- Alternatives capable of accomplishing most of the basic objectives of the project and potentially avoid or substantially lessen one or more of the significant effects

- The provision of sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project

- The no project analysis of what would be reasonably expected to occur in the foreseeable future if the project were not approved

Pursuant to Section 15126.6(e)(2) of the State CEQA Guidelines, if the environmentally superior alternative is the No Project Alternative, the Supplemental EIR shall also identify an environmentally superior alternative among the feasible action alternatives. The analysis of alternatives has been limited to those that the County of Los Angeles (County) determines could feasibly attain most of the basic objectives of the project or which avoid the potential impacts related to the proposed project. Section of 15364 of the State CEQA Guidelines defines feasibility as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

Alternatives addressed in this EIR were derived from work undertaken by the County, as well as from comments that were received in response to the Notice of Preparation of the EIR and the comments provided by interested parties who attended the public scoping meeting.

The resulting range of alternatives considered in this Supplemental EIR consists of the following:

- No Project Alternative
- Alternative 1: Reduced Project Size Alternative (900,000 square foot Tier II)
- Alternative 2: Re-opening the Existing MACC Alternative
- Alternative 3: Public Transportation Focused Alternative
- Alternative 4: 500 beds (in Tier I Alternative)
- Alternative 5: No Tier II Alternative

The effectiveness of each of the alternatives to achieve the basic objectives of the proposed project has been evaluated in relation to the statement of objectives described in Section 2.0, *Project Description* of this EIR. A summary of the ability of the proposed project and alternatives under consideration to meet the objectives of the project is presented in Table 4-1, *Summary of Proposed Project and Alternatives' Ability to Attain Project Objectives*. As shown in Table 4-1, the proposed project would meet all of the basic objectives of the County. Although the No Project Alternative is the environmentally superior alternative, it is not capable of meeting most of the basic objectives of the proposed project, it has been analyzed as required by CEQA. Following the No Project Alternative, the No Tier II Alternative is the environmentally superior alternative.

TABLE 4-1
SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES' ABILITY TO ATTAIN PROJECT OBJECTIVES

	Proposed Project	No Project	Alternative No. 1: Reduced Project Size	Alternative No. 2: Re-opening the Existing MACC	Alternative No. 3: Public Transportation Focused	Alternative No. 4: 500 beds	Alternative No. 5: No Tier II
Tier I: Project Development Objective							
1. Revitalize the Martin Luther King, Jr. Medical Center Campus through the provision of comprehensive medical care	Yes	No	Yes	No	No	Yes	Yes
2. Demonstrate leadership in sustainable planning and design	Yes	No	Yes	No	No	Yes	Yes
3. Create a campus environment that encourages pedestrian movement and optimizes connectivity, staff interaction, and links to the community	Yes	No	Yes	No	No	Yes	Yes
4. Develop a campus that is contextually integrated with the County of Los Angeles and respects the surrounding communities	Yes	No	Yes	No	No	Yes	Yes
5. Improve the efficiency and quality of staff and tenant services	Yes	No	Yes	No	No	Yes	Yes

TABLE 4-1
SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES' ABILITY TO ATTAIN PROJECT OBJECTIVES, Continued

	Proposed Project	No Project	Alternative No. 1: Reduced Project Size	Alternative No. 2: Re-opening the Existing MACC	Alternative No. 3: Public Transportation Focused	Alternative No. 4: 500 beds	Alternative No. 5: No Tier II
6. Maintain the 2,100-square-foot Genesis Clinic; 2,580-square-foot Oasis Clinic (old); 1,850-square-foot Oasis Clinic (new); 10,950-square-foot Registration Building; 226,818-square-foot Augustus F. Hawkins Comprehensive Mental Health Center; 187,676-square-foot Inpatient Tower; 7,878-square-foot Pediatric Acute Care; 26,355-square-foot Medical Records and Laundry; 24,103-square-foot Central Plant; 15,648-square-foot Plant Management; 52,276-square-foot North Support Building; 34,762-square-foot South Support Building; 124,391-square-foot Interns and Physicians Building; 3,922-square-foot Claude Hudson Auditorium; 1,100-square-foot MRI Building; and 12,265-square-foot Hub Clinic Building	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7. Provide a 24,700-building-gross-square-footage (BGSF) space to accommodate the Ancillary Building to house the cafeteria, administrative functions, and support services for the MACC and the Inpatient Tower	Yes	No	Yes	No	Yes	No	Yes

TABLE 4-1
SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES' ABILITY TO ATTAIN PROJECT OBJECTIVES, Continued

	Proposed Project	No Project	Alternative No. 1: Reduced Project Size	Alternative No. 2: Re-opening the Existing MACC	Alternative No. 3: Public Transportation Focused	Alternative No. 4: 500 beds	Alternative No. 5: No Tier II
8. Provide a 132,000-BGSF space to accommodate the MACC program	Yes	No	Yes	No	Yes	No	Yes
9. Provide 34,000 square feet of tenant improvements to accommodate support functions in the North Support, South Support, Interns and Physicians, and Plant Management Buildings	Yes	No	Yes	No	Yes	No	Yes
10. Connect to an upgraded central plant to service the MACC, North Support Building, South Support Building, Inpatient Tower and Interns and Physicians Building	Yes	No	Yes	No	No	No	Yes
11. Provide a parking area to allow sufficient parking for patients, client, visitors, employees, medical staff; site work; and landscaping	Yes	No	Yes	Yes	No	Yes	Yes
12. Provide for a possible relocation of the MRI Building	Yes	No	Yes	No	No	No	Yes

TABLE 4-1
SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES' ABILITY TO ATTAIN PROJECT OBJECTIVES, Continued

	Proposed Project	No Project	Alternative No. 1: Reduced Project Size	Alternative No. 2: Re-opening the Existing MACC	Alternative No. 3: Public Transportation Focused	Alternative No. 4: 500 beds	Alternative No. 5: No Tier II
Tier II: Master Plan Development Objective							
13. Provide opportunities for development of up to 1,814,696 square feet of mixed use, including medical office, commercial, retail, residential, recreational, office space, and other development in support of the campus that are appurtenant to and compatible with the primary land use of a community-based health program facility	Yes	No	No	No	No	No	No
14. Provide sufficient parking for mixed-use development	Yes	No	Yes	No	No	No	No

Table 4-2, *Tier I Summary of Proposed Project and Alternatives' Environmental Impacts*, provides a comparison of the CEQA impacts associated with the proposed project and the alternatives. Table 4-2 is followed by a detailed comparison of the proposed project and the alternatives.

TABLE 4-2
TIER I SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES' ENVIRONMENTAL IMPACTS

	Proposed Project	**No Project**	**Alternative No. 1: Reduced Project Size**	**Alternative No. 2: Re-opening the Existing MACC**	**Alternative No. 3: Public Transportation Focused**	**Alternative No. 4: 500 beds**	**Alternative No. 5: No Tier II**
Aesthetics	Mitigation	Fewer	Equal	Fewer	Equal	Fewer	Equal
Air	Mitigation	Fewer	Equal	Fewer	Equal	Fewer	Equal
Cultural	Mitigation	Fewer	Equal	Fewer	Equal	Fewer	Equal
Geology and Soils	Mitigation	Fewer	Equal	Greater	Equal	Greater	Equal
Greenhouse Gas Emissions	Significant	Fewer	Equal	Fewer	Equal	Fewer	Equal
Hazards and Hazardous Materials	Mitigation	Fewer	Equal	Equal	Equal	Equal	Equal
Hydrology and Water Quality	Mitigation	Fewer	Equal	Greater	Equal	Greater	Equal
Noise	Significant	Fewer	Equal	Fewer	Equal	Fewer	Equal
Population and Housing	Less than	Equal	Equal	Equal	Equal	Equal	Equal
Public Services	Less than	Equal	Equal	Equal	Equal	Equal	Equal
Recreation	Less than	Equal	Equal	Equal	Equal	Equal	Equal
Transportation and Traffic	Mitigation	Fewer	Equal	Fewer	Fewer	Fewer	Equal
Utilities and Service Systems	Less than	Fewer	Equal	Greater	Equal	Greater	Equal

NOTES:

Considerations are based upon the overall worst impact of a particular environmental issue area

Less than – no impact or less than significant

Mitigation – less than significant after mitigation

Significant - significant after mitigation

Fewer / equal / greater refers to the comparison of the alternatives' impacts to the proposed project's impacts

Table 4-3, *Tier II Summary of Proposed Project and Alternatives' Environmental Impacts*, provides a comparison of the CEQA impacts associated with the proposed project and the alternatives.

TABLE 4-3
TIER II SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES' ENVIRONMENTAL IMPACTS

	Proposed Project	No Project	Alternative No. 1: Reduced Project Size	Alternative No. 2: Re-opening the Existing MACC	Alternative No. 3: Public Transportation Focused	Alternative No. 4: 500 beds	Alternative No. 5: No Tier II
Aesthetics	Mitigation	Fewer	Fewer	Fewer	Equal	Fewer	Fewer
Air	Significant	Fewer	Fewer	Fewer	Equal	Fewer	Fewer
Cultural	Significant	Fewer	Equal	Fewer	Equal	Fewer	Fewer
Geology and Soils	Mitigation	Fewer	Fewer	Greater	Equal	Greater	Fewer
Greenhouse Gas Emissions	Significant	Fewer	Fewer	Fewer	Equal	Fewer	Fewer
Hazards and Hazardous Materials	Mitigation	Fewer	Fewer	Fewer	Equal	Fewer	Fewer
Hydrology and Water Quality	Mitigation	Fewer	Fewer	Equal	Equal	Equal	Fewer
Noise	Significant	Fewer	Fewer	Fewer	Equal	Fewer	Fewer
Population and Housing	Less than	Equal	Equal	Equal	Equal	Equal	Equal
Public Services	Less than	Equal	Equal	Equal	Equal	Equal	Equal
Recreation	Less than	Equal	Equal	Equal	Equal	Equal	Equal
Transportation and Traffic	Mitigation	Fewer	Fewer	Fewer	Fewer	Fewer	Fewer
Utilities and Service Systems	Mitigation	Fewer	Fewer	Equal	Equal	Equal	Fewer

NOTES:
Considerations are based upon the overall worst impact of a particular environmental issue area
Less than – no impact or less than significant
Mitigation – less than significant after mitigation
Significant - significant after mitigation
Fewer / equal / greater refers to the comparison of the alternatives' impacts to the proposed project's impacts

4.1 NO PROJECT ALTERNATIVE

4.1.1 Alternative Components

There are no components to the No Project Alternative. Under the No Project Alternative, the proposed project would not be constructed. The existing conditions at the site would remain unchanged. The existing structures would remain as they currently are and the limited operations at the hospital would continue as described in Section 2.0. The Tier I portion of the proposed project, construction of the new MACC and Ancillary building and site improvements would not be completed; nor would the Tier II master plan developments be completed under the No Project Alternative.

4.1.2 Objectives and Feasibility

Under the No Project Alternative, the objectives of the project would not be met. The No Project Alternative would not meet project objectives 1 through 5 nor would it satisfy objectives 7 through 14, as described in Table 4-1, *Summary of Proposed Project and Alternatives' Ability to Attain*

Project Objectives. Although this alternative would maintain the existing: 2,100-square-foot Genesis Clinic; 2,580-square-foot Oasis Clinic (old); 1,850-square-foot Oasis Clinic (new); 10,950-square-foot Registration Building; 226,818-square-foot Augustus F. Hawkins Comprehensive Mental Health Center; 187,676-square-foot Inpatient Tower; 7,878-square-foot Pediatric Acute Care; 26,355-square-foot Medical Records and Laundry; 24,103-square-foot Central Plant; 15,648-square-foot Plant Management; 52,276-square-foot North Support Building; 34,762-square-foot South Support Building; 124,391-square-foot Interns and Physicians Building; 3,922-square-foot Claude Hudson Auditorium; 1,100-square-foot MRI Building; and 12,265-square-foot Hub Clinic Building; as described in project objective 6 above; the No Project Alternative would not result in any new development or potential improvements to the existing campus for the community.

The No Project Alternative would not address the existing need for quality health care in the County and would not be a feasible alternative.

4.1.3 Construction Scenario

Under the No Project Alternative, no construction would occur. Therefore, no environmental impacts would occur. There would be no anticipated short-term, long-term, or cumulative construction related impacts.

The Tier I construction would not be required. There would be no construction related activities including grading or development on existing vacant lots under this alternative.

The phased development as identified in the Tier II construction scenario would not be required. Under this alternative, there would be no demolition, reuse, replacement, or removal of the existing buildings or construction related activities.

4.1.4 Comparative Impacts

Aesthetics

Tier I

Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to aesthetics. Under the No Project Alternative, potential aesthetic changes relating to the replacement of existing site features would not occur. The project site would continue in its existing form with its visual and aesthetic character unchanged. Even though the aesthetic changes resulting from the proposed project would not be considered significant impacts, the No Project Alternative's impacts to aesthetics would be less because no change, such as increased nighttime lighting, would occur. As with Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to aesthetics with the No Project Alternative, implementation of measure Aesthetics-1 specified for Tier I of the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to aesthetics. Under the No Project Alternative, potential aesthetic changes relating to the replacement of existing site features would not occur. This alternative would not result in the more intensive development or the increase in nighttime lighting from vehicles, buildings, landscape features, and signage associated with commercial uses under the proposed project. As a result, the project site would continue in its existing form with its visual and aesthetic character unchanged. Even though the aesthetic changes resulting from the proposed project would not be considered significant impacts, the No Project Alternative's impacts to aesthetics would be less because no change, such as increased nighttime lighting, would occur. As with Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to aesthetics with the No Project Alternative, implementation of measures Aesthetics-1 through Aesthetics-4 specified for Tier II of the proposed project would not be required.

Air Quality

Tier I

Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to ambient air quality. The No Project Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike the proposed project, this alternative would not entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, or asphalt operations beyond the baseline conditions. The No Project Alternative would not require grading or the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of volatile organic compounds (VOCs). The No Project Alternative would not have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors. Unlike Tier I of the proposed project, the No Project Alternative would avoid potential significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the proposed project site by employees and visitors that would need mitigation measures to be reduced to less than significant levels. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to ambient air quality with the No Project Alternative, implementation of measures Air-1 through Air-9 would not be required.

Tier II

Unlike Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to ambient air quality. The No Project Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike the proposed project, this alternative would not entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, or asphalt operations beyond the baseline conditions. The No Project Alternative would not require grading or the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. The No Project Alternative would not have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors. Implementation of

Tier II the proposed project would be expected to result in cumulative construction-related impacts and impacts during operation that would remain above the level of significance with the incorporation of mitigation measures. Unlike Tier II of the proposed project, the No Project Alternative would avoid potential significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the proposed project site by employees and visitors. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to ambient air quality with the No Project Alternative, implementation of measures Air-1 through Air-9 would not be required.

Cultural Resources

Tier I

Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to cultural resources. The No Project Alternative would avoid the construction-related and redevelopment impacts to cultural resources that would occur as a result of the proposed project. Unlike Tier I of the proposed project, the No Project Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would not occur. As a result, the project site would continue in its existing form with its cultural resources unchanged. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to cultural resources with the No Project Alternative, implementation of measures Cultural-1 through Cultural-2 specified for Tier I of the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to cultural resources. The No Project Alternative would avoid the construction-related and redevelopment impacts to cultural resources that would occur as a result of the proposed project. Unlike Tier II of the proposed project, the No Project Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would not occur. As a result, the project site would continue in its existing form with its cultural resources unchanged. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to cultural resources with the No Project Alternative, implementation of Measures Cultural-1 through Cultural-5 specified for Tier II of the proposed project would not be required.

Geology and Soils

Tier I

Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to geology and soils. The No Project Alternative avoids potential impacts to geology and soils that could result from the implementation of the proposed project. This alternative would avoid short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier I of the proposed project, this alternative would entail no grading (excavation and fill), modification of existing structures, or construction of new structures and implementation of the mitigation measures would not be required. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to geology and soils with the No Project Alternative, implementation of measures Geology-1 through Geology-3 specified for Tier I of the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to geology and soils. The No Project Alternative avoids potential impacts to geology and soils that could result from the implementation of the proposed project. This alternative would avoid short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier II of the proposed project, this alternative would entail no grading (excavation and fill), modification of existing structures, or construction of new structures and implementation of the mitigation measures would not be required. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to geology and soils with the No Project Alternative, implementation of measures Geology-1 through Geology-3 specified for Tier II of the proposed project would not be required.

Greenhouse Gas Emissions

Tier I

Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to greenhouse gas (GHG) emissions. The No Project Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike Tier I of the proposed project, this alternative would not entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, or electricity consumption beyond the baseline conditions. The No Project Alternative would not require the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to GHG emissions. Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to GHG emissions with the No Project Alternative, implementation of measure GHG-1 would not be required.

Tier II

Unlike Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to GHG emissions. The No Project Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike Tier II of the proposed project, this alternative would not entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, or electricity consumption beyond the baseline conditions. The No Project Alternative would not require the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to GHG emissions. Unlike Tier II of the proposed project, the No Project Alternative would not have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Potential GHG emission impacts associated with construction and operation of Tier II would remain as significant and unavoidable even with the incorporation of mitigation measures. Unlike Tier II of the proposed project, the No Project Alternative would avoid potential significant impacts to GHG emissions that would result from emissions from construction equipment, electricity consumption, and the anticipated increase in vehicle miles traveled to the proposed project site by employees and visitors. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to GHG emissions with the No Project Alternative, implementation of measure GHG-1 would not be required.

Hazards and Hazardous Materials

Tier I

Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The No Project Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the proposed project. Unlike Tier I of the proposed project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6, *Hazards and Hazardous Materials*, would not be required. Potential operational impacts from hazards or hazardous materials would not occur. The No Project Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hazards and hazardous materials with the No Project Alternative, implementation of measures Hazards-1 through Hazards-5 specified for Tier I of the proposed project would not be required.

Tier II

Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The No Project Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the proposed project. Unlike Tier I of the proposed project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6 would not be required. Potential operational impacts from hazards or hazardous materials would not occur. The No Project Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hazards and hazardous materials with the No Project Alternative, implementation of Measures Hazards-1 through Hazards-5 specified for Tier I of the proposed project would not be required.

Hydrology and Water Quality

Tier I

Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to hydrology and water quality. The No Project Alternative avoids impacts to hydrology and water quality that could result from the implementation of the proposed project. Section 3.7, *Hydrology and Water Quality*, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier I of the proposed project, the No Project Alternative would entail no conversion of vacant land including grading, paving, and construction, and implementation of the mitigation measures would not be required. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hydrology and water quality with the No Project Alternative, implementation of measures Hydrology-1 through Hydrology-3 and Hazards-1 specified for Tier I of the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to hydrology and water quality. The No Project Alternative avoids impacts to hydrology and water quality that could result from the implementation of the proposed project. Section 3.7 of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier II of the proposed project, the No Project Alternative would entail no conversion of vacant land including grading, paving, and construction, and implementation of the mitigation measures would not be required. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hydrology and water quality with the No Project Alternative, implementation of measures Hydrology-1 through Hydrology-4 and Hazards-1 specified for Tier II of the proposed project would not be required.

Noise

Tier I

Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to noise. The No Project Alternative would not entail for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Section 3.8, *Noise*, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier I of the proposed project, the No Project Alternative would not result in impacts related to noise and no mitigation measures would be required. The No Project Alternative would not result in short- or long-term impacts to noise. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to noise with the No Project Alternative, implementation of measures Noise-1 through Noise-3 specified for Tier I the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to noise. The No Project Alternative would not entail for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Section 3.8 of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier II of the proposed project, the No Project Alternative would not result in impacts related to noise and no mitigation measures would be required. The No Project Alternative would not result in short- or long-term impacts to noise. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to noise with the No Project Alternative, implementation of measures Noise-1 through Noise-4 specified for Tier II the proposed project would not be required.

Population and Housing

Tier I

As with Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to population and housing. The No Project Alternative would not assist in meeting regional housing and employment goals. Under the No Project Alternative, potential changes related to population and housing would not occur. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the proposed project, there would be no impacts to population and housing with the No Project Alternative, and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to population and housing. The No Project Alternative would not assist in meeting regional housing and employment goals. Under the No Project Alternative, potential changes related to population and housing would not occur. This alternative would not result in any residential development or more intensive development associated with the medical, commercial or retail uses under the proposed project. Even though potential impacts resulting from Tier II of the proposed project would not be considered significant impacts. The No Project Alternative's impacts to population and housing would be less than the proposed project because no change, such as the 100 unit residential component, would be implemented. However, the No Project Alternative would not contribute to the regional housing goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to population and housing with the No Project Alternative, and no mitigation measures would be required.

Public Services

Tier I

As with Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to public services. The No Project Alternative would not result in the need for additional fire protection, police protection, schools, parks, and other public services. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the proposed project, there would be no impacts to public services with the No Project Alternative, and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to public services. The No Project Alternative would not result in the need for additional fire protection, police protection, schools, parks, and other public services. Section 3.10, *Public Services*, of this EIR provides a discussion of the potential impact to public services related to Tier II of the proposed project. Like Tier II of the proposed project, the No Project Alternative would not create a significant net increase in public services and would require the implementation of the mitigation measures. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to public services with the No Project Alternative, and no mitigation measures would be required.

Recreation

Tier I

As with Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to recreation. The No Project Alternative would not result in impacts to parks and recreational facilities. The No Project Alternative would also not create an additional demand for the County's parks. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the proposed project, there would be no impacts to recreation with the No Project Alternative, and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to recreation. The No Project Alternative would not result in impacts to parks and recreational facilities. The No Project Alternative would also not create an additional demand for the County's parks. Tier II of the proposed project would not result in significant impacts to existing parks or recreational facilities given the limited number of residential units proposed under Tier II and the availability and location of existing recreational facilities. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to recreation with the No Project Alternative, and no mitigation measures would be required.

Transportation and Traffic

Tier I

Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to transportation and traffic. The No Project Alternative avoids potential impacts to transportation and traffic that could result from the implementation of Tier I of the proposed project. The No Project Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier I of the proposed project, this alternative would create no additional transportation or circulation components and implementation of the mitigation measures would not be required. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to transportation and traffic with the No Project

Alternative, implementation of measure Traffic-1 specified for Tier I of the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to transportation and traffic. The No Project Alternative avoids potential impacts to transportation and traffic that could result from the implementation of Tier II of the proposed project. The No Project Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the proposed project. Unlike the Tier II of proposed project, this alternative would create no additional transportation or circulation components and implementation of the mitigation measures would not be required. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to transportation and traffic with the No Project Alternative, implementation of measures Traffic-1 through Traffic-3 specified for Tier II of the proposed project would not be required.

Table 4.1.4-1, *Alternatives Analysis – Summary and Comparison of Net Trip Generation Estimates*, summarizes the net trip generation estimates of all project alternatives as well as a comparison of those estimates to that of the proposed project. This table should be referenced for all of the traffic impacts related to each of the mitigation measures described in this section. Additional trip generation tables as well as other calculations such as internal capture, and pass-by trips for the alternatives to the proposed project are provided in Appendix H, *Traffic Study*. The differences in trip generation estimates of the various alternatives in relation to those of the proposed project expressed in net AM, PM, and daily total trip ends as well as percentages are all shown in Table 4-2 as well. As indicated in the table, all of the proposed alternatives would generate less trips than the proposed project.

TABLE 4.1.4-1
ALTERNATIVES ANALYSIS - SUMMARY AND COMPARISON OF NET TRIP GENERATION ESTIMATES

Scenario	**Daily**	**AM Peak Hour**			**PM Peak Hour**		
	Total	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Proposed Project							
Total Net Trip Generation - Tier I + II	19,677	921	319	1,240	568	1,185	1,753
No Project Alternative	0	0	0	0	0	0	0
Difference from Proposed Project	(19,677)	(921)	(319)	(1,240)	(568)	(1,185)	(1,753)
% Difference	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*
Alternative 1 - Reduced Project Size							
Alternative (900,000 square feet in Tier II)	7,004	347	66	413	205	505	710
Difference from Proposed Project	(12,673)	(574)	(253)	(827)	(363)	(680)	(1,043)
% Difference	*-64%*	*-62%*	*-79%*	*-67%*	*-64%*	*-57%*	*-59%*
Alternative 2 - Re-opening of the Existing							
MACC Alternative (250 Beds)	0	0	0	0	0	0	0
Difference from Proposed Project	(19,677)	(921)	(319)	(1,240)	(568)	(1,185)	(1,753)
% Difference	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*
Alternative 3 - Public Transportation							
Focused Alternative	17,709	829	287	1,116	511	1,067	1,578
Difference from Proposed Project	(1,968)	(92)	(32)	(124)	(57)	(118)	(175)
% Difference	*-10%*	*-10%*	*-10%*	*-10%*	*-10%*	*-10%*	*-10%*
Alternative 4 - 500 Beds (in Tier I) Alternative	0	0	0	0	0	0	0
Difference from Proposed Project	(19,677)	(921)	(319)	(1,240)	(568)	(1,185)	(1,753)
% Difference	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*
Alternative 5 - No Tier II Alternative *	(4,905)	(196)	(136)	(332)	(142)	(196)	(338)
Difference from Proposed Project	(24,582)	(1,117)	(455)	(1,572)	(710)	(1,381)	(2,091)
% Difference	>-*100%*	>-*100%*	>-*100%*	>-*100%*	>-*100%*	>-*100%*	>-*100%*

NOTE: * In this 'No Tier II Alternative', existing buildings with entitlements will be reduced in entitlements by relinquishing those uses from the buildings.

Utilities and Service Systems

Tier I

Unlike Tier I of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to utilities and service systems. The No Project Alternative avoids potential impacts to utilities and service systems that could result from the implementation of Tier I of the proposed project. The No Project Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Like Tier I of the proposed project, this alternative would not require mitigation however, unlike Tier I of the proposed project, this alternative would entail no additional construction of buildings and would not require additional use of existing infrastructure (i.e., sewer, water, etc.).

Tier II

Unlike Tier II of the proposed project, the No Project Alternative would not have the potential to result in significant impacts to utilities and service systems. The No Project Alternative avoids potential impacts to utilities and service systems that could result from the implementation of Tier II of the proposed project. The No Project Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the proposed project. Unlike the proposed project, this alternative would entail no additional construction of buildings and would not require additional use of existing infrastructure (i.e., sewer, water, etc.). With the No Project Alternative, mitigation measures would not be required. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to utilities and service systems with the No Project Alternative, implementation of Measures Utilities-1 through Utilitites-2 specified for Tier II of the proposed project would not be required.

4.2 ALTERNATIVE 1: REDUCED PROJECT SIZE ALTERNATIVE (900,000 SQUARE FOOT TIER II)

4.2.1 Alternative Components

The Reduced Project Size Alternative would entail the same elements that are described in Tier I of the proposed project. As with the proposed project, this alternative would be located on the existing Martin Luther King Jr. Medical Center campus (existing campus). This alternative would entail the same project-level development and improvements described in Tier I of the proposed project including: the development of two new buildings: the new approximately 132,000 square foot MACC and the approximately 24,700 square foot Ancillary Building; tenant improvements in existing buildings including: improvements in the North Support Building to provide space for the MACC administrative departments, the South Support Building would be reorganized to serve as the main warehouse for the MACC, the South Support Building may also serve as a central distribution center for other Los Angles County healthcare facilities in the area, and other tenant improvements would be performed in the Interns and Physicians and Plant Management Buildings for support functions to the MACC; site improvements including: a new parking area, new parking lots, re-striping of existing lots, and new landscaping at the entry of the new MACC and its surrounding area, and a service yard with technical (tech) dock positions that connect mobile radiology; and the potential relocation of the MRI Building.

The Reduced Project Size Alternative would vary from the proposed project in its development of Tier II. Under this alternative, there would still be a campus-wide master plan and the respective improvements, the buildings that were identified as being replaced, removed, or reused in the proposed project would be the same; however the potential build-out for this alternative would be less than half of the development that would be included in the proposed project. This alternative would entail a maximum potential build-out of 900,000 square feet in its Tier II component. The reuse, replacement, or removal of the buildings that were identified in Section 2.0, Project Description, would be reused, replaced, or removed. The mixed uses including medical office, commercial, retail, office space, recreation, residential, and other development in support of the campus would be feasible, however, they would be developed at a reduced scale, which may limit the amount and propensity of the proposed development.

4.2.2 Objectives and Feasibility

As shown in Table 4-1, *Summary of Proposed Project and Alternatives' Ability to Attain Project Objectives*, the Reduced Project Size Alternative would meet most of the objectives identified by the County. As with the proposed project, objectives 1-12 and 14 would be met; however, this alternative would not meet objective 13 as described in Table 4-1. While the Reduced Project Size Alternative would include Tier I elements, the master campus plan development would be limited to less than half of the potential development that is being considered at the proposed project site. This alternative would be feasible but it would require a reduced scale, scope, and limited site configurations that may not fully include all of the mixed use components described in the proposed project.

4.2.3 Construction Scenario

The Reduced Project Size Alternative, the construction scenario described for Tier I of the proposed project in Section 2.0 of this EIR would occur. This alternative would require a reduced construction scenario for its 900,000 square foot Tier II campus master plan element. Although it is anticipated that the duration of the Tier II element would remain approximately 10 years, the scale and the scope of the construction would be roughly reduced by half. However, the maximum daily construction activity would likely be similar to the proposed project scenario.

4.2.4 Comparative Impacts

Aesthetics

Tier I

As with Tier I of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to aesthetics. The Reduced Project Size Alternative for Tier II, this alternative reduces impacts to aesthetics that could result from the implementation of the proposed project. This alternative would have the same visual character (i.e., building design, etc.) as Tier I of the proposed project. Thus, the Reduced Project Size Alternative would result in similar aesthetic impacts as Tier I of the proposed project. This alternative would not substantially degrade the visual character of the site and its surroundings but would still require mitigation for light and glare and shade and shadow. Impacts would be less than significant with mitigation incorporated. This alternative is considered to have the same Tier I visual impacts as compared to the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to aesthetics with the Reduced Project Size Alternative, it is expected that implementation of measures Aesthetics-1 specified for Tier I of the proposed project would be required.

Tier II

As with Tier II of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to aesthetics. The Reduced Project Size Alternative for Tier II, this alternative reduces impacts to aesthetics that could result from the implementation of the proposed project. This alternative would not result in the long-term operation impacts that would occur as a result of the proposed project. This alternative would generally have a similar visual character (i.e., building design, etc.) as the proposed project but would reduce the building square footage associated with Tier II. Thus, the Reduced Project Size Alternative would result in similar aesthetic impacts as the proposed project but to a lesser degree. This alternative would not substantially degrade the visual character of the site and its surroundings but would still require mitigation for light and glare and shade and shadow. Impacts would be less than significant with mitigation incorporated. This alternative is considered to have reduced visual impacts as compared to the proposed project given the reduction in development. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to aesthetics with the Reduced Project Size Alternative, it is expected that implementation of measures Aesthetics-1 through Aesthetics-4 specified for the proposed project would be required.

Air Quality

Tier I

As with Tier I of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Reduced Project Size Alternative would require the same Tier I elements, the Reduced Project Size Alternative is considered to have comparable impacts to air quality compared with Tier I of the proposed project. As with the proposed project, the Reduced Project Size Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with Tier I of the proposed project, this alternative would entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, and asphalt operations beyond the baseline conditions. The Reduced Project Size Alternative would require grading and the use of construction equipment, thus resulting in potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. As with Tier I of the proposed project, the Reduced Project Size Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. As with the Tier I proposed project, the Reduced Project Size Alternative would result in potentially significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the proposed project site by employees and visitors. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Reduced Project Size Alternative, it is expected that implementation of measures Air-1 through Air-9 specified for the proposed project would be required.

Tier II

As with Tier II of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Reduced Project Size Alternative would require less construction and less vehicle trips than Tier II of the proposed project, the Reduced Project Size Alternative is considered to have lesser impacts to air quality compared with Tier II of the proposed project. However, as with Tier II of the proposed project, the Reduced Project Size Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with Tier II of the proposed project, this alternative would entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, and asphalt operations beyond the baseline conditions. The Reduced Project Size Alternative would require grading and the use of construction equipment, thus resulting in potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. As with the proposed project, the Reduced Project Size Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. As with Tier II of the proposed project, the Reduced Project Size Alternative would result in potentially significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the proposed project site by employees and visitors. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Reduced Project Size Alternative, it is expected that implementation of measures Air-1 through Air-9 specified for the proposed project would be required.

Cultural Resources

Tier I

As with Tier I the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to cultural resources. This alternative would result in reduced impacts to paleontological resources, archeological resources, and human remains and similar impacts to historical resources that would result from the implementation of the proposed project. Under this alternative, the scale and scope of construction-related activities would be consistent with Tier I development and would result in the reduced potential to encounter paleontological resources, archeological resources, and human remains. Therefore, the Reduced Project Size Alternative would be anticipated to have fewer potential impacts to paleontological resources, archeological resources, and human remains. However, the buildings that were identified as being vacated in Tier I of the proposed project would remain the same. This alternative would still require mitigation for redevelopment impacts to reduce impacts. Like Tier I of the proposed project, this alternative would have the potential to result in cumulatively considerable impacts. Since there would be potential impacts to cultural resources with the Reduced Project Size Alternative, it is expected that implementation of measures Cultural-1 through Cultural-2 specified for Tier I of the proposed project would be required.

Tier II

As with Tier II the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to cultural resources. This alternative would result in reduced impacts to paleontological resources, archeological resources, and human remains and similar impacts to historical resources that would result from the implementation of Tier II of the proposed project. Under this alternative, the reduced scale and scope of construction-related activities would result in the reduced potential to encounter paleontological resources, archeological resources, and human remains. Therefore, the Reduced Project Size Alternative would be anticipated to have fewer potential impacts to paleontological resources, archeological resources, and human remains. However, the buildings that were identified as being replaced, reused, or removed in Tier II of the proposed project would remain the same, resulting in similar impacts to historical resources as the proposed project. This alternative would still require mitigation for redevelopment impacts to reduce impacts to the maximum extent feasible. Impacts to historical resources would remain a significant adverse impact. Like Tier II of the proposed project, this alternative would have the potential to result in cumulatively considerable impacts. Since there would be potential impacts to cultural resources with the Reduced Project Size Alternative, it is expected that implementation of measures Cultural-1 through Cultural-5 specified for Tier II of the proposed project would be required.

Geology and Soils

Tier I

As with Tier I of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to geology and soils. The Reduced Project Size Alternative would result in comparable impacts to geology and soils that could result from the implementation of Tier I of the proposed project. This alternative would entail the same amount of grading (excavation and fill), modification of existing structures, or construction of new structures. The Reduced Project Size Alternative would be comparable to Tier I of the proposed project when considering only potential impacts to geology and soils. Llike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to geology and soils with the Reduced Project Size Alternative, it is expected that implementation of measures Geology-1 through Geology-3 specified for the proposed project would be required.

Tier II

As with Tier II of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to geology and soils. The Reduced Project Size Alternative would result in fewer potential impacts to geology and soils that could result from the implementation Tier II of the proposed project. Unlike Tier II of the proposed project, this alternative would entail less grading (excavation and fill), modification of existing structures, or construction of new structures. The implementation of the mitigation measures would be required to a lesser extent. The Reduced Project Size Alternative would be preferable to Tier II of the proposed project when considering only potential impacts to geology and soils. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to geology and soils with the Reduced Project Size Alternative, it is expected that implementation of measures Geology-1 through Geology-3 specified for Tier II the proposed project would be required.

Greenhouse Gas Emissions

Tier I

As with Tier I of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to greenhouse gas emissions. Due to the fact that the Reduced Project Size Alternative would require comparable construction, electricity consumption, and vehicle trips as Tier I of the proposed project, the Reduced Project Size Alternative is considered to have comparable impacts to GHG emissions compared with Tier I of the proposed project. As with Tier I of the proposed project, the Reduced Project Size Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with Tier I of the proposed project, this alternative would entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, and electricity consumption beyond the baseline conditions. As with Tier I of the proposed project, the Reduced Project Size Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. As with Tier I of the proposed project, the Reduced Project Size Alternative would result in potentially significant impacts to GHG emissions that would result from emissions from construction equipment, electricity consumption, and the anticipated increase in vehicle miles traveled to the proposed project site by employees and visitors. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to GHG emissions with the Reduced Project Size Alternative, it is anticipated that implementation of mitigation measure GHG-1 would be required.

Tier II

As with Tier II of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to greenhouse gas emissions. Due to the fact that the Reduced Project Size Alternative would require less construction, less electricity consumption, and less vehicle trips than the proposed project, the Reduced Project Size Alternative is considered to have lesser impacts to GHG emissions compared with Tier II of the proposed project. However, as with Tier II of the proposed project, the Reduced Project Size Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with the Tier II of the proposed project, this alternative would entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, and electricity consumption beyond the baseline conditions. As with Tier II of the proposed project, the Reduced Project Size Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. As with Tier II of the proposed project, the Reduced Project Size Alternative would result in potentially significant impacts to GHG emissions that would result from emissions from construction equipment, electricity consumption, and the anticipated increase in vehicle miles traveled to the proposed project site by employees and visitors. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to GHG emissions with the Reduced Project Size Alternative, it is anticipated that implementation of mitigation measure GHG-1 would be required.

Hazards and Hazardous Materials

Tier I

As with Tier I of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to hazards and hazardous materials. The Reduced Project Size Alternative would result in comparable potential impacts to hazards and hazardous materials that could result from the implementation of Tier I of the proposed project. Like Tier I of the proposed project, this alternative would entail less grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the mitigation measures would be required. Potential operational impacts from hazards or hazardous materials would be comparable to Tier I of the proposed project. The Reduced Project Size Alternative would result in both short- and long-term impacts from hazards and hazardous materials. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hazards and hazardous materials with the Reduced Project Size Alternative, it is expected that implementation of measures Hazards-1 through Hazards-5 specified for Tier I of the proposed project would be required.

Tier II

As with Tier II of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to hazards and hazardous materials. The Reduced Project Size Alternative would result in fewer potential impacts to hazards and hazardous materials that could result from the implementation of Tier II of the proposed project. Unlike Tier II of the proposed project, this alternative would entail less grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the mitigation measures would be required, but not to the extent that would be required for implementation of the proposed project. Potential operational impacts from hazards or hazardous materials would be less than Tier II of the proposed project. The Reduced Project Size Alternative would result in less short- or long-term impacts from hazards and hazardous materials. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hazards and hazardous materials with the Reduced Project Size Alternative, it is expected that implementation of measures Hazards-1 through Hazards-5 specified for Tier II of the proposed project would be required.

Hydrology and Water Quality

Tier I

As with Tier I the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to hydrology and water quality. Due to the fact that the Reduced Project Size Alternative would require the same construction as Tier I, the Reduced Project Size Alternative would result in the same potential impacts to hydrology that could result from the implementation of Tier I of the proposed project. Under this Alternative, the scale and scope of construction-related activities would entail comparable grading (excavation and fill), therefore the potential impact to surface water quality from erosion and runoff into storm drain systems would be the same. As with Tier I of the proposed project the potential for construction related or accidental releases of petroleum products and other hazardous substances that could result in contamination of surface water through transport of pollutants into the storm drain system. This alternative would still require all of the hydrology mitigation measures that for are required for Tier I of the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the Reduced Project Size Alternative, it is expected that implementation of measures Hydrology-1 through Hydrology-3 and Hazards-1 specified for the proposed project would be required.

Tier II

As with Tier II the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to hydrology and water quality. Due to the fact that the Reduced Project Size Alternative would require less construction, the Reduced Project Size Alternative would result in fewer potential impacts to hydrology that could result from the implementation of Tier II of the proposed project. Under this Alternative, the reduced scale and scope of construction-related activities in Tier II would entail less grading (excavation and fill), therefore the potential impact to surface water quality from erosion and runoff into storm drain systems would be less. A smaller project scale would also reduce the potential for construction related or accidental releases of petroleum products and other hazardous substances that could result in contamination of surface water through transport of pollutants into the storm drain system. This alternative would still require all of the hydrology mitigation measures that for are required for Tier II of the proposed project. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the Reduced Project Size Alternative, it is expected that implementation of measures Hydrology-1 through Hydrology-4 and Hazards-1 specified for the proposed project would be required.

Noise

Tier I

As with Tier I of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to noise. Due to the fact that the Reduced Project Size Alternative would require the same construction and vehicle trips as Tier I of the proposed project, the Reduced Project Size Alternative is considered to have comparable impacts to noise compared with Tier I of the proposed project. Additionally, the Reduced Project Size Alternative would have construction related activities that would be comparable to Tier I of the proposed project. As with Tier I of the proposed project, the Reduced Project Size Alternative would require grading and the use of construction equipment, thus resulting in potentially significant impacts related to noise. The Reduced Size Alternative would have construction related impacts to noise that would be comparable to Tier I of the proposed project. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to noise with the Reduced Project Size Alternative, it is expected that implementation of measures Noise-1 through Noise-3 specified for Tier I of the proposed project would be required.

Tier II

As with Tier II of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to noise. Due to the fact that the Reduced Project Size Alternative would require less construction and less vehicle trips than Tier II of the proposed project, the Reduced Project Size Alternative is considered to have lesser impacts to noise compared with Tier II of the proposed project. However, the Reduced Project Size Alternative would have construction related activities that would be comparable to Tier II of the proposed project. As with Tier II of the proposed project, the Reduced Project Size Alternative would require grading and the use of construction equipment, thus resulting in potentially significant impacts related to noise. The Reduced Size Alternative would have construction related impacts to noise that would be less than with Tier II of the proposed project. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to noise with the Reduced Project Size Alternative, it is expected that implementation of measures Noise-1 through Noise-4 specified for Tier II of the proposed project would be required.

Population and Housing

Tier I

As with Tier I of the proposed project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to population and housing. This alternative would generally have a similar population, housing and or growth impact as Tier I of the proposed project. Thus, the Reduced Project Size Alternative would result in similar population and housing impacts as Tier I of the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the proposed project, there would be no impacts to population and housing with the Reduced Project Size Alternative, and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to population and housing. This alternative would generally have a similar population, housing and or growth impact as with Tier II of the proposed project but would reduce the building square footage associated with Tier II. Thus, the Reduced Project Size Alternative would result in similar population and housing impacts as Tier II of the proposed project but to a lesser degree. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to population and housing with the Reduced Project Size Alternative, and no mitigation measures would be required.

Public Services

Tier I

As with Tier I of the proposed project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to public services. As with Tier I of the proposed project, the Reduced Project Size Alternative would have not be expected to result in significant impacts to fire protection, police protection, parks, schools, and other public services as Tier I of the proposed project due to increased need for public services. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the proposed project, there would be no impacts to public services with the Reduced Project Size Alternative, and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to public services. As with Tier II of the proposed project, the Reduced Project Size Alternative would have not be expected to result in significant impacts to fire protection, police protection, parks, schools, and other public services as Tier II of the proposed project due to increased need for public services. This alternative however, would reduce the development in Tier II and as such would have less development and less of a potential to result in impacts to public services than the implementation of the proposed project. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to public services with the Reduced Project Size Alternative, and no mitigation measures would be required.

Recreation

Tier I

As with Tier I of the proposed project, the Reduced Project Size Alternative would not have the potential to result in the same development as Tier I of the proposed project. As with Tier I of the proposed project, the Reduced Project Size Alternative would not be expected to result in increased use of the County's park and recreational facilities. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the proposed project, there would be no impacts to recreation with the Reduced Project Size Alternative, and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to recreation. The Reduced Project Size Alternative would result in a less development than Tier II of the proposed project, which would result in less of a potential for recreational impacts. However, as with Tier II of the proposed project, the Reduced Project Size Alternative would not be expected to result in increased use of the County's park and recreational facilities. Overall, because the Reduced Project Size Alternative would not include as many residential units constructed as Tier II of the proposed project, but as with Tier II of the proposed project, no mitigation measures would be required. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the Tier II of the proposed project, there would be no impacts to recreation with the Reduced Project Size Alternative, and no mitigation measures would be required.

Transportation and Traffic

Tier I

Like Tier I of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to transportation and traffic. The Reduced Project Size Alternative would result in a similar development scenario as Tier I of the proposed project. As with Tier I of the proposed project, this alternative would most likely need to implement mitigation measures to further reduce impacts of project-generated traffic. This alternative would overall result in comparable to increased traffic generation as Tier I of the proposed project. As with the proposed project, Tier I would result in a reduction of trips. Tier I would result in 2,586 daily trips of which 176 trips would occur in the morning peak hour and 179 trips would occur in the evening peak hour. Since Tier I also involves vacating existing uses, a net reduction in trips of approximately 4,905 daily trips, 332 AM trips, and 338 PM trips would occur. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to transportation and traffic with the Reduced Project Size Alternative, it is expected that implementation of measure Traffic-1 through specified for Tier I the proposed project would be required.

Tier II

Like Tier II of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to transportation and traffic. The Reduced Project Size Alternative would result in a smaller development scenario than Tier II the proposed project, which would result in fewer overall traffic impacts. The weekday trip generation forecast for this alternative is expected to generate less of a net increase in vehicle trips. However, this alternative would most likely need to implement mitigation measures to further reduce impacts of project-generated traffic. This alternative would overall result in fewer impacts related to increased traffic generation than Tier II of the proposed project. The Tier II component trip generation for this alternative would result in a net total of approximately 11,909 daily trips of which 745 trips would occur during the morning peak hour and 1,048 trips during the evening peak hour. The proposed project (Tiers I and II combined) would have a total net trip generation of 7,004 daily trips of which 413 trips would occur during the morning peak hour and 710 trips during the evening peak hour. This represents 64% less daily trips than the proposed project and 67% and 59% less trips during the AM and PM peak hours, respectively.

Similar to the proposed project, the Reduced Project Size Alternative would have the potential to result in significant traffic impacts. However, this alternative would adversely impact traffic to a lesser degree, based on the 67% less trip generation than the Proposed Project. No significant differences in travel patterns outside the project area would be expected between this alternative and that of the proposed project. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to transportation and traffic with the Reduced Project Size Alternative, it is expected that implementation of measures Traffic-1 through Traffic-3 specified for Tier II of the proposed project would be required.

Utilities and Service Systems

Tier I

Like Tier I of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to utilities and services systems. The Reduced Project Size Alternative would still result in substantially more development than currently exists at the project site although as with Tier I there would not be a small increase in the population. Due to the fact that the total development under this alternative is comparable to that of Tier I of the proposed project, this alternative would result in a reduction in the demand on water supply, wastewater treatment facilities, landfills and recycling requirements. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to utilities and service systems with the Reduced Project Size Alternative, it is expected that like Tier I of the proposed project, no mitigation would be required.

Tier II

Like Tier II of the proposed project, the Reduced Project Size Alternative would have the potential to result in significant impacts to utilities and services systems. The Reduced Project Size Alternative would still result in substantially more development than currently exists at the project site and would still result a small increase in the population. Therefore the Reduced Project Size Alternative would also increase demand on water supply, wastewater treatment, solid waste or other utilities within the project area. However, because the total development under this alternative is reduced compared to that of Tier II of the proposed project, this alternative would result in less demand on water supply, wastewater treatment facilities, landfills and recycling requirements. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to utilities and service systems with the Reduced Project Size Alternative, it is expected that implementation of Measures Utiltites-1 through Utilitites-2 specified for Tier II of the proposed project would be required.

4.3 ALTERNATIVE 2: RE-OPENING THE EXISTING MACC ALTERNATIVE

4.3.1 Alternative Components

As with the proposed project, the Re-opening the existing MACC Alternative would be located on the existing campus. This alternative would restore the former outpatient and inpatient (i.e. the trauma center, emergency services, and at least 233 beds) functions of the MACC building into the existing MACC building. Re-opening of the existing MACC would not incorporate sustainable design elements. The existing MACC would be re-opened and would provide up to 250 beds, along with the inpatient services that were previously provided at the hospital. The new MACC and Ancillary buildings would not be constructed and the related tenant and site improvements as described in Section 2.0, *Project Description* of this EIR, would not be completed. This alternative would require significant structural and tenant refinements to the existing MACC. The focus of this alternative would be to obtain the licensing, funding, and adequate operational requirements (including but not limited to staff, supplies, etc.) to re-open the existing MACC. Only the existing MACC would be reused. No other buildings would be replaced, removed or reused. However, in order to provide inpatient services, the existing MACC would require significant seismic improvements in January 2013 for compliance with OSHPD requirements.

Under this alternative, it is anticipated that Tier I of the proposed project (development of the new MACC and Ancillary buildings) would not occur. Additionally, no community-based, comprehensive, or mixed use development as described in Tier II, master plan development of the proposed project would occur. There would be no new development.

4.3.2 Objectives and Feasibility

As shown in Table 4-1, *Summary of Proposed Project and Alternatives' Ability to Attain Project Objectives,* the Re-opening the Existing MACC Alternative would be capable of meeting only one of the objectives identified by the County, objective 6, to maintain the square foot of the existing: Genesis Clinic; Oasis Clinic (old); Oasis Clinic (new); Registration Building; Augustus F. Hawkins Comprehensive Mental Health Center; Inpatient Tower; Pediatric Acute Care; Medical Records and Laundry; Central Plant; Plant Management; North Support Building; South Support Building; Interns and Physicians Building; Claude Hudson Auditorium; MRI Building; and Hub Clinic Building. The existing MACC is operationally and environmentally inefficient. The County's efforts and funding would all contribute to the seismic upgrades, inpatient improvements, and operations at the existing MACC. It is anticipated that the costs and the scope requirements such as ensuring the staff, operational efficiency, and timely licensing of all of the functions would be infeasible.

4.3.3 Construction Scenario

Under the Re-opening the Existing MACC Alternative considerable construction would occur. It is anticipated that there would be a significant amount of construction and site improvements due to the required seismic improvements that would be required to provide inpatient services. The costs that would associated with these tasks and the improvements to the existing MACC would be significant.

4.3.4 Comparative Impacts

Aesthetics

Tier I

Like Tier I of the proposed project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to aesthetics. Under this alternative, it is anticipated that Tier I and the visual appearance of the proposed project area would essentially look like it does under existing conditions. This alternative would slightly reduce visual impacts as it relates to the MACC building (i.e., two less buildings would need to be constructed). The Re-opening of the Existing MACC Alternative would still result in an increase in nighttime lighting from vehicles, buildings, landscape features, and signage associated with medical, residential commercial uses under the proposed project Tier II. This alternative is considered to have slightly reduced visual impacts as compared to Tier I of the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to aesthetics with the Re-opening the Existing MACC Alternative it is expected that implementation of measure Aesthetics-1 specified for Tier I of the proposed project would be required.

Tier II

Like Tier II of the proposed project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to aesthetics. However, this alternative would reduce the visual impacts associated with the Tier II development. No Tier II development would occur. The Re-opening of the Existing MACC Alternative would still result in an increase in nighttime lighting from vehicles, buildings, landscape features, and signage associated with medical, residential commercial uses under the proposed project Tier II although they would be limited and would be comparable to impacts associated with the past operational campus. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. However, this alternative is considered to have slightly reduced visual impacts as compared to the proposed project. Since there would be potential impacts to aesthetics with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Aesthetics-1 through Aesthetics-4 specified for Tier II of the proposed project would be required.

Air Quality

Tier I

Like Tier I of the proposed project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Re-opening the Existing MACC Alternative would require less construction and less vehicle trips than the proposed project, the Re-opening the Existing MACC Alternative is considered to have lesser impacts to air quality compared with Tier I of the proposed project. Like Tier I of the proposed project, the Re-opening the Existing MACC Alternative would require only limited construction and site improvement activities. Unlike the proposed project, this alternative would not entail the vacation of existing structures or grading activities beyond the baseline conditions. The Re-opening the Existing MACC Alternative would require the use of a limited number of construction equipment and would generate vehicle trips, thus resulting in potentially significant impacts to air quality, particularly with regard to NO_x emissions. As with Tier I of the proposed project, the Re-opening the Existing MACC Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. However, due to the fact that no grading, excavation, or major construction activities would occur beyond the existing MACC building, it is anticipated that implementation of mitigation measures would not be required. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Re-opening the Existing MACC Alternative it is expected that implementation of Measures Air-1 through Air-9 specified for Tier I the proposed project would not be required.

Tier II

Like Tier II of the proposed project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Tier II element of this alternative would not occur, the Re-opening the Existing MACC Alternative is considered to have the fewer impacts to air quality compared with Tier II of the proposed project. Unlike Tier II of the proposed project, this alternative would not entail reuse, removal, or replacement of existing structures or grading activities beyond the baseline conditions. The Re-opening the Existing MACC Alternative would require the use of construction equipment and would generate vehicle trips, although there would be less use of construction-related equipment and fewer vehicle trips, thus resulting in fewer potentially significant impacts to air quality, particularly with regard to NO_x emissions. As with Tier II of the proposed project, the Re-opening the Existing MACC Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. Due to the fact that no significant grading, excavation, or major construction activities would occur beyond the existing MACC, it is anticipated that implementation of mitigation measures would not be required. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Air-1 through Air-9 specified for Tier II of the proposed project would not be required.

Cultural Resources

Tier I

Unlike Tier II of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to cultural resources. The Re-opening the existing MACC Alternative would reduce potential impacts to cultural resources that could result from the implementation of the proposed project. Structural and tenant refinements related to the incorporation of a 500-bed hospital within the existing MACC, a historical resource, would require review for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Unlike the proposed project, this Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of historical resources would not occur. As a result, the project site would continue in its existing form with its cultural resources largely unchanged. The incorporation of structural and tenant refinements to the existing MACC, a historical resource, would require review for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to cultural resources with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Cultural-1 through Cultural-5 specified for the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to cultural resources. The Re-opening the existing MACC Alternative would reduce potential impacts to cultural resources that could result from the implementation of the proposed project. Structural and tenant refinements related to the incorporation of a 500-bed hospital within the existing MACC, a historical resource, would require review for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Unlike the proposed project, this Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of historical resources would not occur. As a result, the project site would continue in its existing form with its cultural resources largely unchanged. The incorporation of structural and tenant refinements to the existing MACC, a historical resource, would require review for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to cultural resources with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Cultural-1 through Cultural-5 specified for the proposed project would not be required.

Geology and Soils

Tier I

Like Tier I of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to geology and soils. This alternative avoids most of the potential impacts to geology and soils that could result from the implementation of the proposed project. Section 3.4, *Geology and Soils*, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike the proposed project, this alternative would entail no grading (excavation and fill), modification of existing structures, or construction of new structures and implementation of the mitigation measures would not be required. However, the anticipated seismic improvements that would be required under this alternative would be considerable and would require different mitigation than that proposed for the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to geology and soils with the Re-opening the Existing MACC Alternative it is expected that although implementation of measures Geology-1 through Geology-3 specified for the proposed project would not be required, mitigation measures would be required for this alternative.

Tier II

Like Tier II of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to geology and soils. This alternative avoids most of the potential impacts to geology and soils that could result from the implementation of the proposed project. Section 3.4, *Geology and Soils*, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike the proposed project, this alternative would entail no grading (excavation and fill), modification of existing structures, or construction of new structures and implementation of the mitigation measures would not be required. However, the anticipated seismic improvements that would be required under this alternative would be considerable and would require different mitigation than that proposed for the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to geology and soils with the Re-opening the Existing MACC Alternative it is expected that although implementation of measures Geology-1 through Geology-3 specified for the proposed project would not be required, mitigation measures specific to this alternative's impacts would be required.

Greenhouse Gas Emissions

Tier I

Unlike Tier I of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant construction related impacts to greenhouse gas emissions. Due to the fact that the Re-opening the Existing MACC Alternative would require less construction, less electricity consumption, and less vehicle trips than the proposed project, the Re-opening the Existing MACC Alternative is considered to have fewer impacts to GHG emissions compared with the proposed project. Unlike the proposed project, the Re-opening the Existing MACC Alternative would require only limited construction and site improvement activities. Unlike the proposed project, this alternative would not entail demolition of existing structures or major construction activities beyond the baseline conditions. The Re-opening the Existing MACC Alternative would require the use of a limited number of construction equipment, would generate vehicle trips, and would require electricity consumption, thus resulting in potentially significant impacts to GHG emissions. As with the proposed project, the Re-opening the Existing MACC Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no construction of new buildings associated with the Re-opening the Existing MACC Alternative, it is anticipated that implementation of measure GHG-1 would not be required.

Tier II

Unlike Tier II of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant construction related impacts to greenhouse gas emissions. Due to the fact that the Re-opening the Existing MACC Alternative would require less construction, less electricity consumption, and less vehicle trips than the proposed project, the Re-opening the Existing MACC Alternative is considered to have fewer impacts to GHG emissions compared with the proposed project. Unlike the proposed project, the Re-opening the Existing MACC Alternative would require only limited construction and site improvement activities. Unlike the proposed project, this alternative would not entail demolition of existing structures or major construction activities beyond the baseline conditions. The Re-opening the Existing MACC Alternative would require the use of a limited number of construction equipment, would generate vehicle trips, and would require electricity consumption, thus resulting in potentially significant impacts to GHG emissions. As with the proposed project, the Re-opening the Existing MACC Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no construction of new buildings associated with the Re-opening the Existing MACC Alternative, it is anticipated that implementation of measure GHG-1 would not be required.

Hazards and Hazardous Materials

Tier I

Unlike the proposed project, this alternative would not have the potential to result in impacts to hazards and hazardous materials. This alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the proposed project. Unlike the proposed project, this alternative would entail no grading (excavation and fill) or the construction of new structures. However, this alternative would entail modification of the existing MACC building that might result in impacts related to hazards and hazardous materials. The implementation of the mitigation measures identified in Section 3.6 would be required. Potential operational impacts from hazards or hazardous materials would likely occur. This alternative would not result in short- or long-term impacts from hazards and hazardous materials that would be comparable to the impacts associated with the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to hazards and hazardous materials with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Hazards-1 through Hazards-5 specified for the proposed project would be required.

Tier II

Unlike Tier II of the proposed project, Tier II of the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The Re-opening the Existing MACC Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the proposed project. Unlike Tier I of the proposed project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6, Hazards and Hazardous Materials, would not be required. Potential operational impacts from hazards or hazardous materials would not occur. The Re-opening the Existing MACC Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hazards and hazardous materials with the Re-opening the Existing MACC Alternative, implementation of measures Hazards-1 through Hazards-5 specified for Tier I of the proposed project would not be required.

Hydrology and Water Quality

Tier I

Like the proposed project, this alternative would have the potential to result in impacts to hydrology and water quality. Because there are no grading or fill activities, the implementation of the mitigation measures identified in Section 3.7 to reduce impacts from pollution entering the storm drain system would not be required. However, under the proposed project, the new MACC building would be an efficient and sustainable building, however this alternative would not include development of the sustainable or efficient elements that would reduce runoff and potential water quality–related impacts. The existing MACC as it currently operates is inefficient. Like the proposed project, this alternative would require the implementation of mitigation measures; however, efforts to re-open and expand the existing MACC would be expected to result in impacts to hydrology and water quality that would be greater than the proposed project. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the Re-opening the Existing MACC Alternative it is expected that implementation of Measures Hydrology-1 through Hydrology-4, specified for the proposed project would be required. However, it is anticipated that Hazards-1 specified for Tier II of the proposed project would not be required.

Tier II

Like Tier II of the proposed project, Tier II of the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to hydrology and water quality. The Re-opening the Existing MACC Alternative avoids impacts to hydrology and water quality that could result from the implementation of the proposed project. Section 3.7 of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier II of the proposed project, the Re-opening the Existing MACC Alternative would entail no conversion of vacant land including grading, paving, and construction; however, the existing MACC is inefficient and seismic improvements to this structure would not improve the efficiency or reduce the water use of this building, nor would the improvements entail LEED or energy-efficient elements. and implementation of mitigation measures would be required. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be impacts to hydrology and water quality with the Re-opening the Existing MACC Alternative, implementation of measures Hydrology-1 through Hydrology-4 specified for Tier II of the proposed project would be required. However, it is anticipated that Hazards-1 specified for Tier II of the proposed project would not be required.

Noise

Tier I

Unlike the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to noise. Under this alternative, the construction-related noise impacts would not occur. Both Tier I and Tier II related noise impacts would be avoided. Unlike the proposed project, this alternative would not be expected to result in noise-related construction impacts. As such, this alternative would be expected to result in fewer impacts associated with construction-related noise impacts than with the proposed project. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to noise with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Noise-1 through Noise-4 specified for the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, Tier II of the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to noise. The Re-opening the Existing MACC Alternative would not entail for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Section 3.8, Noise, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier II of the proposed project, the Re-opening the Existing MACC Alternative would not result in impacts related to noise and no mitigation measures would be required. The Re-opening the Existing MACC Alternative would not result in short- or long-term impacts to noise. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to noise with the Re-opening the Existing MACC Alternative, implementation of Measures Noise-1 through Noise-4 specified for Tier II the proposed project would not be required.

Population and Housing

Tier I

Like Tier I of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to population and housing. As with Tier I of the proposed project, there would be no anticipated impacts related to population and housing with this alternative. Under this alternative, the proposed residential units would still be constructed. Under this alternative, the up to 100 residential units would still be constructed as a part of Tier II. The Re-opening of the MACC Alternative would not be expected to significantly impact the population or housing in the proposed project area. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the proposed project, there would be no impacts to population and housing with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required.

Tier II

Like Tier II of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to population and housing. As with Tier II of the proposed project, there would be no anticipated impacts related to population and housing with this alternative. Under this alternative, the proposed residential units would still be constructed. Under this alternative, the up to 100 residential units would still be constructed as a part of Tier II. The Re-opening of the MACC Alternative would not be expected to significantly impact the population or housing in the proposed project area. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to population and housing with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required.

Public Services

Tier I

Like Tier I of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to public services. The Re-opening of the Existing MACC Alternative would result in similar impacts to public services as compared to the proposed project. The Re-opening of the Existing MACC Alternative would have no impacts to fire protection, police protection, parks, schools, and other public services like the proposed project. As the proposed project the residential units would be included and impacts to public services are less than significant. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, there would be no impacts to public services with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required.

Tier II

Like Tier II of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to public services. The Re-opening of the Existing MACC Alternative would result in similar impacts to public services as compared to the proposed project. The Re-opening of the Existing MACC Alternative would have no impacts to fire protection, police protection, parks, schools, and other public services like the proposed project. As the proposed project the residential units would be included and impacts to public services are less than significant. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, there would be no impacts to public services with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required.

Recreation

Tier I

Like Tier I of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to recreation. Under this alternative, the proposed residential units would still be constructed. The Re-opening the Existing MACC Alternative would still allow for the residential units to be constructed as a part of Tier II. As with Tier II of the proposed project, this alternative would not be expected to result in increased use of the County's park and recreational facilities. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to recreation with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required.

Tier II

Like Tier II of the proposed project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to recreation. Under this alternative, the proposed residential units would still be constructed. The Re-opening the Existing MACC Alternative would still allow for the residential units to be constructed as a part of Tier II. As with Tier II of the proposed project, this alternative would not be expected to result in increased use of the County's park and recreational facilities. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to recreation with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required.

Transportation and Traffic

Tier I

Like Tier I of the proposed project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to transportation and traffic. The Re-opening the Existing MACC Alternative would result in a comparable amount of trips associated within the Tier I of the proposed project. The amount of trips and impacts associated with the construction of this alternative would be comparable to those associated Tier I of the proposed project. The Re-opening the Existing MACC Alternative would overall result in impacts that are comparable to the proposed project and would require mitigation measures. This alternative would contain no new development and therefore would not generate any new trips. This alternative would generate fewer trips than the existing baseline conditions. The existing baseline trip generation includes both operational and non-operational existing uses, which includes the existing MACC building. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to transportation and traffic with the Re-opening the Existing MACC Alternative it is expected that implementation of Measures Traffic-1 specified for Tier I of the proposed project would be required.

Tier II

Like Tier II of the proposed project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to transportation and traffic. The Re-opening the Existing MACC Alternative would not result in a comparable amount of trips associated within the Tier II of the proposed project. Under this alternative, none of the development proposed under Tier II of the proposed project would be built. The amount of trips and impacts associated with this alternative would not be comparable to those associated the Tier II of the proposed project. The Re-opening the Existing MACC Alternative would overall result in impacts less than those of Tier II of the proposed project and would not require mitigation measures. This alternative would contain no new development and therefore, would not generate any new trips. This alternative would generate fewer trips than the existing baseline conditions. The existing baseline trip generation includes both operational and non-operational existing uses, which includes the existing MACC building. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to transportation and traffic with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Traffic-1 through Traffic-3 specified for Tier II of the proposed project would not be required.

Utilities and Service Systems

Tier I

Unlike Tier I of the proposed project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to utilities and service systems. The Re-opening the Existing MACC Alternative would result in greater impacts than the existing conditions and Tier I of the proposed project. The total development under this alternative would be greater than that of Tier I of the proposed project; therefore, this alternative would result in greater demand on water supply, wastewater treatment facilities, landfills and recycling requirements. Unlike Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to utilities and service systems with the Re-opening the Existing MACC Alternative it is expected that implementation mitigation measures would be required.

Tier II

Like Tier II of the proposed project, Tier II of the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to utilities and service systems. The Re-opening the Existing MACC Alternative avoids potential impacts to utilities and service systems that could result from the implementation of Tier II of the proposed project; however, the existing MACC is inefficient and seismic improvements to this structure would not improve the efficiency of this building, nor would the improvements entail LEED or energy-efficient elements. Although, the alternative would not entail the elements that are proposed in Tier II of the proposed project (i.e., no residential, retail, commercial uses, etc); this alternative would result in an increase in use to accommodate up to 250 inpatient beds as well as significant impacts to utilities and services due to the continued use of an inefficient building. As such, the Re-opening the Existing MACC Alternative would be expected to result in the short- and long-term construction and operation impacts. Unlike the proposed project, this alternative would entail no additional construction of buildings and would not require additional use of existing infrastructure (i.e., sewer, water, etc.). With the Re-opening the Existing MACC Alternative, mitigation measures would be required. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be impacts to utilities and service systems with the Re-opening the Existing MACC Alternative, implementation of mitigation measures including Measures Utilities-1 through Utilitites-2 specified for Tier II of the proposed project would be required.

4.4 ALTERNATIVE 3: PUBLIC TRANSPORTATION FOCUSED ALTERNATIVE

4.4.1 Alternative Components

The Public Transportation Focused Alternative would consist of both Tier I and Tier II development elements of the proposed project, as described in Section 2.0 of this EIR. Buildings would be reused, replaced, or removed and Tier II elements of the proposed project would be developed. Additionally, there would be a greater focus on enhancing the current public transportation services at the existing campus and the surrounding area. The intent of this alternative is to reduce the anticipated vehicle trips to the campus by approximately 10% more than that of the proposed project by implementing a series of transit improvement measures.

The transit improvement could potentially include a combination of one or more of the following: increase of frequency of service, improvement of connectivity in the system, coordination of transfers and other incentives for increased transit usage. The potential frequency improvement could be achieved by increasing the frequency of the Metro Green and Blue Lines and by adding more connections between campus and the metro stations. Additional bus routes including extension of Metro Rapid Service with close coordination with the Metropolitan Transportation Authority (MTA) would also be explored with this alternative. Improvement of frequency, connectivity and coordination of transfers between various transit lines operated by the Metropolitan Transportation Authority (MTA), Los Angeles Department of Transportation Downtown Area Short Hop (LADOT-DASH), Renaissance Transit System, Gardena Municipal Bus Line, Rosewood Smart Shuttle, Lynwood Trolley, Torrance Transit System, Carson Circuit System, Long Beach Transit (LBT), and the Hahn Trolley Shuttle Service would also be explored in this alternative. The County would also investigate the potential to increase subsidies for visitors using public transportation as well as provision of universal transit passes to employees at subsidized fares. Finally, the County would seek to utilize / purchase an off-site parking lot for patients / visitors to use instead of parking on campus and to use and then be transferred (via shuttle) to/from the campus.

4.4.2 Objectives and Feasibility

As shown in Table 4-1, the Transportation Focused Alternative would be capable of meeting four of the objectives identified by the County. This alternative would meet the County objectives to maintain existing campus buildings and provide for a new MACC, Ancillary building, and site and tenant improvements. This alternative would meet the County's objectives to improve efficiency; provide a sustainable and connected campus; and to develop the campus and incorporated mixed-uses on the campus. However, increasing service frequency would not necessarily increase coverage area of the public transportation network. As discussed in the Traffic Impact Analysis (Appendix H), which was prepared for the proposed project, the existing public transportation network already serves the campus area. The existing shuttles provide door-to-door service for patrons in order to ensure that patients and visitors have access to the campus. This alternative would have significant costs related to increases in the frequency and oversight as well as provision of other improvements described earlier; however, the benefit that could potentially be obtained from these improvements would be limited in scope in relation to the costs. The existing public transportation network already serves this area with adequate coverage and frequency to meet the existing and anticipated demands. It is for these reasons that this alternative would not be feasible. Despite this fact, it is worth noting that elements of this alternative are worthy of consideration and would be incorporated into the Master Plan for the proposed project, as appropriate.

4.4.3 Construction Scenario

Under the Public Transportation Focused Alternative, both Tier I and Tier II construction and elements would occur. The construction related activities including grading and the new development including the construction of the new MACC and Ancillary buildings and tenant and site improvements as described in the Tier I element of the proposed project would occur.

The buildings specified in the proposed project would be reused, replaced, or removed as part of this alternative and there would be campus-wide (Tier II) development associated with this alternative.

4.4.4 Comparative Impacts

Aesthetics

Tier I

Like Tier I of the proposed project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to aesthetics. Under the Public Transportation Focused Alternative, all of the changes proposed under the Tier I would take place and this alternative would increase nighttime light and glare above the existing levels and is therefore considered to have similar aesthetic impacts to the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to aesthetics with the Public Transportation Focused Alternative it is expected that implementation of measures Aesthetics-1 specified for the proposed project would be required.

Tier II

Like Tier II of the proposed project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to aesthetics. Under the Public Transportation Focused Alternative, all of the changes proposed under Tier II would take place (introduction of cohesive architectural design elements, improved medical facilities, retail, etc.) and the visual appearance of the project site would change as described in the proposed project. As with the proposed project, this alternative would have no impacts on scenic highways; however, it would potentially result in shade and shadows because it would introduce buildings at the proposed project site. This alternative would increase nighttime light and glare above the existing levels and is therefore considered to have aesthetic impacts similar to the proposed project. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to aesthetics with the Public Transportation Focused Alternative it is expected that implementation of measures Aesthetics-1 through Aesthetics-4 specified for the proposed project would be required.

Air Quality

Tier I

Like the proposed project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Public Transportation Focused Alternative would require comparable construction and vehicle trips to the proposed project, the Public Transportation Focused Alternative is considered to have similar impacts to air quality compared with the proposed project. As with the proposed project, the Public Transportation Focused Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with the proposed project, this alternative would entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, and asphalt operations beyond the baseline conditions. The Public Transportation Focused Alternative would require grading or the use of construction equipment and mobile or stationary facilities, thus resulting in potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. As with the proposed project, the Public Transportation Focused Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. As with the proposed project, the Public Transportation Focused Alternative would result in potentially significant impacts to air quality that would result from emissions from construction equipment. However, unlike the proposed project, the Public Transportation Focused Alternative would result in a net decrease in vehicle trips compared with baseline conditions. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Public Transportation Focused Alternative it is expected that implementation of measures Air-1 through Air-9 specified for the proposed project would not be required.

Tier II

Like the proposed project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Public Transportation Focused Alternative would require comparable construction and vehicle trips to the proposed project, the Public Transportation Focused Alternative is considered to have similar impacts to air quality compared with the proposed project. As with the proposed project, the Public Transportation Focused Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with the proposed project, this alternative would entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, and asphalt operations beyond the baseline conditions. The Public Transportation Focused Alternative would require grading or the use of construction equipment and mobile or stationary facilities, thus resulting in potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. As with the proposed project, the Public Transportation Focused Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. As with the proposed project, the Public Transportation Focused Alternative would result in potentially significant impacts to air quality that would result from emissions from construction equipment. However, unlike the proposed project, the Public Transportation Focused Alternative would result in a net decrease in vehicle trips compared with baseline conditions. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Public Transportation Focused Alternative it is expected that implementation of measures Air-1 through Air-9 specified for the proposed project would not be required.

Cultural Resources

Tier I

Like Tier I of the proposed project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to cultural resources. This alternative would result in construction-related and redevelopment impacts to cultural resources that would also occur as a result of the proposed project. Like the proposed project, this alternative would entail ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would have the potential to occur. Under this alternative, the construction-related activities would result the potential to encounter paleontological resources, archeological resources, and human remains. Additionally, the buildings that were identified as being replaced, reused, or removed in the proposed project would be vacated as with Tier I of the proposed project, resulting in similar impacts to historical resources as the proposed project. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to cultural resources with the Public Transportation Focused Alternative it is expected that implementation of Measures Cultural-1 through Cultural-5 specified for the proposed project would be required.

Tier II

Like Tier II of the proposed project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to cultural resources. This alternative would result in construction-related and redevelopment impacts to cultural resources that would also occur as a result of the proposed project. Like the proposed project, this alternative would entail ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would have the potential to occur. Under this alternative, the construction-related activities would result the potential to encounter paleontological resources, archeological resources, and human remains. Additionally, the buildings that were identified as being replaced, reused, or removed in the proposed project would be reused, replaced, or removed as with Tier II of the proposed project, resulting in similar impacts to historical resources as the proposed project. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to cultural resources with the Public Transportation Focused Alternative it is expected that implementation of measures Cultural-1 through Cultural-5 specified for the proposed project would be required.

Geology and Soils

Tier I

Like Tier I of the proposed project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to geology and soils. This alternative would potentially have impacts to geology and soils that are comparable to those that could result from the implementation of Tier I of the proposed project. Geology and soils related impacts would include short- and long-term construction and operation impacts that would occur as a result of the proposed project. Like the proposed project, this alternative would entail grading (excavation and fill), and construction of new structures and implementation of the mitigation measures would be required. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to geology and soils with the Public Transportation Focused Alternative it is expected that implementation of measures Geology-1 through Geology-3 specified for Tier I of the proposed project would be required.

Tier II

Like Tier II of the proposed project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to geology and soils. This alternative would potentially have impacts to geology and soils that are comparable to those that could result from the implementation of Tier II of the proposed project. Geology and soils–related impacts would include short- and long-term construction and operation impacts that would occur as a result of the proposed project. Like the proposed project, this alternative would entail grading (excavation and fill), and construction of new structures and implementation of the mitigation measures would be required. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to geology and soils with the Public Transportation Focused Alternative it is expected that implementation of measures Geology-1 through Geology-3 specified for Tier II of the proposed project would be required.

Greenhouse Gas Emissions

Tier I

Like Tier I of the proposed project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to greenhouse gas emissions. Due to the fact that the Public Transportation Focused Alternative would require construction, electricity consumption, and vehicle trips similar to the proposed project, the Public Transportation Focused Alternative is considered to have impacts to GHG emissions that are comparable to the proposed project. This alternative would entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, and electricity consumption beyond the baseline conditions. As with the proposed project, the Public Transportation Focused Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. As with the proposed project, the Public Transportation Focused Alternative would result in potentially significant impacts to GHG emissions that would result from emissions from construction equipment. Since there would be potential construction impacts to GHG emissions with the Public Transportation Focused Alternative, it is anticipated that implementation of Measure GHG-1 would be required. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. However, unlike the proposed project, the Public Transportation Focused Alternative would result in a net decrease in vehicle trips compared with baseline conditions. Therefore, operational impacts of the Public Transportation Focused Alternative would be anticipated to be below the level of significance.

Tier II

Like Tier II of the proposed project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to greenhouse gas emissions. Due to the fact that the Public Transportation Focused Alternative would require construction, electricity consumption, and vehicle trips similar to the proposed project, the Public Transportation Focused Alternative is considered to have impacts to GHG emissions that are comparable to the proposed project. This alternative would entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, and electricity consumption beyond the baseline conditions. As with the proposed project, the Public Transportation Focused Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. As with the proposed project, the Public Transportation Focused Alternative would result in potentially significant impacts to GHG emissions that would result from emissions from construction equipment. Since there would be potential construction impacts to GHG emissions with the Public Transportation Focused Alternative, it is anticipated that implementation of Measure GHG-1 would be required. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. However, unlike the proposed project, the Public Transportation Focused Alternative would result in a net decrease in vehicle trips compared with baseline conditions. Therefore, operational impacts of the Public Transportation Focused Alternative would be anticipated to be below the level of significance.

Hazards and Hazardous Materials

Tier I

Like Tier I of the proposed project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hazards and hazardous materials. This alternative would have comparable impacts to hazards and hazardous materials than what would result from the implementation of the proposed project. Like the proposed project, this alternative could potentially entail construction and operational elements that might result in impacts related to hazards and hazardous materials; the implementation of the mitigation measures would potentially be required. Potential operational impacts from hazards or hazardous materials would be expected to occur. This alternative would result in impacts from hazards and hazardous materials. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hazards and hazardous materials with the Public Transportation Focused Alternative it is expected that implementation of measures Hazards-1 through Hazards-5 specified for the proposed project would be required.

Tier II

Like Tier II of the proposed project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hazards and hazardous materials. This alternative would have comparable impacts to hazards and hazardous materials than what would result from the implementation of the proposed project. Like the proposed project, this alternative could potentially entail construction and operational elements that might result in impacts related to hazards and hazardous materials; the implementation of the mitigation measures would potentially be required. Potential operational impacts from hazards or hazardous materials would be expected to occur. This alternative would result in impacts from hazards and hazardous materials. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hazards and hazardous materials with the Public Transportation Focused Alternative it is expected that implementation of measures Hazards-1 through Hazards-5 specified for the proposed project would be required.

Hydrology and Water Quality

Tier I

Like Tier I of the proposed project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hydrology and water quality. The Public Transportation Focused Alternative would require construction that is comparable to the proposed project and would therefore result in potential impacts to hydrology and water quality that could result from the implementation of the proposed project. Because Tier I components would be constructed, the potential impact to surface water quality from erosion and runoff into storm drain systems would be comparable to the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the Public Transportation Focused Alternative it is expected that implementation of Measures Hydrology-1 through Hydrology-3, and Hazards-1 specified for the proposed project would be required.

Tier II

Like Tier II of the proposed project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hydrology and water quality. The Public Transportation Focused Alternative would require construction that is comparable to the proposed project and would therefore result in potential impacts to hydrology and water quality that could result from the implementation of the proposed project. Because Tier II components would be constructed, the potential impact to surface water quality from erosion and runoff into storm drain systems would be comparable to the proposed project. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the Public Transportation Focused Alternative it is expected that implementation of measures Hydrology-1 through Hydrology-4, and Hazards-1 specified for the proposed project would be required.

Noise

Tier I

Like Tier I of the proposed project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to noise. Construction related noise impacts that would be comparable to the proposed project. This alternative would have significant noise related impacts that would result from construction related activities. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to noise with the Public Transportation Focused Alternative it is expected that implementation of Measures Noise-1 through Noise-4 specified for the proposed project would be required.

Tier II

Like Tier II of the proposed project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to noise. Construction related noise impacts that would be comparable to the proposed project. This alternative would have significant noise related impacts that would result from construction related activities. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to noise with the Public Transportation Focused Alternative it is expected that implementation of measures Noise-1 through Noise-4 specified for the proposed project would be required.

Population and Housing

Tier I

Like Tier I of the proposed project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to population and housing. Like Tier I of the proposed project this alternative would not contribute to or result in population growth beyond the planned growth for the area and as such would not result in impacts related to population and housing. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, there would be no impacts to population and housing with the Public Transportation Focused Alternative, and no mitigation measures would be required.

Tier II

Like Tier II of the proposed project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to population and housing. As with the proposed project, residential units would be constructed. Like Tier II of the proposed project this alternative would not contribute to or result in population growth beyond the planned growth for the area and as such would not result in impacts related to population and housing. This alternative would contribute to regional housing and employment goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, there would be no impacts to population and housing with the Public Transportation Focused Alternative, and no mitigation measures would be required.

Public Services

Tier I

Like Tier I of the proposed project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts public services. Like the proposed project, the Public Transportation Focused Alternative would not result in impacts to public services. This alternative would include the development of Tier I. As with the proposed project, the Public Transportation Focused Alternative would not result in significant impacts to public services. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, there would be no impacts to public services with the Public Transportation Focused Alternative, and no mitigation measures would be required.

Tier II

Like Tier II of the proposed project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts public services. Like the proposed project, the Public Transportation Focused Alternative would not result in impacts to public services. This alternative would include the development of Tier II. Tier II requires the development of residential units. Therefore, the residential units would be included in this alternative. However, as with the proposed project, the Public Transportation Focused Alternative would not result in significant impacts to public services. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, there would be no impacts to public services with the Public Transportation Focused Alternative, and no mitigation measures would be required.

Recreation

Tier I

Like Tier I of the proposed project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to recreation. Under the Public Transportation Focused Alternative, Tier I building components would be constructed but they would not contribute to or result in significant impacts. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. This alternative would be comparable to the proposed project. As with the proposed project, there would be no impacts to recreation with the Public Transportation Focused Alternative, and no mitigation measures would be required.

Tier II

Like Tier II of the proposed project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to recreation. Under the Public Transportation Focused Alternative, Tier II building and development components would be constructed but they would not contribute to or result in significant impacts. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. This alternative would be comparable to the proposed project. As with the proposed project, there would be no impacts to recreation with the Public Transportation Focused Alternative, and no mitigation measures would be required.

Transportation and Traffic

Tier I

Unlike the proposed project, the Public Transportation Focused Alternative would not have the potential to result in impacts to transportation and traffic. As proposed, the Public Transportation Focused Alternative would add additional routes and shuttles to the existing network utilize / purchase an off-site lot to transfer patients / visitors, and increase subsidies for visitors using public transportation. As with the proposed project, the Public Transportation Focused Alternative would involve some construction, operation, and maintenance activities beyond the baseline conditions. However, all the structures proposed under the proposed project would be built. Due to the fact that the Public Transportation Focused Alternative would offset the transportation related impacts, this alternative would result in significantly less vehicle trips than the proposed project, thus, the Public Transportation Focused Alternative is considered to have fewer impacts to traffic and transportation compared with the proposed project; however, construction-related impacts associated with Tier I of the proposed project would still occur. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to transportation and traffic with the Public Transportation Focused Alternative it is expected that implementation of measures Traffic-1 through Traffic-3 specified for the proposed project would not be required.

Tier II

Unlike the proposed project, the Public Transportation Focused Alternative would not have the potential to result in impacts to transportation and traffic. As proposed, the Public Transportation Focused Alternative would add additional routes and shuttles to the existing network utilize / purchase an off-site lot to transfer patients / visitors, and increase subsidies for visitors using public transportation. As with the proposed project, the Public Transportation Focused Alternative would involve some construction, operation, and maintenance activities beyond the baseline conditions. However, all the structures proposed under the proposed project would be built. Due to the fact that the Public Transportation Focused Alternative would offset the transportation related impacts, this alternative would result in significantly less vehicle trips than the proposed project, thus, the Public Transportation Focused Alternative is considered to have fewer impacts to traffic and transportation compared with the proposed project.

Under this alternative, the proposed project (Tiers I and II combined) would have a total net trip generation of 17,709 daily trips of which 1,116 trips would occur during the morning peak hour and 1,578 trips during the evening peak hour. This represents 10% less daily, morning, and evening peak hour trips than the proposed project.

Similar to Tier II of the proposed project, this alternative would have the potential to result in significant traffic impacts. However, there would be up to 10% less in trip generation, than the proposed project. No significant differences in travel patterns outside the project area would be expected between this alternative and the proposed project. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to transportation and traffic with the Public Transportation Focused Alternative it is expected that implementation of measures Traffic-1 through Traffic-3 specified for the proposed project would not be required.

Utilities and Service Systems

Tier I

Like Tier I of the proposed project, the Public Transportation Focused Alternative would not be expected to result in impacts to utilities and service systems. Under this alternative scenario, the components of Tier I would be constructed as discussed in the Section 3.13. The Public Transportation Focused Alternative results in impacts on utilities and service systems that are similar to the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively significant impacts. As with Tier I of the proposed project, it is anticipated that no mitigation measures would be required.

Tier II

Like Tier II of the proposed project, the Public Transportation Focused Alternative would be expected to result in impacts to utilities and service systems. Under this alternative scenario, the components of Tier II would be constructed (i.e., residential, commercial, medical space, etc.), therefore, there would be a potentially significant increase in the demand on water supply, wastewater treatment, solid waste, or other utilities within the project area and would occur. The Public Transportation Focused Alternative results in impacts on utilities and service systems that are similar to the proposed project. Like Tier II of the proposed project, this alternative would not result in cumulatively significant impacts. However, since there would be potential impacts to utilities and service systems with the Public Transportation Focused Alternative it is expected that implementation of measures Utilities-1 through Utilities-2 specified for the proposed project would not be required.

4.5 ALTERNATIVE 4: 500 BEDS (IN TIER I) ALTERNATIVE

4.5.1 Alternative Components

Alternative 4, the 500 Beds (in Tier I) Alternative, would entail the development and operation of a 500-bed hospital. This alternative would be located on the existing campus. The focus of this alternative would be ensuring that there is a combination of up to 500-bed facility and limited outpatient services on the campus. Tier I would consist of the development of a 500 bed hospital that would occupy the existing MACC. The existing MACC would provide up to 500 inpatient beds along with the inpatient services that were previously provided at the hospital. However, in order to provide inpatient services, the existing MACC would require significant seismic improvements in January 2013 for compliance with OSHPD requirements.

Similar to Alternative 2, Re-opening the existing MACC Alternative, this alternative would place a limited amount of the former outpatient and inpatient (i.e. the trauma center, emergency services, and up to 500 beds) functions of the MACC building into the existing MACC building. The existing MACC would not incorporate sustainable design elements. The new MACC and Ancillary buildings would not be constructed and the related tenant and site improvements as described in Section 2.0 of this EIR, would not be completed. This alternative would entail some structural and tenant refinements to the existing MACC. The focus of this alternative would be to obtain the licensing, funding, and adequate operational requirements (including but not limited to staff, supplies, etc.) to re-open the existing MACC.

Under this alternative, neither Tier I nor Tier II of the proposed project would be constructed. It is anticipated that no LEED, sustainable design, community-based, comprehensive, or mixed use development as described in Tier I and Tier II of the proposed project would occur. There would be no new development.

4.5.2 Objectives and Feasibility

As shown in Table 4-1, Alternative 4, 500 Beds (in Tier I) Alternative would be capable of meeting one of the objectives identified by the County. This alternative would meet objective 6 to maintain the existing 2,100-square-foot Genesis Clinic; 2,580-square-foot Oasis Clinic (old); 1,850-square-foot Oasis Clinic (new); 10,950-square-foot Registration Building; 226,818-square-foot Augustus F. Hawkins Comprehensive Mental Health Center; 187,676-square-foot Inpatient Tower; 7,878-square-foot Pediatric Acute Care; 26,355-square-foot Medical Records and Laundry; 24,103-square-foot Central Plant; 15,648-square-foot Plant Management; 52,276-square-foot North Support Building; 34,762-square-foot South Support Building; 124,391-square-foot Interns and Physicians Building; 3,922-square-foot Claude Hudson Auditorium; 1,100-square-foot MRI Building; and 12,265-square-foot Hub Clinic Building.

However, this alternative would not meet any of the other County alternatives. The costs seismic upgrades, inpatient improvements, and operational requirements associated with opening a 500 bed hospital without addressing the efficiency concerns and other issues at the existing MACC that would be evaluated through a campus-wide plan would make this alternative infeasible.

4.5.3 Construction Scenario

Under Alternative 4, extensive construction-related improvements would occur. It is anticipated that there would be a significant amount of construction that would occur for the seismic improvements that would be required to provide inpatient services. The costs that would associated with these tasks and the improvements to the existing MACC would be significant.

4.5.4 Comparative Impacts

Aesthetics

Tier I

Like Tier I of the proposed project, the 500 Beds (in Tier I) Alternative would have the potential to result in impacts to aesthetics. This alternative would introduce additional uses at the project site; however, none of the Tier I or Tier II components would be constructed. Given that the proposed 500 Beds Alternative would occur the former MACC building, impacts to visual resources would be similar to the No Project Alternative. Therefore, this alternative would not have effects on scenic vistas, would result in fewer shadow impacts, and would have fewer impacts related to nighttime light and glare than the proposed project even though it would increase nighttime light and glare above the existing levels (reuse of the former MACC building). The 500 Beds Alternative would have fewer impacts on aesthetics than the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. However, since there would be potential impacts to aesthetics with the 500 Beds Alternative it is expected that implementation of measure Aesthetics-1 specified for the proposed project would be required.

Tier II

Like Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would have the potential to result in significant impacts to aesthetics. Under the 500 Beds (in Tier I) Alternative, potential aesthetic changes relating to the replacement of existing site features would not occur. This alternative would not result in the more intensive development or the increase in nighttime lighting from vehicles, buildings, landscape features, and signage associated with commercial uses under the proposed project. As a result, the project site would continue in its existing form with its visual and aesthetic character unchanged. Even though the aesthetic changes resulting from the proposed project would not be considered significant impacts, the 500 Beds (in Tier I) Alternative's impacts to aesthetics would be less because no change, such as increased nighttime lighting, would occur. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. However, since there would be impacts to aesthetics with the 500 Beds (in Tier I) Alternative, implementation of measures Aesthetics-1 through Aesthetics-4 specified for Tier II of the proposed project would be required.

Air Quality

Tier I

Unlike the proposed project, the 500 Bed Alternative would not have the potential to result in impacts to air quality. Due to the fact that the 500 Beds Alternative would require less construction and less vehicle trips than the proposed project, the 500 Beds Alternative is considered to have lesser impacts to air quality compared with the proposed project. Unlike the proposed project, the 500 Beds Alternative would require only limited construction and site improvement activities. Unlike the proposed project, this alternative would not entail demolition of existing structures or grading activities beyond the baseline conditions. The 500 Beds Alternative would require the use of a limited number of construction equipment and would generate vehicle trips, thus resulting in potentially significant impacts to air quality, particularly with regard to NO_x emissions. As with the proposed project, the 500 Beds Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. However, due to the fact that no grading, excavation, or major construction activities would occur, it is anticipated that implementation of mitigation measures would not be required. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to air quality with the 500 Beds Alternative it is expected that implementation of measures Air-1 through Air-9 specified for the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to ambient air quality. The 500 Beds (in Tier I) Alternative would not involve as considerable an amount of construction activities beyond the baseline conditions. Unlike the proposed project, this alternative would not entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, or asphalt operations beyond the baseline conditions. The 500 Beds (in Tier I) Alternative would not require grading or the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of volatile organic compounds (VOCs). The 500 Beds (in Tier I) Alternative would not have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors. Implementation of Tier II the proposed project would be expected to result in cumulative construction-related impacts and impacts during operation that would remain above the level of significance with the incorporation of mitigation measures. Unlike Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would avoid potential significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the proposed project site by employees and visitors. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to ambient air quality with the 500 Beds (in Tier I) Alternative, implementation of measures Air-1 through Air-9 would not be required.

Cultural Resources

Tier I

Unlike the proposed project, the 500 Bed Alternative would not have the potential to result in impacts to cultural resources. The 500 Beds (in Tier I) Alternative would lessen potential impacts to cultural resources that could result from the implementation of the proposed project. Unlike the proposed project, this alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of historical resources would not occur. As a result, the project site would continue in its existing form with its cultural resources largely unchanged. Structural and tenant refinements related to the incorporation of a 500-bed hospital within the existing MACC, a historical resource, would require review for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to cultural resources with the 500 Beds Alternative it is expected that implementation of measures Cultural-1 through Cultural-5 specified for the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to cultural resources. The 500 Beds (in Tier I) Alternative would avoid the construction-related and redevelopment impacts to cultural resources that would occur as a result of the proposed project. Unlike Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would not occur. As a result, the project site would continue in its existing form with its cultural resources unchanged. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to cultural resources with the 500 Beds (in Tier I) Alternative, implementation of measures Cultural-1 through Cultural-5 specified for Tier II of the proposed project would not be required.

Geology and Soils

Tier I

Unlike the proposed project, the 500 Bed Alternative would not have the potential to result in impacts to geology and soils. This alternative avoids potential impacts to geology and soils that could result from the implementation of the proposed project. Unlike the proposed project, this alternative would entail no grading (excavation and fill), modification of or construction of new structures although the existing MACC would require significant seismic improvements and modification and implementation of the mitigation measures would be required. However, the anticipated seismic improvements that would be required under this alternative would be considerable and would require different mitigation than that proposed for the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Although the implementation of measures Geology-1 through Geology-3 specified for Tier I of the proposed project would not be required, other mitigation measure would be required for this alternative.

Tier II

Unlike Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to geology and soils. The 500 Beds (in Tier I) Alternative avoids potential impacts to geology and soils that could result from the implementation of the proposed project. This alternative would avoid short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier II of the proposed project, this alternative would entail no grading (excavation and fill), modification of or construction of new structures although the existing MACC would require significant seismic improvements and modification and implementation of the mitigation measures would be required. However, the anticipated seismic improvements that would be required under this alternative would be considerable and would require different mitigation than that proposed for the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Although the implementation of measures Geology-1 through Geology-3 specified for Tier II of the proposed project would not be required, other mitigation measure would be required for this alternative.

Greenhouse Gas Emissions

Tier I

Unlike the proposed project, the 500 Bed Alternative would not have the potential to result in impacts to greenhouse gas emissions. Due to the fact that the 500 Beds (in Tier I) Alternative would require less construction, less electricity consumption, and less vehicle trips than the proposed project, the 500 Beds Alternative is considered to have lesser impacts to GHG emissions compared with the proposed project. Unlike the proposed project, the 500 Beds Alternative would require only limited construction and site improvement activities. Unlike the proposed project, this alternative would not entail demolition of existing structures or major construction activities beyond the baseline conditions. The 500 Beds Alternative would require the use of a limited number of construction equipment, would generate vehicle trips, and would require electricity consumption, thus resulting in potentially significant impacts to GHG emissions. As with the proposed project, the 500 Beds Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Since there would be no construction of new buildings associated with the 500 Beds (in Tier I) Alternative, it is anticipated that implementation of mitigation measures would not be required. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to greenhouse gas emissions with the 500 Beds Alternative it is expected that implementation of measure GHG-1 specified for the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to GHG emissions. The 500 Beds (in Tier I) Alternative would involve construction, operation, improvements and maintenance activities to the existing MACC beyond the baseline conditions although this development would not be as significant as with Tier II of the proposed project. Unlike Tier II of the proposed project, this alternative would not entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, or electricity consumption beyond the baseline conditions. The 500 Beds (in Tier I) Alternative would not require the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to GHG emissions. Unlike Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would not have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Potential GHG emission impacts associated with construction and operation of Tier II would remain as significant and unavoidable even with the incorporation of mitigation measures. Unlike Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would avoid potential significant impacts to GHG emissions that would result from emissions from construction equipment, electricity consumption, and the anticipated increase in vehicle miles traveled to the proposed project site by employees and visitors. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to GHG emissions with the 500 Beds (in Tier I) Alternative, implementation of measure GHG-1 would not be required.

Hazards and Hazardous Materials

Tier I

Unlike the proposed project, this alternative would not have the potential to result in impacts to hazards and hazardous materials. This alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the proposed project. Unlike the proposed project, this alternative would entail no grading (excavation and fill) or the construction of new structures. However, this alternative would entail modification of the existing MACC building that might result in impacts related to hazards and hazardous materials. The implementation of the mitigation measures identified in Section 3.6 would be required. Potential operational impacts from hazards or hazardous materials would likely occur. This alternative would not result in short- or long-term impacts from hazards and hazardous materials that would be comparable to the impacts associated with the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to hazards and hazardous materials with the 500 Beds Alternative it is expected that implementation of measures Hazards-1 through Hazards-5 specified for the proposed project would be required.

Tier II

Unlike Tier II of the proposed project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The 500 Beds (in Tier I) Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the proposed project. Unlike Tier I of the proposed project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6 would not be required. Potential operational impacts from hazards or hazardous materials would not occur. The 500 Beds (in Tier I) Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hazards and hazardous materials with the 500 Beds (in Tier I) Alternative, implementation of measures Hazards-1 through Hazards-5 specified for Tier I of the proposed project would not be required.

Hydrology and Water Quality

Tier I

Like the proposed project, this alternative would have the potential to result in impacts to hydrology and water quality. Because there are no grading or fill activities, the implementation of the mitigation measures identified in Section 3.7 to reduce impacts from pollution entering the storm drain system would not be required. However, under the proposed project, the new MACC building would be an efficient and sustainable building, however this alternative would not include development of the sustainable or efficient elements that would reduce runoff and potential water quality related impacts. The existing MACC as it currently operates is inefficient. Like the proposed project, this alternative would require the implementation of mitigation measures; however, efforts to re-open and expand the existing MACC would be expected to result in impacts to hydrology and water quality that would be greater than the proposed project. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the 500 Beds Alternative it is expected that implementation of measures Hydrology-1 through Hydrology-4, specified for the proposed project would be required. However, it is anticipated that Hazards-1 specified for Tier II of the proposed project would not be required.

Tier II

Like Tier II of the proposed project, Tier II of the 500 Beds (in Tier I) Alternative would have the potential to result in significant impacts to hydrology and water quality. The 500 Beds (in Tier I) Alternative avoids impacts to hydrology and water quality that could result from the implementation of the proposed project. Section 3.7, Hydrology and Water Quality, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would entail no conversion of vacant land including grading, paving, and construction; however, the existing MACC is inefficient and seismic improvements to this structure would not improve the efficiency or reduce the water use of this building, nor would the improvements entail LEED or energy efficient elements and implementation of the mitigation measures would be required. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be impacts to hydrology and water quality with the 500 Beds (in Tier I) Alternative, implementation of measures Hydrology-1 through Hydrology-4 specified for Tier II of the proposed project would be required. However, it is anticipated that Hazards-1 specified for Tier II of the proposed project would not be required.

Noise

Tier I

Unlike the proposed project, the 500 Beds Alternative would not have the potential to result in significant impacts to noise. Under this alternative, the construction related noise impacts would not occur. Both Tier I and Tier II related noise impacts would be avoided. Unlike the proposed project, this alternative would not be expected to result in noise related construction impacts. As such, this alternative would be expected to result in fewer impacts associated with construction related noise impacts than with the proposed project. Unlike Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to noise with the 500 Beds Alternative it is expected that implementation of measures Noise-1 through Noise-4 specified for the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to noise. The 500 Beds (in Tier I) Alternative would not entail for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Section 3.8 of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would not result in impacts related to noise and no mitigation measures would be required. The 500 Beds (in Tier I) Alternative would not result in short- or long-term impacts to noise. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to noise with the 500 Beds (in Tier I) Alternative, implementation of measures Noise-1 through Noise-4 specified for Tier II the proposed project would not be required.

Population and Housing

Tier I

Like the proposed project, the 500 Beds Alternative would not have the potential to result in significant impacts to population and housing. Like the proposed project, this alternative would not be expected to result in impacts related to population and housing. Unlike the proposed project, his alternative would not include Tier I or Tier II elements and would not include housing. This alternative it would not contribute to regional housing and employment goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, there would be no impacts to population and housing with the 500 Beds Alternative, and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to population and housing. The 500 Beds (in Tier I) Alternative would not assist in meeting regional housing and employment goals. Under the 500 Beds (in Tier I) Alternative, potential changes related to population and housing would not occur. This alternative would not result in any residential development or more intensive development associated with the medical, commercial or retail uses under the proposed project. Even though potential impacts resulting from Tier II of the proposed project would not be considered significant, the 500 Beds (in Tier I) Alternative's impacts to population and housing would be less than the proposed project because no change, such as the 100-unit residential component, would be implemented. However, the 500 Beds (in Tier I) Alternative would not contribute to the regional housing goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to population and housing with the 500 Beds (in Tier I) Alternative, and no mitigation measures would be required.

Public Services

Tier I

Like the proposed project, the 500 Beds Alternative would not have the potential to result in significant impacts to public services. As with the proposed project, the 500 Beds Alternative would not result in impacts related to public services. This alternative would not require the development of residential units. Unlike the proposed project, under this alternative, there would be no Tier I or Tier II development. There would not be an increase in the need for additional fire protection, police protection, parks, schools, and other public services, like the proposed project. This alternative, however, would not contribute to regional housing and employment goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). However, like the proposed project, this alternative would not be expected to result in significant impacts related to public services. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, there would be no impacts to public services with the 500 Beds Alternative, and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to public services. The 500 Beds (in Tier I) Alternative would not result in the need for additional fire protection, police protection, schools, parks, and other public services. Section 3.10, Public Services, of this EIR provides a discussion of the potential impact to public services related to Tier II of the proposed project. Like Tier II of the proposed project, the 500 Beds (in Tier I) Alternative would not create a significant net increase in public services and would require the implementation of the mitigation measures. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to public services with the 500 Beds (in Tier I) Alternative, and no mitigation measures would be required.

Recreation

Tier I

Like the proposed project, the 500 Beds Alternative would not have the potential to result in significant impacts to recreation. Under the 500 Beds Alternative, the Tier I and Tier II building components would not be constructed. The 500 Beds Alternative would result in no residential units built. Like the proposed project, this alternative would not be expected to result in impacts related to recreation. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, there would be no impacts to recreation with the 500 Beds Alternative, and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to recreation. The 500 Beds (in Tier I) Alternative would not result in impacts to parks and recreational facilities. The 500 Beds (in Tier I) Alternative would also not create an additional demand for the County's parks. Tier II of the proposed project would not result in significant impacts to existing parks or recreational facilities given the limited number of residential units proposed under Tier II and the availability and location of existing recreational facilities. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to recreation with the 500 Beds (in Tier I) Alternative, and no mitigation measures would be required.

Transportation and Traffic

Tier I

Unlike the proposed project, the 500 Bed Alternative would not have the potential to result in significant impacts to transportation and traffic. The 500 Beds Alternative would result in a smaller development scenario than that proposed development components under Tier I and Tier II of the proposed project. The total development under this alternative would be significantly less than that of the proposed project and would generate a substantial amount less of traffic trip generation given the reduced developed. This alternative would contain no new development and therefore would not generate any new trips. This alternative would generate fewer trips than the existing baseline conditions. The existing baseline trip generation includes both operational and non-operational existing uses, which includes the existing MACC building. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to transportation and traffic with the 500 Beds Alternative it is expected that implementation of measures Traffic-1 through Traffic-3 specified for the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to transportation and traffic. The 500 Beds (in Tier I) Alternative avoids potential impacts to transportation and traffic that could result from the implementation of Tier II of the proposed project. The 500 Beds (in Tier I) Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the proposed project. Unlike the Tier II of proposed project, this alternative would create no additional transportation or circulation components and implementation of the mitigation measures would not be required. This alternative would contain no new development and therefore, would not generate any new trips. This alternative would generate fewer trips than the existing baseline conditions. The existing baseline trip generation includes both operational and non-operational existing uses, which includes the existing MACC building. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to transportation and traffic with the 500 Beds (in Tier I) Alternative, implementation of measures Traffic-1 through Traffic-3 specified for Tier II of the proposed project would not be required.

Utilities and Service Systems

Tier I

Unlike Tier I of the proposed project, the 500 Beds Alternative would have the potential to result in significant impacts to utilities and service systems. The 500 Beds Alternative would result in greater impacts than the existing conditions and Tier I of the proposed project. The total development under this alternative would be greater than that of Tier I of the proposed project; therefore, this alternative would result in greater demand on water supply, wastewater treatment facilities, landfills and recycling requirements. Unlike Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to utilities and service systems with the 500 Beds Alternative it is expected that implementation mitigation measures would be required.

Tier II

Like Tier II of the proposed project, Tier II of the 500 Beds (in Tier I) Alternative would have the potential to result in significant impacts to utilities and service systems. The 500 Beds (in Tier I) Alternative avoids potential impacts to utilities and service systems that could result from the implementation of Tier II of the proposed project; however, the existing MACC is inefficient and seismic improvements to this structure would not improve the efficiency of this building, nor would the improvements entail LEED or energy-efficient elements. Although, the alternative would not entail the elements that are proposed in Tier II of the proposed project (i.e., no residential, retail, commercial uses, etc); this alternative would result in an increase in use to accommodate 500 inpatient beds as well as significant impacts to utilities and services due to the continued use of an inefficient building. As such, the 500 Beds (in Tier I) Alternative would be expected to result in the short- and long-term construction and operation impacts. Unlike the proposed project, this alternative would entail no additional construction of buildings and would not require additional use of existing infrastructure (i.e., sewer, water, etc.). With the 500 Beds (in Tier I) Alternative, mitigation measures would be required. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be impacts to utilities and service systems with the 500 Beds (in Tier I) Alternative, implementation of mitigation measures including measures Utilities-1 through Utilitites-2 specified for Tier II of the proposed project would be required.

4.6 ALTERNATIVE 5: NO TIER II ALTERNATIVE

4.6.1 Alternative Components

Alternative 5, the No Tier II Alternative, would entail the development of Tier I of the proposed project as identified in Section 2.0 of this EIR. Alternative 5 would be located on the existing campus. This alternative would focus on the development of two new buildings (the new MACC and the Ancillary Building) tenant improvements in existing buildings, site improvements, and potential relocation of the MRI Building on the tech dock behind the new MACC.

This alternative would not entail the campus-wide Master Plan development described in Tier II of the proposed project. There would not be any future mixed-use campus support development that would provide additional health services necessary to address the needs of the community. In addition, this alternative would not include the potential to build-out approximately 1,814,696 square feet of development on the proposed project site with mixed uses including medical office, commercial, retail, office space, recreation, residential units, and other development in support of the campus. Also, the existing MACC building, Emergency Room, Storage Building, and Cooling Towers would be vacated but would not be reused, replaced, or removed as a part of this alternative.

Under this alternative, it is anticipated that no community-based, comprehensive, or mixed-use development as described in Tier II Master Plan development of the proposed project would occur. There would be no Tier II development.

4.5.2 Objectives and Feasibility

As shown in Table 4-1, Alternative 5, No Tier II Alternative would be capable of meeting all Tier I objectives identified by the County, but would not meet any of the Tier II objectives. The costs and operational requirements associated with Alternative 5 are feasible as they are within the scope of the County's current plans for the hospital campus. Alternative 5 would not meet the campus-wide objectives, and the improvements and development would occur but the shifts would make this alternative infeasible.

4.5.3 Construction Scenario

Under Alternative 5, the construction scenario for Tier I would occur as described in Section 2.0 of this EIR. The impacts associated with Tier I of the proposed project would be anticipated to occur under this alternative.

4.5.4 Comparative Impacts

Aesthetics

Tier I

Like Tier I of the proposed project, the No Tier II Alternative would have the potential to result in impacts to aesthetics. This alternative would introduce additional uses at the proposed project site through the construction of the Tier I component. The impacts to visual resources would be comparable to those discussed for Tier I in Section 3.1, Aesthetic Resources, of this EIR. Even though the No Tier II Alternative would increase nighttime light and glare above the existing levels by creating new sources of light and glare, the alternative would affect scenic vistas, would result in fewer shadow impacts, and would have fewer impacts related to nighttime light and glare than the proposed project would have. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. The No Tier II Alternative would have fewer impacts to aesthetics than the proposed project would have. Measure Aesthetics-1 specified for Tier I of the proposed project would be required.

Tier II

Unlike Tier II of the proposed project, the No Tier II Alternative would not result in impacts to aesthetics. Tier II of the proposed project would not be implemented. Therefore, the No Tier II Alternative would avoid the impacts associated with Tier II of the proposed project. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be not be potential for Tier II impacts to aesthetics with this alternative, no mitigation specified for Tier II of the proposed project would be required.

Air Quality

Tier I

Like Tier I of the proposed project, the No Tier II Alternative would have the potential to result in impacts to air quality. As with the proposed project, the No Tier II Alternative would require the use of a limited number of construction equipment and would generate vehicle trips, thus resulting in potentially significant impacts to air quality, particularly with regard to NO_x emissions. As with the proposed project, the No Tier II Alternative would have the potential to conflict with the Air Quality Management Plan, violate existing air quality standards, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. The grading, excavation, and construction activities would be reduced. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Tier I impacts and mitigation measures as described in Section 3.2, *Air Quality*, of this EIR would be comparable to mitigation measures for the proposed project. Measures Air-1 through Air-9 specified for Tier I of the proposed project would be required.

Tier II

Unlike Tier II of the proposed project, the No Tier II Alternative would not have the potential to result in significant impacts to ambient air quality. The No Tier II Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike the proposed project, this alternative would not entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, or asphalt operations beyond the baseline conditions. The No Tier II Alternative would not require grading or the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. The No Tier II Alternative would not have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors. Implementation of Tier II the proposed project would be expected to result in cumulative construction-related impacts and impacts during operation that would remain above the level of significance with the incorporation of mitigation measures. Unlike Tier II of the proposed project, the No Tier II Alternative would avoid potential significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the proposed project site by employees and visitors. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts related to Tier I of the proposed project only. Since there would be no impacts to ambient air quality with the No Tier II Alternative, implementation of measures Air-1 through Air-9 would not be required.

Cultural Resources

Tier I

Like Tier II of the proposed project, Tier I of the No Tier II Alternative would have the potential to result in impacts to cultural resources. The No Tier II Alternative would still slightly alter the appearance of existing historic resources with the development of the new structure. Like the proposed project, this alternative would entail ground-disturbing construction activities. Outside of the new development, the proposed project site would continue in its existing form with cultural resources largely unchanged. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Measures Cultural-1 through Cultural-5 specified for Tier I of the proposed project would be required.

Tier II

Unlike Tier II of the proposed project, the No Tier II Alternative would not have the potential to result in significant impacts to cultural resources. The No Tier II Alternative would avoid the construction-related and redevelopment impacts to cultural resources that would occur as a result of the proposed project. Unlike Tier II of the proposed project, the No Tier II Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would not occur. As a result, the project site would continue in its existing form with its cultural resources unchanged. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts related to Tier I of the proposed project only. Since there would be no impacts to cultural resources with the No Tier II Alternative, implementation of measures Cultural-1 through Cultural-5 specified for Tier II of the proposed project would not be required.

Geology and Soils

Tier I

Like Tier I of the proposed project, Tier I of the No Tier II Alternative would have the potential to result in impacts to geology and soils. As with Tier I of the proposed project described in Section 3.4 of this EIR, this alternative would have potential impacts to geology and soils from the implementation of the proposed project. Like Tier I of the proposed project, this alternative would entail grading (excavation and fill), modification of existing structures, and construction of new structures. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Implementation of the mitigation measures identified for Tier I of the proposed project would be required. measures Geology-1 through Geology-3 specified for Tier I of the proposed project would be required.

Tier II

Unlike Tier II of the proposed project, the No Tier II Alternative would not have the potential to result in significant impacts to geology and soils. The No Tier II (in Tier I) Alternative avoids potential impacts to geology and soils that could result from the implementation of the proposed project. This alternative would avoid short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier II of the proposed project, this alternative would entail no grading (excavation and fill), modification of existing structures, or construction of new structures and implementation of the mitigation measures would not be required. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to geology and soils with the No Tier II Alternative, implementation of measures Geology-1 through Geology-3 specified for Tier II of the proposed project would not be required.

Greenhouse Gas Emissions

Tier I

Like the proposed project, Tier I of the No Tier II Alternative would have the potential to result in impacts to GHG emissions with regard to Tier I development. Due to the fact that the No Tier II Alternative would not entail a Tier II component and would thus require less construction, less electricity consumption, and less vehicle trips than the proposed project, the No Tier II Alternative is considered to have fewer impacts to GHG emissions compared with the proposed project. Unlike the proposed project, this alternative would not entail demolition of existing structures or major construction activities beyond Tier I of the proposed project. The No Tier II Alternative would still require the use of construction equipment, would generate vehicle trips, and would require electricity consumption, thus resulting in potentially significant impacts to GHG emissions. As with Tier I of the proposed project described in Section 3.5 of this EIR, the No Tier II Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment, and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Measure GHG-1 specified for Tier I of the proposed project would be required. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Since there would be no GHG emissions associated with Tier II, implementation of mitigation measures associated with Tier II of the proposed project would not be required for this alternative.

Tier II

Unlike Tier II of the proposed project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to GHG emissions. The No Tier II Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike Tier II of the proposed project, this alternative would not entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, or electricity consumption beyond the baseline conditions. The No Tier II Alternative would not require the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to GHG emissions. Unlike Tier II of the proposed project, the No Tier II Alternative would not have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Potential GHG emission impacts associated with construction and operation of Tier II would remain as significant and unavoidable even with the incorporation of mitigation measures. Unlike Tier II of the proposed project, the No Tier II Alternative would avoid potential significant impacts to GHG emissions that would result from emissions from construction equipment, electricity consumption, and the anticipated increase in vehicle miles traveled to the proposed project site by employees and visitors. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts related to Tier I of the proposed project only. Since there would be no impacts to GHG emissions with the No Tier II Alternative, implementation of measure GHG-1 would not be required.

Hazards and Hazardous Materials

Tier I

Like the proposed project, Tier I of the No Tier II Alternative would have the potential to result in impacts to hazards and hazardous materials. As with Tier I of the proposed project as described in Section 3.6, this alternative would have the potential to result in impacts to hazards and hazardous materials. Like the proposed project, this alternative would entail grading (excavation and fill) and construction of new structures. However, this alternative would not entail demolition or the impacts associated with Tier II of the proposed project. Potential operational impacts from hazards or hazardous materials would likely occur. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Measures Hazards-1 through Hazards-5 identified in Section 3.6 for Tier I of the proposed project would be required.

Tier II

Unlike Tier II of the proposed project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The No Tier II (in Tier I) Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the proposed project. Unlike Tier I of the proposed project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6 would not be required. Potential operational impacts from hazards or hazardous materials would not occur. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. The

No Tier II Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Since there would be no impacts to hazards and hazardous materials with the No Tier II Alternative, implementation of measures Hazards-1 through Hazards-5 specified for Tier I of the proposed project would not be required.

Hydrology and Water Quality

Tier I

Like the proposed project, Tier I of the No Tier II Alternative would have the potential to result in impacts to hydrology and water quality. Because there are grading and construction related activities, implementation of the mitigation measures identified in Section 3.7 would be required to reduce impacts from pollution entering the storm drain system for Tier I of the proposed project. However, this alternative would not include Tier II development and would not have the potential to result in Tier II impacts. Like the proposed project, this alternative would require the implementation of Tier I Measures Hydrology-1 through Hydrology3, and Hazards-1. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts.

Tier II

Unlike Tier I of the proposed project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The No Tier II (in Tier I) Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the proposed project. Unlike Tier I of the proposed project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6 would not be required. Potential operational impacts from hazards or hazardous materials would not occur. The No Tier II Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hazards and hazardous materials with the No Tier II Alternative, implementation of measures Hazards-1 through Hazards-5 specified for Tier I of the proposed project would not be required.

Noise

Tier I

Like the proposed project, Tier I of the No Tier II Alternative would have the potential to result in significant impacts to noise. Under this alternative, the construction-related noise impacts associated with Tier I of the proposed project would occur, as discussed in Section 3.8 of this EIR. However, Tier II–related noise impacts would be avoided. Like the proposed project, this alternative would be expected to result in construction-related noise impacts. However, by omitting the Tier II component, this alternative would be expected to result in fewer impacts associated with construction-related noise than would be expected to result from the proposed project. Like Tier I of the proposed project, this alternative would result in cumulatively considerable impacts. Measures Noise-1 through Noise-4 specified for Tier I of the proposed project would be required.

Tier II

Unlike Tier II of the proposed project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to noise. The No Tier II Alternative would not entail for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Section 3.8 of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the proposed project. Unlike Tier II of the proposed project, the No Tier II Alternative would not result in impacts related to noise and no mitigation measures would be required. The No Tier II Alternative would not result in short- or long-term impacts to noise. Like Tier II of the proposed project, this alternative would result in cumulatively considerable impacts related to Tier I of the proposed project only. Since there would be no impacts to noise with the No Tier II Alternative, implementation of measures Noise-1 through Noise-4 specified for Tier II the proposed project would not be required.

Population and Housing

Tier I

Like the proposed project, Tier I of the No Tier II Alternative would not have the potential to result in significant impacts to population and housing. Like the proposed project, this alternative would not be expected to result in impacts related to population and housing. Like the proposed project, this alternative would include a Tier I element but it would not include Tier II development, which entails a residential component. Although the Tier I components of the alternative would address the existing needs of the population, this alternative would not contribute to regional housing and employment goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area), as discussed in Section 3.9 of this EIR for Tier II of the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, there would be no impacts to population and housing with this alternative, and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to population and housing. The No Tier II Alternative would not assist in meeting regional housing and employment goals. Under the No Tier II Alternative, potential changes related to population and housing would not occur. This alternative would not result in any residential development or more intensive development associated with the medical, commercial or retail uses under the proposed project. Even though potential impacts resulting from Tier II of the proposed project would not be considered significant, the No Tier II Alternative's impacts to population and housing would be less than the proposed project because no change, such as the 100 unit residential component, would be implemented. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. However, the No Tier II Alternative would not contribute to the regional housing goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). As with Tier II of the proposed project, there would be no impacts to population and housing with the No Tier II Alternative, and no mitigation measures would be required.

Public Services

Tier I

Like the proposed project, Tier I of the No Tier II Alternative would not have the potential to result in significant impacts to public services. As with Tier I of the proposed project as described in Section 3.11 of this EIR, the No Tier II Alternative would not result in impacts related to public services. This alternative would not require the development of residential units. Unlike the proposed project, there would be no Tier II development. There would not be an increase in the need for additional fire protection, police protection, parks, schools, and other public services, like the proposed project. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. However, this alternative would not contribute to regional housing and employment goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area) as discussed for Tier II of the proposed project. However, like the proposed project, this alternative would not result in significant impacts related to public services and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to public services. The No Tier II Alternative would not result in the need for additional fire protection, police protection, schools, parks, and other public services. Section 3.10 of this EIR provides a discussion of the potential impact to public services related to Tier II of the proposed project. Like Tier II of the proposed project, the No Tier II Alternative would not create a significant net increase in public services and would require the implementation of the mitigation measures. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to public services with the No Tier II Alternative, and no mitigation measures would be required.

Recreation

Tier I

Like the proposed project, Tier I of the No Tier II Alternative would not have the potential to result in significant impacts to recreation. Under the No Tier II Alternative, Tier I of the proposed project would be developed as discussed in Section 3.10 of this EIR, but Tier II building components would not be constructed. The No Tier II Alternative would result in no residential units built. Like the proposed project, this alternative would not be expected to result in impacts related to recreation. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, there would be no impacts to recreation with this alternative, and no mitigation measures would be required.

Tier II

As with Tier II of the proposed project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to recreation. The No Tier II Alternative would not result in impacts to parks and recreational facilities. The No Tier II Alternative would also not create an additional demand for the County's parks. Tier II of the proposed project would not result in significant impacts to existing parks or recreational facilities given the limited number of residential units proposed under Tier II and the availability and location of existing recreational facilities. Like Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the proposed project, there would be no impacts to recreation with the No Tier II Alternative, and no mitigation measures would be required.

Transportation and Traffic

Tier I

Like the proposed project, Tier I of the No Tier II Alternative would have the potential to result in significant impacts to transportation and traffic. The No Tier II Alternative would result in a smaller development scenario than that of the proposed development components of Tier II for the proposed project. The total development under this alternative would be significantly less than that of the proposed project, as it would only entail Tier I of the proposed project and would generate substantially fewer traffic trips given the reduced development. Construction-related Tier I impacts would occur as discussed in Section 3.12, Transportation and Traffic, of this EIR, and the Tier I mitigation measures would be required. Tier I trip generation for Tier I of this alternative would be the same as that of the Tier I of the proposed project. Tier I would result in 2,586 daily trips of which 176 trips would occur in the morning peak hour and 179 trips would occur in the evening peak hour. Since Tier I also involves removal of existing uses, a net reduction in trips of approximately 4,905 daily trips, 332 AM trips, and 338 PM trips would occur. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. As with the proposed project, implementation of measure Traffic-1 specified for Tier I of the proposed project would be required.

Tier II

As with Tier II of the proposed project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to recreation. The No Tier II Alternative would not result in impacts to parks and recreational facilities. The No Tier II Alternative would also not create an additional demand for the County's parks. Tier II of the proposed project would not result in significant impacts to existing parks or recreational facilities given the limited number of residential units proposed under Tier II and the availability and location of existing recreational facilities. Since this alternative would not contain Tier II development but involves vacation of existing buildings, this alternative would result in fewer trips than that projected for the proposed project. This alternative would result in the net reduction of trips on the street system since it would not generate any net new trips. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no Tier II impacts to transportation and traffic with the No Tier II Alternative, implementation of measures Traffic-1 though Traffic-3 specified for Tier II of the proposed project would not be required.

Utilities and Service Systems

Tier I

Like the proposed project, Tier I of the No Tier II Alternative would have the potential to result in significant impacts to utilities and service systems. The No Tier II Alternative would result in greater impacts that are comparable to Tier I of the proposed project as discussed in Section 3.13, Utilities and Service Systems, of this EIR. However, the impacts from Tier II development would be avoided as this alternative would not entail additional development proposed in the Tier II components (i.e., no residential, retail, commercial uses, etc). The total development under this alternative would be less than that of the proposed project; therefore, this alternative would result in less demand on water supply, wastewater treatment facilities, landfills, and recycling facilities. Like Tier I of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no Tier II impacts to utilities and service systems with the No Tier II Alternative, implementation of mitigation measures specified for Tier II of the proposed project would not be required.

Tier II

Unlike Tier II of the proposed project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to utilities and service systems. The No Tier II (in Tier I) Alternative avoids potential impacts to utilities and service systems that could result from the implementation of Tier II of the proposed project. The No Tier II Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the proposed project. Unlike the proposed project, this alternative would entail no additional construction of buildings and would not require additional use of existing infrastructure (i.e., sewer, water, etc.). With the No Tier II Alternative, mitigation measures would not be required. Unlike Tier II of the proposed project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to utilities and service systems with the No Tier II Alternative, implementation of Measures Utilities-1 through Utilitites-2 specified for Tier II of the proposed project would not be required.

SECTION 5.0
UNAVOIDABLE IMPACTS

This section of the Environmental Impact Report (EIR) provides an analysis of the potential for implementation of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) to result in significant environmental effects that cannot be avoided. Consistent with the requirements of section 15126.2(b) of the State California Environmental Quality Act Guidelines (State CEQA Guidelines), significant impacts, including those that can be mitigated but not reduced to below the level of significance, are described in this section of the EIR. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications, and the reasons why the project is being proposed, notwithstanding their effect, are also described. The potential for the construction, operation, and maintenance of the proposed project to result in significant environmental impacts has been analyzed in Section 3.0, *Existing Conditions, Impacts, Mitigation, and Level of Significance after Mitigation*, of this EIR.

Based on the analysis contained in the Initial Study (Appendix A, *Initial Study, Scoping Meeting Comments, and Comment Letters*), the proposed project would be expected to result in less-than-significant or no impacts related to the following issue areas:

- Agriculture and Forestry Resources
- Biological Resources
- Land Use and Planning
- Mineral Resources

TIER I

Based on the analysis contained in Section 3.0 of this EIR, Tier I of the proposed project would be expected to result in less than significant or no impacts to the following issue areas:

- Population and Housing
- Public Services
- Recreation
- Utilities and Service Systems

Table 5-1, *Summary of Tier I Environmental Impacts Identified in the EIR*, provides a summary of the Tier I environmental impacts that were identified in this EIR.

TABLE 5-1
SUMMARY OF TIER I ENVIRONMENTAL IMPACTS IDENTIFIED IN THE EIR

Less Than Significant / Not Significant	Less Than Significant after Mitigation	Mitigation Measure	Significant after Mitigation
Aesthetics (scenic vista, scenic highway or resources, visual character, shade/shadow)	Aesthetics (light/glare)	Aesthetics-1	
Air Quality (air quality plan and odors during construction)	Air Quality (air quality standards, cumulative, and sensitive receptors during construction)	Air-1 to Air-9	
Cultural Resources (archeological resource)	Cultural Resources (historic resource, paleontological resource, and human remains)	Cultural-1 to Cultural-5	
Geology and Soils (earthquake fault, seismic ground shaking, seismic ground failure: liquefaction, landslides, and septic tank)	Geology and Soils (soil erosion or loss of top soil, geologic unit or unstable soil, and expansive soil)	Geology-1 to Geology -3	
Greenhouse Gas Emissions (applicable plans / policies)	Greenhouse Gas Emissions (operation)	GHG-1	Greenhouse Gas Emissions (construction)
Hazards and Hazardous Materials (routine transport, use, or disposal, airport land use plan, private airstrip, emergency response, and wildland fires)	Hazards and Hazardous Materials (accidental release, 0.25 mile of an existing or proposed school, and Government Code Section 65962.5)	Hazards-1 to Hazards-5	
Hydrology and Water Quality (groundwater supplies, drainage: erosion or siltation, drainage: flooding, 100-year flood zone: housing, 100-year flood zone: structures, and flooding: levee or dam)	Hydrology and Water Quality (water quality standards, waste discharge, runoff water, and degrade water quality during construction and limited operation)	Hydrology-1 to Hydrology-3 and Hazards-1	
Noise (operational noise, excessive noise levels, ambient noise, groundbourne vibration, air ports, and private air strips)	Noise (groundbourne vibration and mechanical noise during construction)	Noise-1 to Noise-4	Noise (temporary ambient noise increase during construction)
Transportation and Traffic (air traffic, hazardous design features, emergency access, and adopted alternative transportation mode plans)	Transportation and Traffic (circulation system and congestion during construction)	Traffic-1	

TIER II

Based on the analysis contained in Section 3.0 of this EIR, Tier II of the proposed project would be expected to result in less than significant or no impacts related to the following issue areas:

- Population and Housing
- Public Services
- Recreation

Table 5-2, *Summary of Tier II Environmental Impacts Identified in the EIR*, summarized the Tier II environmental impacts that were identified in this EIR:

TABLE 5-2
SUMMARY OF TIER II ENVIRONMENTAL IMPACTS IDENTIFIED IN THE EIR

Less Than Significant / Not Significant	Less Than Significant after Mitigation	Mitigation Measures	Significant after Mitigation
Aesthetic resources (scenic vista and scenic highway or resources)	Aesthetic resources (visual character and light/glare)	Aesthetics-1 to Aesthetics-4	
Air Quality (air quality plan and odors during construction)		Air-1 to Air-9	Air Quality (air quality standards, cumulative, sensitive receptors during construction and limited operation)
Cultural Resources (archeological resource)	Cultural Resources (paleontological resource and human remains)	Cultural-1 to Cultural-5	Cultural Resources (historic resource, paleontological resource, human remains)
Geology and Soils (earthquake fault, seismic ground shaking, seismic ground failure: liquefaction, landslides, and septic tank)	Geology and Soils (soil erosion or loss of top soil, geologic unit or unstable soil, and expansive soil)	Geology-1 to Geology -3	
Greenhouse Gas Emissions (applicable plans / policies)	Greenhouse Gas Emissions (operation)	GHG-1	Greenhouse Gas Emissions (construction)
Hazards and Hazardous Materials (routine transport, use, or disposal; airport land use plan; private airstrip; emergency response; and wildland fires)	Hazards and Hazardous Materials (accidental release, 0.25 mile of an existing or proposed school, and Government Code Section 65962.5)	Hazards-1 to Hazards-5	
Hydrology and Water Quality (groundwater supplies, drainage: erosion or siltation, drainage: flooding, 100-year flood zone: housing, 100-year flood zone: structures, and flooding: levee or dam)	Hydrology and Water Quality (water quality standards, waste discharge, runoff water, and degrade water quality during construction and operation)	Hydrology-1 to Hydrology-4 and Hazards-1	

TABLE 5-2
SUMMARY OF TIER II ENVIRONMENTAL IMPACTS IDENTIFIED IN THE EIR, Continued

Less Than Significant / Not Significant	Less Than Significant after Mitigation	Mitigation Measures	Significant after Mitigation
Noise (operational noise, excessive noise levels, ambient noise, groundbourne vibration, air ports, and private air strips)	Noise (groundbourne vibration and mechanical noise during construction)	Noise-1 to Noise-4	Noise (temporary ambient noise increase during construction)
Transportation and Traffic (air traffic, hazardous design features, emergency access, and adopted alternative transportation mode plans)	Transportation and Traffic (circulation system and congestion during construction, operation, and cumulatively)	Traffic-1 to Traffic-3	
Utilities and Service Systems (new water or wastewater facilities, new stormwater drainage facilities, wastewater treatment capacity, and landfill capacity)	Utilities and Service Systems (wastewater treatment requirements and solid waste compliance)	Utilities-1 to Utilities 2	

Although mitigation measures have been proposed for air quality, cultural resources, and noise that would reduce the potentially significant impacts to the maximum extent practicable, construction-related impacts associated with air quality, cultural resources, and noise would remain significant and unavoidable, even with the implementation of mitigation measures.

Pursuant to CEQA, this EIR identifies six alternatives (including the No Project Alternative) capable of avoiding some or all of the environmental impacts associated with the proposed project. The alternatives to the proposed project are described in Section 4.0, *Alternatives to the Proposed Project*, of this EIR. Of the six alternatives, the No Project Alternative is capable of avoiding most of the potentially significant environmental impacts; while only the Reduced Project Size Alternative is capable of meeting most of the basic objectives of the proposed project.

SECTION 6.0
SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES RELATED TO IMPLEMENTATION OF THE PROPOSED PROJECT

This section of the Environmental Impact Report (EIR) summarizes the potential for implementation of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) to result in significant irreversible environmental changes. Such a change refers to an irretrievable commitment of non-renewable resources, such as those used as building materials, or other environmental changes, such as urbanization, that commit future generations to the use of natural resources.

TIER I

The analysis performed in Section 3, *Regulatory Framework, Existing Conditions, Impacts, Mitigation, and Level of Significance after Mitigation*, determined that the proposed project would not result in significant irreversible environmental impacts.

Although development of the proposed project would entail the use of natural resources for building materials that would result in an irreversible impact and a commitment of resources (such as lumber, steel and concrete aggregate), the County of Los Angeles (County) seeks to limit the impact on natural resources by designing Tier I of the proposed project to have reduced environmental impacts. Development of the new Multi-Service Ambulatory Care Center (MACC) and the Ancillary Building is currently registered with the U.S. Green Building Council under Leadership in Energy and Environmental Design for New Construction (LEED-NC). "Materials and resources" is one classification recognized as an area for impact reduction to receive LEED certification, which will be explored by the County as an option, in addition to the areas of water efficiency, energy and atmosphere efficiencies, and indoor environmental quality. The County will seek LEED Silver certification for the MACC and the Ancillary Building, and the proposed project would incorporate energy-efficient and sustainable strategies throughout the construction, development, and operation phases.

Further, the proposed project is located in an urbanized area on a previously graded and developed site, and would not result in a new commitment of non-urban land to urban uses. The proposed project would focus development within an area identified by the Southern California Association of Governments (SCAG) for intensified growth, consistent with the growth vision for the region. The proposed project site falls within an identified preferred location for growth (i.e., SCAG 2% Strategy Area[1]), which are locations that have been identified for promotion of reinvestment in urbanized areas where transit and urban infrastructure is available as a way to make better use of existing infrastructure and regional resources.

LEED-certified buildings conserve natural resources through practices such as using recycled materials, reusing existing materials, using less potable water for landscaping and wastewater uses, using less energy, and converting waste from landfills. The proposed project would institute these and other comparable practices to reduce the consumption of nonrenewable resources by the proposed project. Due to the benefit of the proposed project's location and implementation of project design features and mitigation measures, impacts related to consumption of nonrenewable

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[1] Southern California Association of Governments. Accessed 18 June 2010. "Compass Blueprint, 2% Strategy." Available at: http://www.compassblueprint.org/about/strategy

resources and commitment of resources due to development of the proposed project would remain below the level of significance.

TIER II

Although Tier II of the proposed project would be more substantial in size than Tier I of the proposed project, Tier II would not be expected to result in significant irreversible environmental impacts for reasons similar to those discussed for Tier I of the proposed project above.

Although development of the proposed project would entail the use of natural resources for building materials that would result in an irreversible impact and a commitment of resources (such as lumber, steel and concrete aggregate), the County seeks to design Tier II of the proposed project to have limited environmental impacts. As discussed in Section 2.0, Project Description, of this EIR and throughout the EIR document, all County buildings that are 10,000 square feet or larger are required to seek LEED certification and comply with other environmental policy measures. The County will explore the "materials and resources" classification, which is recognized as an area to reduce impacts to receive LEED certification, in addition to the areas of water efficiency, energy and atmosphere efficiencies, and indoor environmental quality. The County will seek LEED Silver certification for the Tier II development, and the proposed project would incorporate energy-efficient and sustainable strategies throughout the construction, development, and operation phases.

Further, as previously discussed, the proposed project is located in an urbanized area on a previously graded and developed site, and would thus not result in a new commitment of non-urban land to urban uses. Further, the proposed project would focus development within an area identified for intensified growth by SCAG, consistent with the growth vision for the region. The project site falls within an identified preferred location for growth (i.e., SCAG 2% Strategy Area[2]), which, as previously noted, are locations that have been identified for promotion of reinvestment in urbanized areas, such as the proposed project, where transit and urban infrastructure is available, as a way to make better use of existing infrastructure and regional resources.

As previously noted, LEED-certified buildings conserve natural resources through practices such as using recycled materials, reusing existing materials, using less potable water for landscaping and wastewater uses, using less energy, and converting waste from landfills. The proposed project would institute these and comparable practices to reduce the use of nonrenewable resources. Due to the benefit of the proposed project's location and implementation of project design features and mitigation measures, impacts related to consumption of nonrenewable resources and commitment of resources due to development of the proposed project would remain below the level of significance.

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[2] Southern California Association of Governments. Accessed 18 June 2010. "Compass Blueprint, 2% Strategy." Available at: http://www.compassblueprint.org/about/strategy

SECTION 7.0
GROWTH-INDUCING IMPACTS

This section of the Environmental Impact Report (EIR) analyzes the potential for the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) to result in growth-inducing impacts. Such impacts normally occur when a proposed project fosters economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. The types of projects normally considered to result in growth-inducing impacts are those that provide infrastructure suitable to support additional growth or that removes an existing barrier to growth. The anticipated direct and indirect impacts associated with the proposed project are discussed below.

DIRECT IMPACTS

Tier I

Tier I of the proposed project involves a downsizing of existing facilities. As such it would not entail growth-inducing elements and would not be expected to result in direct impacts. Tier I of the proposed project would replace services that are currently being provided at the proposed project site. There would be a shift with respect to the location of where these services are provided, as the existing outpatient services would be moved into the new Multi-Service Ambulatory Care Center (MACC) and Ancillary Building, however, this would not result in significant population growth. In addition, the sustainable design elements may have a beneficial cost savings for the operation costs of these services for the County, as it would be expected that water, energy, and other operational costs would be reduced through increased efficiency.

Tier II

The proposed project may entail growth-inducing elements, including the development of a 100-unit residential component and creation of jobs (both construction-related and operational) at the proposed project site. However, the anticipated growth related to these elements would not be significant as it would not be expected to induce substantial population growth and would be consistent with the growth projections anticipated by the Southern California Association of Governments (SCAG; as discussed in Section 3.9, *Population and Housing*, of this EIR). The proposed project site is located within the 2% Strategy Opportunities Area (City of Los Angeles South Map), which seeks to target growth where projects, plans, and policies consistent with the SCAG growth guidelines will best serve the mobility, livability, prosperity, and sustainability goals of the SCAG growth plan.[1] As such, the growth and development that would be expected to result from development of the proposed project would be consistent with anticipated and desired growth at the proposed project site and in the surrounding area.

The proposed project is primarily a medical center facility and would provide services to meet the medical and other needs (such as retail and commercial) of an existing population. The existing community is underserved by the partially operational facilities that are currently at the site, as such growth associated with the proposed project would address and would be correspondent to the current and anticipated shifts and growth in population surrounding the proposed project site.

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[1] Southern California Association of Governments. Accessed 18 June 2010. "Compass Blueprint, 2% Strategy." Available at: http://www.compassblueprint.org/about/strategy

Furthermore, the housing element of the proposed project would be anticipated to meet a projected housing need in the area surrounding the proposed project site. Given the small number and the types of jobs associated with the proposed land uses in Tier II of the proposed project, substantial population impacts due to operation of the commercial/retail component are not anticipated, as discussed in Section 3.9 of this EIR. As such, the proposed project would not be expected to contribute to adverse direct growth-inducing impacts.

INDIRECT IMPACTS

The proposed project would not provide infrastructure that would be suitable to support additional growth or that would remove an existing barrier to growth. The proposed project is located in a developed area with permanent roads, utilities, and infrastructure capable of meeting the access, utilities, and service needs of the proposed project. The proposed project would be an urban infill project, making better use of capacity in the existing urban infrastructure. Project features and mitigation measures associated with the proposed project would result in localized improvements to address project-related demand for infrastructure, but would not require new access roads, utilities, or infrastructure that might contribute to indirect growth-inducing impacts.

Tier I

Tier I of the proposed project would not entail indirect growth-inducing elements. The existing proposed project site contains the infrastructure to complete the proposed project, and no additional new access roads, utilities, or infrastructure or other elements would be developed that would create indirect growth-inducing impacts.

Tier II

Although additional development is proposed as part of Tier II of the proposed project, Tier II would address the existing and projected need for health care and related services in the County of Los Angeles, and would be expected to supplement and contribute to meeting the health care needs and enhance the economic vitality of the County of Los Angeles and, specifically, the community surrounding the proposed project site.

In addition, because the proposed project site is located within the 2% Strategy Opportunities Area and would support the existing and anticipated planned growth in the area, the proposed project would be positioned to fulfill the anticipated health care needs of the current and projected community growth and would not result in growth beyond the planned growth in the area. The proposed project would have the capacity to accommodate and support the anticipated planned growth in the surrounding community without requiring new infrastructure; therefore, the proposed project would not contribute to indirect growth-inducing impacts.

SECTION 8.0
MANDATORY FINDINGS OF SIGNIFICANCE

This analysis was undertaken by the County of Los Angeles (County) to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would be expected to have a significant impact to Mandatory Findings of Significance, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15065 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Mandatory Findings of Significance for the proposed project were evaluated with regard to the information contained in this Environmental Impact Report (EIR), and information gathered during literature reviews (see Section 11.0, References, for a list of reference materials consulted).

State CEQA Guidelines (Section 15065) recommend the consideration of four questions when addressing the potential for significant impacts to Mandatory Findings of Significance.

Does the proposed project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Tier I

Tier I of the proposed project would not be expected to result in potentially significant impacts related to the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

Tier I of the proposed project would be located on an existing hospital campus in a highly urbanized area. As discussed in the Biological Resources Technical Report (Appendix D) prepared for the proposed project, there are no Significant Ecological Areas (SEA),[2] federally or state-listed species by the California Department of Fish and Game (CDFG) or by the United States Fish and Wildlife Service (USFWS), nor any state or local species of concern are present on the project location or in any adjacent areas. Furthermore, the proposed project site does not have the habitat available to support wildlife, as such, Tier I of the proposed project would not be expected to result in potentially significant impacts related to the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal.

As discussed in Section 3.3, *Cultural Resources*, of this EIR, construction of the Tier I would have a less than significant effect on historical resources. Improvements would affect

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[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

character-defining features of three historic resources: 1) appurtenant elements of the Martin Luther King, Jr. Medical Center Campus Historic District, specifically those associated with 2) the Augustus F. Hawkins Comprehensive Mental Health Center and 3) the Interns and Physicians Building. However, the Tier I project would not result in substantial adverse changes in the significance of historic resources such that the historic district or its contributors would no longer be eligible for inclusion in the California Registry of Historical Resources (CRHR).

As such, Tier I of the proposed project would not be expected to result in potentially significant impacts related to eliminating important examples of the major periods of California history or prehistory.

Tier II

Tier II of the proposed project would be expected to result in potentially significant impacts related to the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory that may not be able to be reduced to below the level of significance through the incorporation of mitigation measures, therefore requiring the consideration of alternatives.

Like Tier I of which was analyzed above, Tier II of the proposed project would be located on an existing hospital campus in a highly urbanized area. As discussed in the Biological Resources Technical Report (Appendix D) prepared for the proposed project, there are no SEAs,[3] special-status species listed by the CDFG or by the USFWS, or any state or local species of concern present on the project location or in any adjacent areas. Furthermore, the proposed project site does not have the habitat available to support wildlife, as such, Tier II of the proposed project would not be expected to result in potentially significant impacts related to the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal.

As analyzed in Section 3.3 of this EIR, construction of the Tier II improvements would be expected to affect two historic resources: 1) appurtenant elements of the Martin Luther King, Jr. Medical Center Campus Historic District and 2) the Multi-Service Ambulatory Care Center (MACC) building. If Tier II improvements include the demolition and replacement of the MACC, a significant adverse change in the significance of the Martin Luther King, Jr. Medical Center Campus Historic District and the MACC would occur and neither resource would continue to be eligible for inclusion in the CRHR. If Tier II improvements include rehabilitation and reuse of the MACC, impacts to cultural resources would be reduced to below the level of significance with the implementation of mitigation measures. Due to the conceptual and evolving nature of the proposed project regarding the future use of the MACC building, modification assumptions for this analysis assume that the master planning and comprehensive redevelopment of the campus under Tier II has the potential to result in

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[3] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

the worst-case scenario (reuse, removal, or replacement) of proposed project impacts as well as additional alterations to the character-defining features (buildings and appurtenant elements) of the Martin Luther King, Jr. Medical Center Campus Historic District. Implementation of Tier II of the proposed project has the potential to result in significant impacts to eliminating important examples of the major periods of California history or prehistory, which may require the consideration of alternatives.

Does the proposed project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Tier I

Tier I of the proposed project would be expected to result in less than significant impacts that are individually limited but cumulatively considerable. As discussed it this EIR, Tier I of the proposed project the construction and operational related impacts of Tier I would not be expected to contribute to the incremental environmental impacts when viewed in connection with the effects of past, current, or reasonably foreseeable projects. Therefore, the expected impacts that are individually limited but cumulatively considerable would be expected to be reduced to below the level of significance by the incorporation of mitigation measures. Further analysis is warranted.

Tier II

The impacts that are individually limited but cumulatively considerable from the proposed project would be expected to be reduced to below the level of significance with the incorporation of mitigation measures. The proposed project may be expected to contribute to the incremental environmental impacts when viewed in connection with the effects of past, current, or reasonably foreseeable projects. As discussed in this EIR, Tier II of the proposed project would entail development that would be expected to result in cumulative impacts to air quality, greenhouse gases, noise, and traffic and transportation. Although these impacts would be largely temporary and localized, they may have the potential to result in incremental effects that when considered in connection to other projects could result in potentially significant impacts. The County has proposed efforts to minimize these impacts through the use of best management practices (BMPs) and sustainable practices for the development and operation of the proposed project. However, impacts that are individually limited but cumulatively considerable from the proposed project would be expected to be reduced to below the level of significance with the incorporation of mitigation measures discussed in Sections 3.2, *Air Quality*; 3.5, *Greenhouse Gas Emissions*; and 3.8, *Noise*, of the EIR.

Does the project have the potential to result in the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?

Tier I

Tier I of the proposed project would not be expected to result in significant impacts related to the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals. Although Tier I of the proposed project would result in adverse short-term construction related impacts, the long-term effects of Tier I would result in a beneficial impact related to environmental goals. The proposed project would entail the implementation of BMPs, sustainable measures, and Leadership in Energy and Environmental Design (LEED) elements that would be consistent with the Countywide Energy and Environmental Policy and would achieve long-term environmental goals for the County.

Tier II

As with Tier I of the proposed project discussed above, Tier II of the proposed project would not be expected to result in significant impacts related to the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals. Although Tier II of the proposed project would result in adverse short-term, construction-related impacts and may include significant adverse environmental impacts (i.e. air quality or cultural resources) mitigation measures would significantly reduce these impacts; the long-term effects of Tier II would result in a beneficial impact related to environmental goals. Tier II of the proposed project would be designed to address the needs of the planned growth in the proposed project area. Additionally, the proposed project would entail the implementation of BMPs, sustainable measures, and LEED elements that would be consistent with the Countywide Energy and Environmental Policy and would achieve long-term environmental goals for the County. Therefore, Tier II of the proposed project would not be expected to result in impacts that have the potential to result in the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

Does the proposed project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Tier I

Tier I of the proposed project would not be expected to result in significant impacts related to having environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly that would be able to be reduced to below the level of significance through the incorporation of mitigation measures. While the adverse impacts related to the construction of the proposed project would be temporary, the implementation of BMPs, sustainable measures, and LEED elements, and mitigation measures would significantly reduce these impacts. In addition, it is anticipated that the proposed project would result in less than significant operational impacts due to the fact that the proposed project is designed to create more efficient structures on the proposed project site, and would entail the implementation of sustainable elements into the developmental and operational phases of the proposed project. The proposed project could be expected to result in impacts to air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, traffic and transportation, and utilities and service systems. These impacts would not be considered substantial to human beings as they would be limited and would be significantly reduced by the County's efforts to provide inpatient hospital functions and support spaces in conjunction with a community-based health care program that would be seismically compliant beyond 2030 seismic standards established by the California Office of Statewide Health Planning and Development. The beneficial environmental impacts discussed throughout this EIR (i.e., seismic upgrades for compliance to 2030 and beyond) would be expected to have positive impacts on human beings and their environment although the potentially adverse impacts.

Tier II

Tier II of the proposed project would be expected to result in significant impacts to having environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly that would not be able to be reduced to below the level of significance through the incorporation of mitigation measures. While the adverse impacts related to the construction of the proposed project would be temporary, the implementation of BMPs, sustainable measures, and LEED elements, and mitigation measures would significantly reduce these impacts. In addition, it is anticipated that the significant operational impacts would be reduced due to the fact that the proposed project is designed to create more efficient structures on the proposed project site, and would entail the implementation of sustainable elements, BMPs, and LEED elements into the developmental and operational phases of the proposed project. The proposed project could be expected to result in impacts to air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, traffic and transportation, and utilities and service systems. Although, these impacts would be largely limited to construction and would be significantly reduced by the County's efforts to provide a community-based health care program as described above which would contribute to beneficial environmental impacts that would be expected to have positive impacts on human beings and their environment. Tier II of the proposed project would be expected to have the potential to result in adverse indirect impacts on humans with regards to the replacement of a historic resource. Unlike significant and unavoidable impacts to air, greenhouse gas emissions, or noise which would be attributed largely to construction related efforts but would result in operational benefits of the life of the proposed project. The reuse, replacement, or removal of a historic resource would not be offset in the same manner. Therefore, implementation of the proposed project has the potential to result in significant impacts related to environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly and may require the consideration of alternatives.

SECTION 9.0
ORGANIZATIONS AND PERSONS CONSULTED

PUBLIC AGENCIES

Federal

Advisory Council on Historic Preservation Office of Federal Agency Programs	Assistant Director, Charlene Dwin Vaughn
Council on Environmental Quality (CEQ)	Staff, Matthew Higdon
Internal Revenue Service	Legal Counsel, Timothy L. Jones
United States Treasury Department	Management and Program Analyst, Kristin Ward

State

Department of Transportation, District 7	IGR / CEQA Program Manager, Elmer Alvarez
	Associate Transportation Planner, Zeron Jefferson
	Staff, Deven Thaker
Native American Sacred Lands Records	Program Analyst, Dave Singleton

Regional

South Coast Air Quality Management District	Program Supervisor, Ian MacMillan

County of Los Angeles

Department of Public Works	Traffic and Lighting Staff, Bill Winter
	Traffic and Lighting Staff, Jeff Pletyak
	Traffic and Lighting Staff, Suen Fei Lau
	Traffic and Lighting Staff, Isaac Wong
	Transit Operations Section, John Zeigler
Fire Department	Chief, Forestry Division Prevention Services Bureau, John R. Todd
	Planning Analyst, Loretta Bagwell
Department of Parks and Recreation	Planner, Sheela Mathai
	Planner, Clement Lau, AICP
Metropolitan Transportation Authority	Program Manager, Susan Chapman
Natural History Museum	Director of Vertebrate Paleontology, Dr. Sam McLeod
Sanitation Districts of Los Angeles County – Public Information	Manager, Dan Avila
	Will Serve Program, Adriana Raza

Sheriff's Department ....Director, Facilities Planning Bureau, Gary T.K. Tse

City of Downey

Downey Area Recycling & Transfer (DART) .... Staff

City of South Gate

South Gate Transfer Station ....Coordinator, Mike Amdahl

City of Los Angeles

City of Los Angeles Hyperion Treatment Plant.. .Nancy Carr
City of Los Angeles Department of Transportation.........Senior Transportation Engineer, Sean Haeri
....Transportation Engineer, Edward Guerrero, Jr.

PRIVATE AGENCIES

Park Water Company...Division Chief Engineer, Jim Elliott
....Assistant Civil Engineer, Janelle Rellosa

SECTION 10.0
REPORT PREPARATION PERSONNEL

The following individuals contributed to the preparation of this document.

10.1 COUNTY OF LOS ANGELES

10.1.1 Chief Executive Office

Contributor:	*Title:*	*Area of Responsibility:*
Jan Takata	Senior Manager County of Los Angeles Chief Executive Office	Strategic Coordination
Sabra White	Principal Analyst County of Los Angeles Chief Executive Office	Lead Project Manager, Project Development
Dawn McDivitt	Manager County of Los Angeles Chief Executive Office	Secondary Project Contact

10.1.2 Department of Public Works

Contributor:	*Title:*	*Area of Responsibility:*
Andy Moey	Capital Projects Program Manager Project Management Division I, Health Section II	Project Development
Esther Diaz	Project Manager Project Management, Health Section II	Project Development

10.1.3 County Subconsultants

Contributor:	*Title:*	*Area of Responsibility:*
Joey Kragelund	Project Principal, HMC Architects	Campus Planning and Programming Report
Garry Lay	Principal Engineer, Vice President, Manager of Geotechnical Department	Geotechnical Investigation

Contributor:	*Title:*	*Area of Responsibility:*
	URS Corporation	

10.2 SAPPHOS ENVIRONMENTAL, INC.

Contributor:	*Title:*	*Area of Responsibility:*
Marie C. Campbell	Principal	Strategic / Quality Assurance Manager
Laura Kaufman	Environmental Compliance Director	Senior Project Manager
Eimon M. Raoof	Senior Environmental Compliance Coordinator	Project Manager Project Description
André Anderson	Senior Environmental Compliance Specialist	Geology and Soils Hazards and Hazardous Materials
Christa Hudson	Senior Environmental Compliance Specialist	Aesthetics Recreation Population and Housing Traffic and Transportation Utilities and Service Systems Aesthetics Impact Technical Analysis
Laura Watson	Environmental Compliance Analyst	Air Quality Greenhouse Gas Emissions Air Quality Technical Report
Donna Grotzinger	Senior Environmental Compliance Coordinator	Hydrology and Water Quality
William Meade	Environmental Compliance Analyst	Noise Noise Impact Technical Report

Contributor:	*Title:*	*Area of Responsibility:*
Leanna Guillermo	Environmental Compliance Analyst	Population and Housing Public Services Recreation
John Ivanov	Resources Analyst	Biological Resources Technical Report
Debra de la Torre	Senior Resources Coordinator	Biological Resources Technical Report
Leslie Heumann	Cultural Resources Manager	Cultural Resources Cultural Resources Technical Report
Marlise Fratinardo	Senior Cultural Resources Coordinator	Cultural Resources Cultural Resources Technical Report
Kenneth Ferretti	Geographical Information System (GIS) Specialist	Aesthetics Impact Technical Analysis GIS Analysis and Document Production
Eugene Ng	Senior Graphics Designer	Graphics and Document Production
David Lee	Production Manager	Editing and Document Production
Ani Ayvazian	Senior Technical Editor	Editing and Document Production
Samantha Ortiz	Senior Technical Editor	Editing and Document Production
Cristina Yamasaki	Technical Editor	Editing and Document Production

10.2.1 Sapphos Environmental, Inc. Subconsultants

Contributor:	*Title:*	*Area of Responsibility:*
Srinath Raju	Principal Raju Associates, Inc.	Traffic Impact Analysis
Dennis Drag	Project Engineer Moffat and Nichol Engineers	Stormwater Analysis
Brent Myazaki	Senior Project Manager, RMT, Inc.	Water Supply Assessment

SECTION 11.0
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SECTION 12.0
DISTRIBUTION LIST

This section of the Environmental Impact Report (EIR) contains a list of those entities to which a copy of the Notice of Availability (NOA) of this EIR or a copy of the NOA and a copy of the EIR have been distributed. Organizations or individuals listed below with a superscript$^{(EIR+CD)}$ received a copy of the NOA and Volume I of the EIR in hard copy format and Volume II (Technical Appendix) of the EIR in electronic format on a compact disc (CD). Those with the superscript$^{(CD)}$ received a copy of the NOA and Volumes I and II (Technical Appendix) of the EIR in electronic format on a CD. Organizations or individuals listed below with a superscript$^{(NOA)}$ received a copy of the NOA that directed them to the location of the EIR document.

Copies of the EIR are available during the 45-day public review period, beginning on Tuesday August 31, 2010, and ending on Friday October 15, 2010, at the following library:

Willowbrook Library
Ms. Alice Tang
Community Library Manager
11838 South Wilmington Avenue
Los Angeles, California 90059
Telephone number: (323) 564-5698
Hours of operation: Monday – 10:00 a.m. to 6:00 p.m.
Tuesday – 12:00 p.m. to 8:00 p.m.
Wednesday – 10:00 a.m. to 6:00 p.m.
Thursday – 10:00 a.m. to 6:00 p.m.
Friday – 11:00 a.m. to 5:00 p.m.
Saturday – 11:00 a.m. to 5:00 p.m.
Sunday – Closed

In addition, copies of the EIR are available during the 45-day public review period at the following location:

Martin Luther King, Jr. Multi-Service Ambulatory Care Center[1]

Administration Office
Cynthia Moore-Oliver or Elaine Saafir
12021 South Wilmington Avenue
Los Angeles, California 90059
Telephone number: (310) 668-5201
Hours of operation: Monday – Friday 8:00 a.m. to 4:30 p.m.

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[1] Responsible agencies for the proposed project are indicated by an asterisk.

Copies of Volumes I and II of the EIR will be available for purchase, at reproduction cost, from the following location:

Sapphos Environmental, Inc.
430 North Halstead Street
Pasadena, California 91107
Telephone number: (626) 683-3547
Hours of operation: Monday – Friday 8:00 a.m. to 5:00 p.m.

An electronic copy of the EIR is also available online at:

http://ridley-thomas.lacounty.gov/Pages/Issues/mlk_hospital.htm

12.1 PUBLIC AGENCIES

12.1.1 Federal

U.S. Fish and Wildlife Service(CD)

Dr. Roger Helm, Division Chief
Division of Environmental Quality
4401 North Fairfax Drive, Suite 820
Arlington, Virginia 22203
(703) 358-2148

12.1.2 State

California Air Resources Board(CD)

Robert Fletcher, Chief
1001 I Street
Sacramento, California 95812
(916) 322-2990

California Department of Fish and Game(CD)

South Coast Region
Ed Pert, Regional Manager
4949 Viewridge Avenue
San Diego, CA 92123
(858) 467-4201

California Department of Parks and Recreation Office of Historic Preservation*(CD)

Milford Wayne Donaldson, State Historic Preservation Officer
1416 9th Street, Room 1442
Sacramento, California 95814
(916) 653-6624

California Department of Transportation District 7*

Elmer Alvarez, IGR / CEQA Branch Chief(CD)
100 South Main Street
Los Angeles, California 90012
(213) 897-3656

Zeron Jefferson, Associate Transportation Planner(NOA)
100 South Main Street
Los Angeles, California 90012
(213) 897-3656

Deven Thaker(NOA)
100 South Main Street
Los Angeles, California 90012
(213) 897-3656

California Environmental Protection Agency*(CD)

Jami Ferguson, Public Records Officer
1001 I Street
Sacramento, California 95814
(916) 322-2935

California Integrated Waste Management Board(CD)

Chris Peck, Manager of the Office of Public Affairs
1001 I Street
Sacramento, California 95812-4025
(916) 341-6000

California Native American Heritage Commission(CD)

Dave Singleton, Program Analyst
915 Capitol Mall, Room 364
Sacramento, California 95814
(916) 653-6251

California Water Quality Control Board, Region 4*(CD)

Ejigu Solomon, Stormwater Compliance and Enforcement Manager
320 West Fourth Street, Suite 200
Los Angeles, California 90013
(213) 576-6600

Municipal Water District * (CD)

Art Chacon, Director Division III
6252 Telegraph Road
Commerce, California 90040
(323) 201-5500

Office of Planning and Research State Clearinghouse *(EIR+CD)

Scott Morgan, Assistant Deputy Director & Senior Planner, State Clearinghouse
1400 Tenth Street
Sacramento, California 95814
(916) 445-0613

Office of Statewide Health Planning and Development * (CD)

David M. Carlisle, Director
Director's Office
400 "R" Street, Suite 300
Sacramento, California 95811
(916) 326-3600

State Water Resources Control Board *(CD)

Gita Kapahi, Director
1001 I Street
Sacramento, California 95814
(916) 341-5455

12.1.3 Regional

City of Compton (NOA)

Derek R. Hull, Planning and Economic Development Director
Planning and Economic Development Department
205 South Willowbrook Avenue
Compton, California 90220
(310) 605-5532

Compton Unified School District (NOA)

Ann Cooper, Senior Director of Special Projects
500 South Santa Fe Avenue
Compton, California 90221
(310) 632-2825

City of Los Angeles(NOA)

David Weintraub, Senior City Planner
Department of City Planning
Environmental Review Section
200 North Spring Street
Los Angeles, California 90012
(213) 978-1361

City of Los Angeles Department of Transportation(NOA)

Sean Haeri, Senior Transportation Engineer
100 South Main Street, 10th Floor
Los Angeles, California 90012
(213) 972-8470

Edward Guerrero, Jr., Transportation Engineer
100 South Main Street, 10th Floor
Los Angeles, California 90012
(213) 972-8470

Los Angeles Unified School District Office of Environmental Health and Safety(NOA)

Yi Hwa Kim, Deputy Director of Environmental Health and Safety
333 South Beaudry Avenue, 20th Floor
Los Angeles, California 90017
(213) 241-3199

City of Lynwood(NOA)

Jonathan Colin, Director of Development Services
Development Services
11330 Bullis Road
Lynwood, California 90262
(310) 603-0220

Lynwood Unified School District(NOA)

Sally Seko, Assistant Superintendent / Federal & State Programs
11321 Bullis Road
Lynwood, California 90262
(310) 886-1695

Park Water Company(NOA)

Janelle Rellosa, Assistant Civil Engineer
Central Basin Division
9750 Washburn Road
Downey, California 90241
(562) 923-0711

South Coast Air Quality Management District*(CD)

Ian MacMillan, Program Supervisor, CEQA Inter-Governmental Review
Planning Rule Development & Area Sources
21865 Copley Drive
Diamond Bar, California 91765
(909) 396-3244

Southern California Association of Governments(CD)

Jacob Lieb, Manager of Assessment
818 West 7th Street, 12th Floor
Los Angeles, California 90017
(213) 236-1800

12.1.4 County of Los Angeles

Chief Executive Office*(EIR+CD)

Jan Takata, Senior Manager
Chief Executive Office
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 754
Los Angeles, California 90012
(213) 974-1360

Sabra White, Project Analyst
Chief Executive Office
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 754
Los Angeles, California 90012
(213) 974-1140

Community Development Commission of the County of Los Angeles(NOA)

Christine Figueroa, Development Specialist
2 Coral Circle
Monterey Park, California 91755
(323) 890-7001

Department of Health Services*(EIR+CD)

Carol Meyer, Chief Network Officer
313 North Figueroa Street, Room 901
Los Angeles, California 90012
(213) 240-8101

*Department of Public Health**(EIR + CD)

Jonathan E. Fielding, Director of Public Health and Health Officer
313 North Figueroa Street, Room 806
Los Angeles, California 90012
(213) 240-8117

*Department of Public Works**

Andy Moey, Capital Projects Program Manager(CD)
Project Management Division I, Health Section II
900 South Fremont Avenue, 5th Floor
Alhambra, California 91803
(626) 300-2333

Esther Diaz, Project Manager(CD)
Project Management, Health Section II
900 South Fremont Avenue, 5th Floor
Alhambra, California 91803
(626) 300-2391

Bill Winter c/o Suen Fei Lau(CD)
Traffic and Lighting Division
900 South Fremont Avenue, 5th Floor
Alhambra, California 91803
(626) 300-4820

Mr. Jeff Pletyak(NOA)
Traffic and Lighting Division
900 South Fremont Avenue, 5th Floor
Alhambra, California 91803
(626) 300-4820

Mr. Isaac Wong(NOA)
Traffic and Lighting Division
900 South Fremont Avenue, 5th Floor
Alhambra, California 91803
(626) 300-4820

Andy Narag, Senior Civil Engineer(NOA)
Land Development Division
900 South Fremont Avenue, 3rd Floor
Alhambra, California 91803
(626) 458-4921

Department of Regional Planning (NOA)

Mark Child, Supervising Regional Planner
320 West Temple Street
Los Angeles, CA 90012
(213) 974-6443

Fire Department

Debbie Aguirre, Chief of Planning Division(NOA)
Administrative Services–Planning Division
1320 North Eastern Avenue
Los Angeles, California 90063
(323) 881-2404

Jim Bailey, Head Fire Prevention Engineer(NOA)
Fire Prevention Division
5823 Rickenbacker Road
Commerce, California 90040
(323) 890-4132

Scott Jaeggi, Inspector(CD)
Fire Prevention Division
Land Development Unit
5823 Rickenbacker Road
Commerce, California 90040
(323) 890-4238

Los Angeles County Arts Commission (CD)

Greg Esser, Civic Art Program Director
1055 Wilshire Boulevard, Suite 800
Los Angeles, California 90017
(213) 580-0017

Martin Luther King, Jr. Multi-Service Ambulatory Care Center *(EIR+CD)

Administration Office
Cynthia Moore-Oliver or Elaine Saafir
12021 South Wilmington Avenue
Los Angeles, CA 90059
(310) 668-5201

Metropolitan Transit Authority(CD)

Susan Chapman, Program Manager
Long Range Planning
Metro CEQA Review Coordination
One Gateway Plaza MS 99-23-2
Los Angeles, California 90012
(213) 922-6908

Office of the Los Angeles County Clerk(EIR + CD)

Environmental Filings
12400 Imperial Highway, Room 2001
Norwalk, California 90650
(562) 462-2057

Public Library(EIR + CD)

Ms. Alice Tang, Community Library Manager
Willowbrook Library
11838 South Wilmington Avenue
Los Angeles, California 90059
(323) 564-5698

Sanitation Districts of Los Angeles County(CD)

Adriana Raza
Will Serve Program
Facilities Planning Department
1955 Workman Mill Road
Whittier, California 90601
(562) 908-4288 ext. 2717

Second Supervisorial District(EIR + CD)

Mark Ridley-Thomas, Supervisor, Second District
866 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012
(213) 974-2222

Sheriff's Department(CD)

Leroy D. Baca, Sheriff
4700 Ramona Boulevard
Monterey Park, California 91754
(323) 267-4800

12.2 INTERESTED PARTIES

In addition to the parties listed above, the NOA of the EIR were mailed to 279 interested parties and 1,276 property owners within a 0.25-mile radius of the proposed project.[2]

---

[2] These addresses are on file at Sapphos Environmental, Inc., Pasadena, California.

Martin Luther King, Jr. Medical Center Campus Redevelopment Project

DRAFT ENVIRONMENTAL IMPACT REPORT

(SCH #2010031040)

Volume II

Prepared for:

County of Los Angeles
Chief Executive Office
Kenneth Hahn Hall of Administration
West Temple Street, Room 754
Los Angeles, CALIFORNIA 90012

Prepared by:

Sapphos Environmental, Inc.
430 North Halstead Street
Pasadena, California 91107

August 2010

VOLUME II

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Appendix C	Air Quality and Greenhouse Gas Emissions Technical Impact Report
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APPENDIX A
INITIAL STUDY, SCOPING MEETING COMMENTS, AND COMMENT LETTERS

MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

INITIAL STUDY

PREPARED FOR:

COUNTY OF LOS ANGELES
CHIEF EXECUTIVE OFFICE
KENNETH HAHN HALL OF ADMINISTRATION
500 WEST TEMPLE STREET, ROOM 754
LOS ANGELES, CALIFORNIA 90012

PREPARED BY:

SAPPHOS ENVIRONMENTAL, INC.
430 NORTH HALSTEAD STREET
PASADENA, CALIFORNIA 91107

MARCH 8, 2010

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SECTION 1.0
PROJECT DESCRIPTION

1.1 PROJECT TITLE

Martin Luther King, Jr. Medical Center Campus Redevelopment Project

1.2 LEAD AGENCY

County of Los Angeles

1.3 PRIMARY CONTACT PERSON

Ms. Sabra White
County of Los Angeles
Chief Executive Office
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 754
Los Angeles, California 90012
Telephone: (213) 974-2620

1.4 PROJECT LOCATION

The proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) site is located on the existing 38-acre Martin Luther King, Jr. Medical Center Campus, at 12021 Wilmington Avenue in the unincorporated area of Willowbrook, County of Los Angeles (County), California (Figure 1.4-1, *Project Location Map*).

The proposed project site is located approximately 3 miles north of State Route 91 (SR-91; Artesia Freeway), approximately 3 miles northeast of Interstate 710 (I-710; Long Beach Freeway), approximately 2 miles east of I-110 (Harbor Freeway), less than 1 mile south of SR-90 (East Imperial Highway), and less than 1 mile south of I-105 (Glen Anderson Freeway) (Figure 1.4-2, *Regional Vicinity Map*). The proposed project site can be accessed from East 120th Street or from Wilmington Avenue.

The proposed project site is bounded on the north by East 120th Street, on the east by Wilmington Avenue, on the south by a narrow alley which separates the proposed project site from the residential neighborhood which is largely located north of East 122nd Street, and on the west by Compton Avenue of Los Angeles (Figure 1.4-1). The proposed project site is less than 1 mile north of the City of Compton and less than 1 mile west of the City of Lynwood (Figure 1.4-3, *Local Vicinity Map*). The proposed project site is also less than 1 mile south of the City of Los Angeles.

The proposed project site appears on the U.S. Geological Survey (USGS) 7.5-minute series South Gate topographic quadrangle (Figure 1.4-4, *Topographic Map*).[1] Elevations at the proposed project site range from 86 feet above mean sea level (MSL) to 88 feet above MSL. The topography of the site can be generally characterized as flat.

---

[1] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

SOURCE: ESRI, SEI

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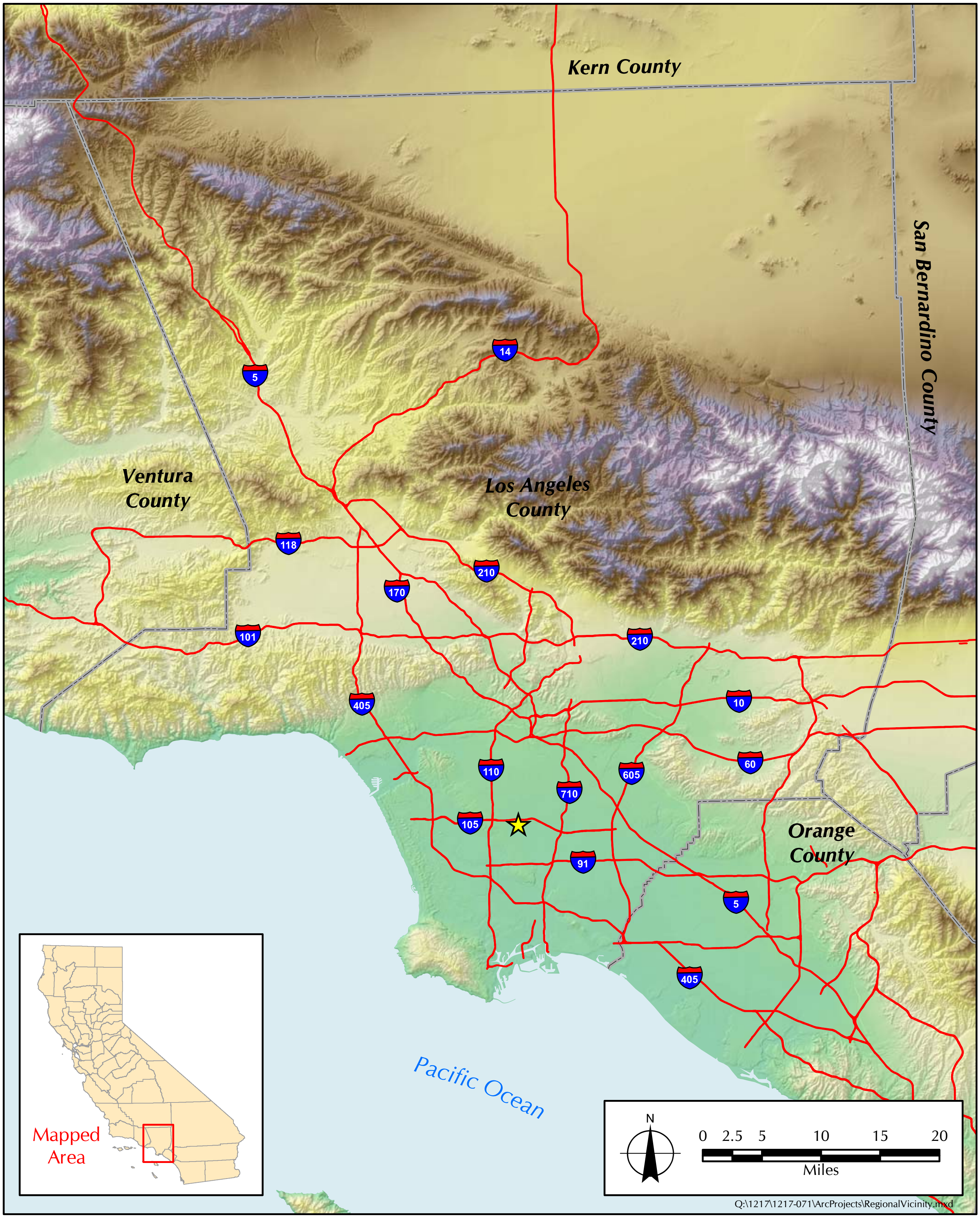
FIGURE 1.4-1

Project Location Map



★ Proposed Project Location

FIGURE 1.4-2

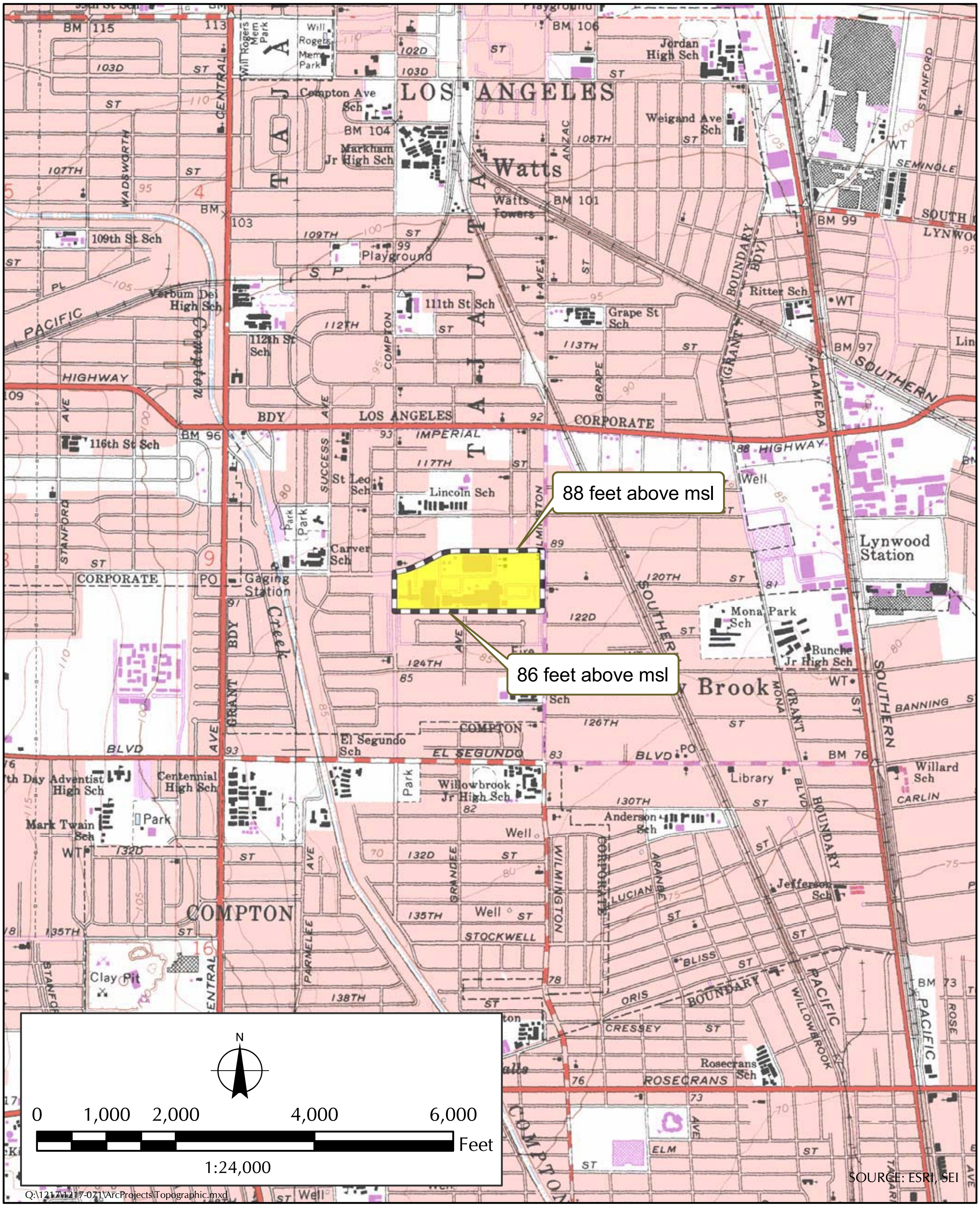
Regional Vicinity Map

SOURCE: SEI, GlobeXplorer

Q:\1217\1217-071\ArcProjects\LocalVicinity.mxd

FIGURE 1.4-3

Local Vicinity Map



88 feet above msl

86 feet above msl

SOURCE: ESRI, SEI

Q:\1217\1217-071\ArcProjects\Topographic.mxd

▨ Proposed Project Boundary

FIGURE 1.4-4

Topographic Map

1.5 PROJECT SPONSORS

Martin Luther King, Jr. Medical Center
12021 Wilmington Avenue
Los Angeles, California 90059
Telephone: (310) 668-4254

County of Los Angeles
Chief Executive Office
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 754
Los Angeles, California 90012

1.6 GENERAL PLAN LAND USE DESIGNATION

The proposed project site consists of County Office of the Assessor parcel numbers (APNs) 6140-028-902, 6140-028-900, 6140-028-907, and 6140-028-903. The County General Plan land use designation for these APNs is Public and Semipublic Facilities (P). According to the County General Plan, the Public and Semipublic land use designation provides for activities by public and quasipublic entities and allows for the establishment of facilities, infrastructure, and their related operations in these areas that are public or semipublic in nature, including hospitals (Figure 1.6-1, *General Plan Land Use*).[2] The current use of the proposed project site as a medical facility is in conformance with this land use designation.

The land use designations surrounding the proposed project site include the Public and Semipublic Facilities and Major Commercial (C) to the north, Medium-density Residential [12 to 22 dwelling units (du)/acre] to the east, Low-density Residential (1 to 6 du/acre) to the south, and Low-density Residential (1 to 6 du/acre) and Low/Medium-density Residential to the west. Other land uses within the vicinity of the proposed project site include High-density Residential, Major Commercial, Major Industrial, Open Space, and Transportation Corridor (Figure 1.6-1).

1.7 ZONING

The County zoning designation for all project parcels (APNs 6140-028-902, 6140-028-900, 6140-028-907, and 6140-028-903) is Neighborhood Commercial (C-2; Neighborhood Business Zone) (Figure 1.7-1, *Zoning Designations*). This zoning designation is established to identify community-related commercial uses and permits the following uses: drugstores, medical clinics (including laboratories), professional or business office space, parking lots and buildings, and hospital equipment and supply rentals.[3]

The County has established development standards for the Neighborhood Business Zone:

> No more than 90 percent of the net area be occupied by buildings, with a minimum of 10 percent of the net area landscaped with a lawn, shrubbery, flowers

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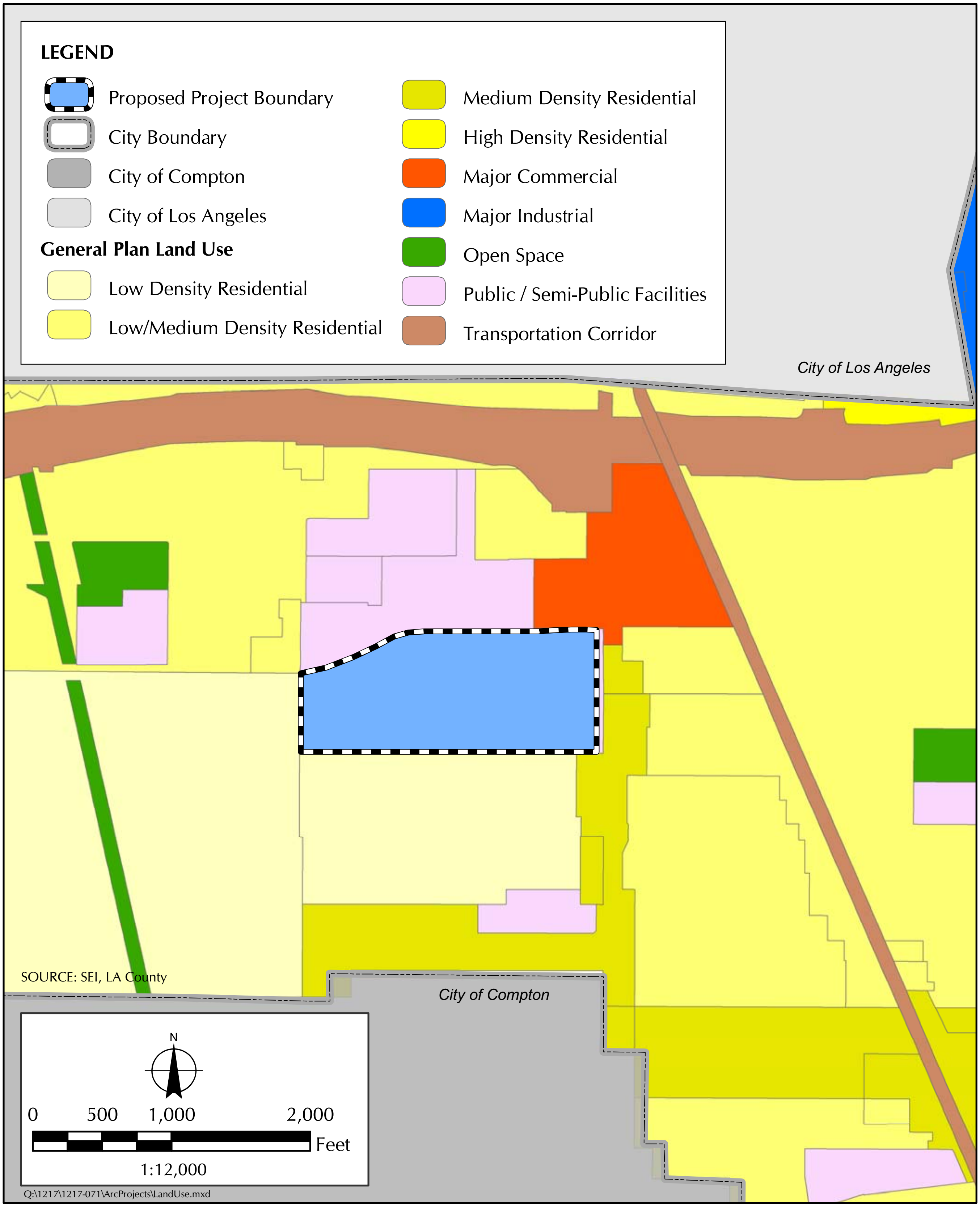
[2] County of Los Angeles Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

[3] County of Los Angeles Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

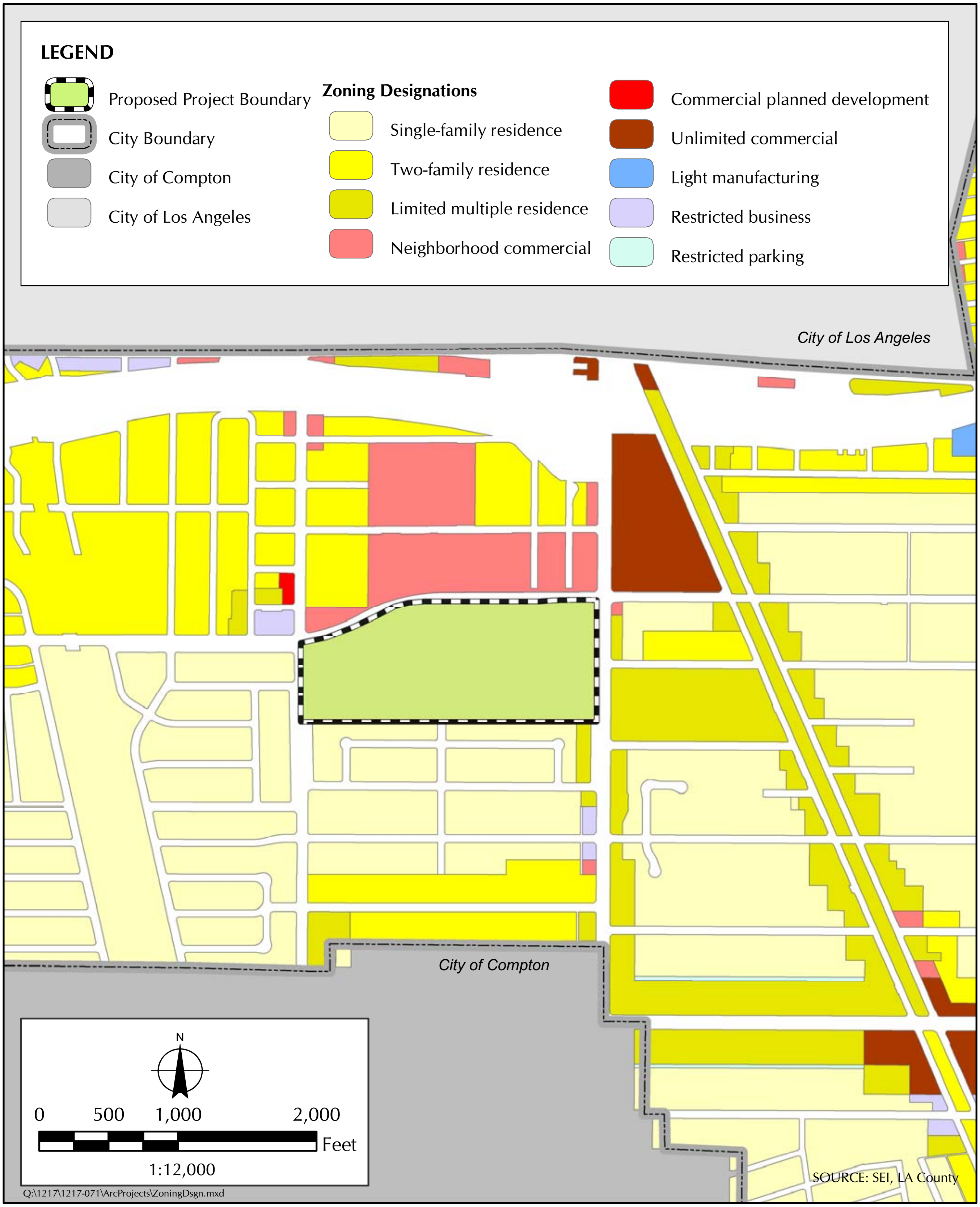


SOURCE: SEI, LA County

Q:\1217\1217-071\ArcProjects\LandUse.mxd

FIGURE 1.6-1

General Plan Land Use



SOURCE: SEI, LA County

FIGURE 1.7-1

Zoning Designations

> and/or trees, which shall be continuously maintained in good condition. Incidental walkways, if needed, may be developed in the landscaped area; that there be parking facilities as required by Part 11 of Chapter 22.52; and that a building or structure shall not exceed a height of 35 feet above grade, excluding signs which are permitted by Part 10 of Chapter 22.52 (such as chimneys, and rooftop antennas).[4]

Zoning designations surrounding the proposed project site include Single-family Residential (R-1) to the south and west, Limited Multiple Residences (R-3) to the east, and Two-family Residence (R-2) and Commercial (C-2; specifically, Neighborhood Commercial) to the north. Other zoning designations within the vicinity of the proposed project site include Commercial Planned Development, Unlimited Commercial, Light Manufacturing, Restricted Business, and Restricted Parking (Figure 1.7-1). The proposed project's hospital-related uses would be consistent with the permitted uses of this zoning designation, and no General Plan amendment or zone change would be required. However, uses related to residential development would be subject to a conditional use permit and would be required to meet the conditions of the permit.[5] It is anticipated that the County would obtain a conditional use permit during the planning phase of the proposed project and would be required to meet the specified conditions.

1.8 BACKGROUND AND EXISTING CONDITIONS

1.8.1 Background

The Martin Luther King, Jr. Medical Center Campus began operations in 1972. The Martin Luther King, Jr. Medical Center Campus was developed to address a need for local community services in south Los Angeles. Following the 1965 Watts Civil Unrest/Riots, a commission appointed by the Governor reported a lack of healthcare access as one of the contributing factors to the unrest.[6]

The hospital was operational from 1972 to August 2007, when the license was suspended for the provision of inpatient services at the Martin Luther King, Jr. Medical Center Campus due to concerns over levels of service. Currently, the existing Martin Luther King, Jr. Medical Center Campus (existing campus) is not fully operational; however, the proposed project site provides various outpatient and administrative support services. In 2009, the County initiated improvements to the existing campus to provide community-based inpatient hospital functions and support spaces that would be seismically compliant beyond 2030 seismic standards established by the Office of Statewide Health and Planning Development (OSHPD). These improvements to the existing campus would be an adjacent and ongoing project.

In 2009, a Categorical Exemption was approved by the County Board of Supervisors for minor renovations and improvements to the existing campus. This process allowed the minor renovations and improvements to the campus to be exempt from the State California Environmental Quality Act (CEQA) process under Class 1, "Existing Facilities"; Class 2, "Replacement or reconstruction of existing schools and hospitals to provide earthquake resistant structures which do not increase

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[4] County of Los Angeles Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

[5] County of Los Angeles. Accessed November 12, 2009. *Title 22, Planning and Zoning*. Available at: http://ordlink.com/codes/lacounty/_DATA/TITLE22/Chapter_22_28_COMMERCIAL_ZONES.html#3

[6] County of Los Angeles. Accessed 9 October 2009. *Los Angeles County Health Services, MLK-MACC*. Available at: *http://www.ladhs.org/wps/portal/KingHomepage*

capacity more than 50 percent"; and Class 3, "New Construction or Conversion of Small Facilities;"[7] Categorical Exemption [Sections 15301, 15302, and 15303 of the Guidelines], pursuant to the requirements specified in Section 15300.2 of the State CEQA Guidelines.

The upgrades that will be completed as part of the ongoing CEQA-exempt project on the campus include renovation and improvements of up to 172,591 square feet within the Inpatient Tower to include hospital beds and other hospital functions, including the placement of the Emergency Department (ED) on the first floor of the Inpatient Tower, renovation to the basement and second floor, and build-out of three unused upper floors to accommodate the hospital functions use. In addition, the improvements include necessary renovations within other buildings on the existing campus to accommodate various hospital support functions, hospital administration support, and other outpatient services. Renovations to house the hospital support functions and hospital administration support will be placed in the Pediatric Acute Care, Medical Records and Laundry, North Support, South Support, Central Plant, and Plant Management buildings. Renovations to house the outpatient services will be placed in the existing Multiservice Ambulatory Care Center (MACC; formerly known as the Main Hospital Building). The Pediatric Acute Care building will be renovated to serve as the hospital entry and lobby area. Finally, a Pneumatic Tube System (PTS) will be installed in the penthouse to the roof of the Medical Records building. The PTS will serve the Inpatient Tower and Augustus F. Hawkins Comprehensive Mental Health Center buildings. The work described above will operate with the capacity of up to 120 licensed beds; the 120 beds will be located on the first through fifth floors of the Inpatient Tower. These adjacent and ongoing CEQA-exempt improvements to the campus serve as a related project for the proposed project.

The renovations and improvements to the campus as described above will allow the County to regain the hospital license and quickly and cost-effectively meet the unmet inpatient needs for the community, while also allowing the County to reopen a fully functional medical campus that more accurately reflects community needs.

The existing structures within the proposed project site are described in the following section. The existing campus information described in this section are based on information provided by the County Chief Executive Office and County Department of Public Works, as well as from information described in a Martin Luther King, Jr. Medical Center Campus Planning Programming Report that was prepared by HMC Architects.[8]

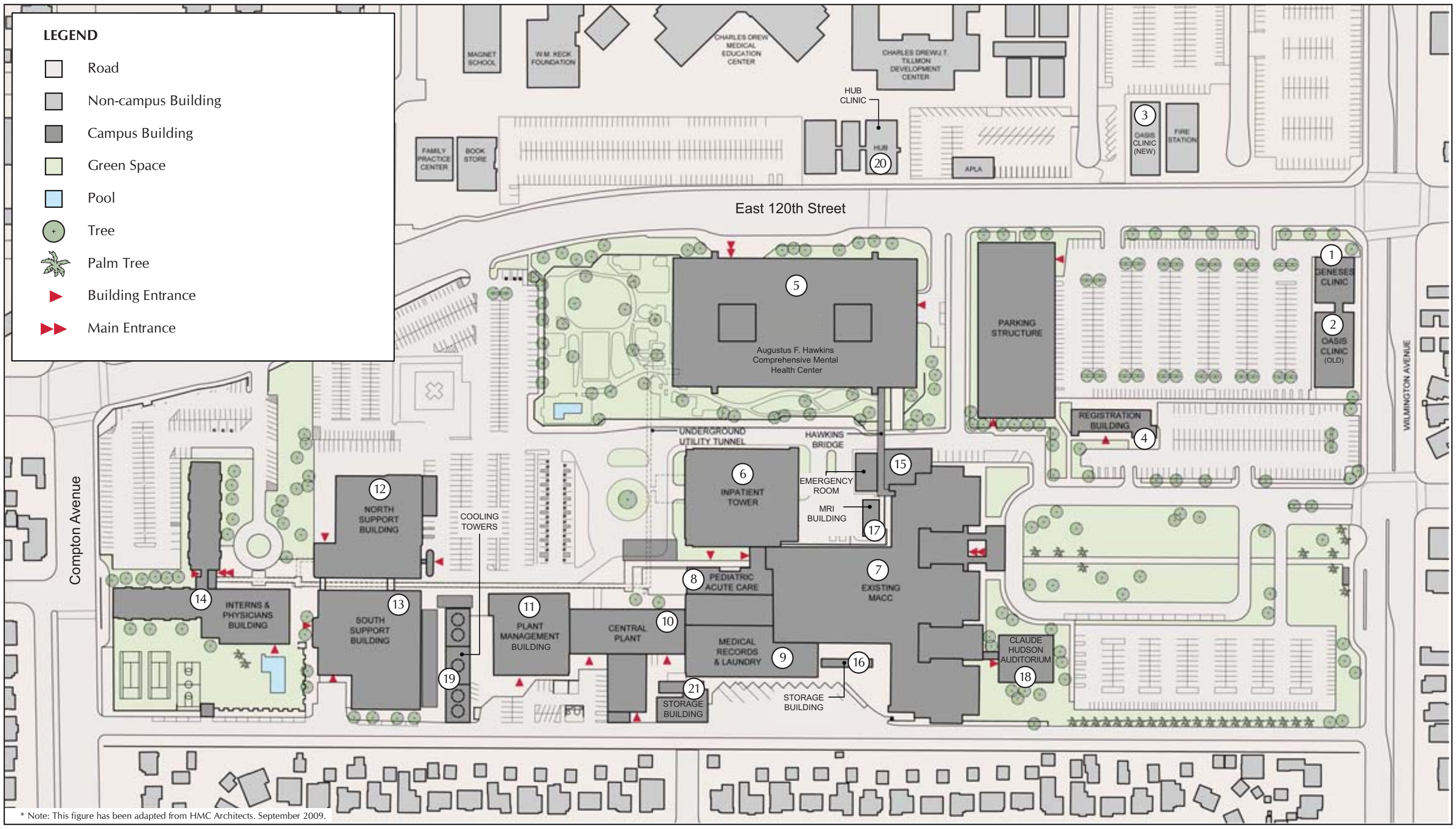
1.8.2 Existing Structures

The proposed project site consists of 15 buildings: Geneses Clinic, Oasis Clinic (old), Oasis Clinic (new), Registration Building, Augustus F. Hawkins Comprehensive Mental Health Center, Inpatient Tower, MACC, Pediatric Acute Care Building, Medical Records and Laundry Building, Central Plant, Plant Management Building, North Support Building, South Support Building, Interns and Physicians Building, and Hub Clinic. There is also a multilevel parking structure available for parking and several support and ancillary buildings and facilities including: an Emergency Room, Magnetic Resonance Imaging (MRI) Building, Claude Hudson Auditorium, Cooling Towers, and Storage Building on the proposed project site (Figure 1.8.2-1, *MLK Existing Campus Plan*, and Table 1.8.2-1, *Existing Buildings*). Below are structural descriptions and status of the existing buildings and other structural components. The developed floor area (not including the parking

---

[7] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15301–3.

[8] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.



* Note: This figure has been adapted from HMC Architects. September 2009.

FIGURE 1.8.2-1
MLK Existing Campus Plan

structure) is approximately 1.2 million square feet. The existing conditions on the campus (which may exclude some of the ongoing renovations and improvements to the buildings as described above in Section 1.8.1, Background) provide the existing baseline conditions for these buildings.

TABLE 1.8.2-1
EXISTING BUILDINGS

	Building Name	Floor Area (square feet)	Would Buildings Remain Following the Development of the Proposed Project? (Y/N)	Floors	Currently Operational	Footprint of Campus Buildings (square feet)
1	Geneses Clinic	2,100	Y	1	N	2,100
2	Oasis Clinic (old)	2,580	Y	1	N	2,580
3	Oasis Clinic (new)	1,850	Y	1	Y	1,850
4	Registration Building	10,950	Y	2	Y	5,475
5	Augustus F. Hawkins Comprehensive Mental Health Center	226,818	Y	3 (and a basement)	Y	75,606
6	Inpatient Tower	187,676	Y	5 (and a basement)	Y	37,535
7	MACC	495,335	N	5 (and a basement)	Y (not fully operational)	99,067
8	Pediatric Acute Care	7,878	Y	1	Y	7,878
9	Medical Records and Laundry	26,355	Y	1	Y	26,355
10	Central Plant	24,103	Y	1	Y	24,103
11	Plant Management Building	15,648	Y	1	Y	15,648
12	North Support Building	52,276	Y	2	Y	26,138
13	South Support Building	34,762	Y	2	Y	17,381
14	Interns and Physicians Building	124,391	Y	6	Y (not fully operational)	20,731
15	Emergency Room	3,300	N	1	Y	3,300
16	Storage Building	1,060	N	1	Y	1,060
17	MRI Building	1,100	Y	1	Y	1,100
18	Claude Hudson Auditorium	3,922	Y	1	Y	3,922
19	Cooling Towers[a]	6,790	N	1	Y	6,790
20	Hub Clinic	12,265	Y	1	Y	12,265
21	Storage Building[b]	2,533	Y	1	Y	2,533
	EXISTING CAMPUS TOTAL	**1,243,692**				**393,417**

NOTE:
a. These structures would likely be demolished following the reuse or replacement of the existing MACC building.
b. This building is in the footprint of the Central Plant expansion, but may just be incorporated during design and remain.

1.8.2.1 Geneses Clinic

The Geneses Clinic is a 2,100-square-foot outpatient clinic located on the north-eastern portion of the proposed project site. The Geneses Clinic is attached by a walkway to the Oasis Clinic. This clinic is currently not operational.

1.8.2.2 Oasis Clinic (Old)

The Oasis Clinic is a 2,580-square-foot HIV/AIDS clinic that provided comprehensive HIV/AIDS medical care to patients, while it was operational. The services of this clinic included nutritional counseling; treatment education; women's services; mental health; on-site case management; Aids Drug Assistance Program enrollment, orientation, and education for patients diagnosed with HIV; hormone therapy; and adolescent services. This clinic is currently not operational.

1.8.2.3 Oasis Clinic (New)

The Oasis Clinic is a 1,850-square-foot HIV/AIDS clinic that provides comprehensive HIV/AIDS medical care to patients. The services of this clinic include nutritional counseling; treatment education; women's services; mental health; on-site case management; Aids Drug Assistance Program enrollment, orientation, and education for patients diagnosed with HIV; hormone therapy; and adolescent services.

1.8.2.4 Registration Building

The 10,950-square-foot Registration Building is a two-story building, which provides office space in support of the campus. The registration building is located off the existing main entrance of the proposed project site, off Wilmington Avenue.

1.8.2.5 Augustus F. Hawkins Comprehensive Mental Health Center

The existing 226,818-square-foot Augustus F. Hawkins Comprehensive Mental Health Center is a three-story building with a partial one-level basement and was constructed in 1979. The building provides inpatient and outpatient mental healthcare. This building is composed of reinforced-concrete construction. The lateral-force-resisting system is composed of reinforced-concrete shear walls. The foundation system is composed of reinforced-concrete piles. The building is categorized by the OSHPD as Structural Performance Category–4 (SPC-4), which means that the building can remain functional to beyond the year 2030.

1.8.2.6 Inpatient Tower

The 187,676-square-foot Inpatient Tower was constructed in 1993. This building consists of a five-floor facility with a one-level basement that provides outpatient services. The roof of the Inpatient Tower contains a helipad. The building is base isolated, utilizing rubber bearing isolators and sliders to reduce the seismic forces or accelerations experienced by the building in a seismic event. The building superstructure is composed of structural steel construction. The gravity system utilizes a concrete-filled metal deck supported by structural steel beams, girders, and columns. Special concentric-braced frames are used for the building's lateral-force-resisting system. The foundation system is composed of cast-in-place concrete-drilled piles. The SPC of the building is categorized by California OSHPD as SPC-5, which is the highest SPC rating and permits the building to be used for hospital functions beyond the year 2030.

1.8.2.7 Multiservice Ambulatory Care Center Building

The existing 495,335-square-foot MACC was constructed in the late 1960s. This building is a six-story building with a penthouse constructed in the late 1960s. The building consists of three structurally independent buildings: Central Tower, North Tower, and South Tower. This building was formerly used as a 437-bed inpatient, outpatient, and emergency facility. All components of the MACC building are composed of reinforced concrete construction. The gravity system utilizes two-way reinforced concrete slabs supported by reinforced concrete beams and columns. The lateral-force-resisting system is composed of reinforced concrete shear walls. The foundation system is composed of cast-in-place concrete drilled piles. The SPC of the building is categorized by OSHPD as SPC-1.

1.8.2.8 Pediatric Acute Care Building

The existing 7,878-square-foot Pediatric Acute Care Building is a one-story building with a mezzanine level and was constructed in 1992. The building is composed of structural steel construction. The gravity system utilizes a concrete-filled metal deck supported by structural steel beams, girders, and columns. Special concentric braced frames are used for the building's lateral-force-resisting system. The foundation system is composed of cast-in-place concrete drilled piles. The building is categorized by OSHPD as SPC-3, which permits the building to remain functional to the year 2030 and beyond. The existing Nonstructural Performance Category (NPC) of the building is NPC-3. Under the CEQA-exempt ongoing project, the building will be upgraded to continue to be used for hospital functions.

1.8.2.9 Medical Records and Laundry Building

The existing 26,355-square-foot Medical Records Building is a one-story building constructed in 1972. The building is composed of reinforced-concrete construction. The gravity system utilizes two-way reinforced-concrete slabs supported by reinforced-concrete beams and columns. The lateral-force-resisting system is composed of reinforced-concrete shear walls. The foundation system is composed of cast-in-place concrete drilled piles. The building is categorized by the OSHPD as SPC-2, which means that the building can remain functional until only the year 2030, unless it is brought into compliance with the OSHPD structural provisions. Under the CEQA-exempt ongoing project, the building will be upgraded seismically to bring it up to OSHPD SPC-4 or SPC-5, thus allowing the building to be used for inpatient functions until the year 2030 and beyond. The seismic retrofit work would include the addition of new reinforced-concrete shear walls, mitigation of existing discontinuous shear wall conditions, and possible localized strengthening of existing foundations. The building is also expected to be completely gutted, and all new nonstructural and information technology work would comply with the current code.

The CEQA-exempt, ongoing project includes installation of a pneumatic tube blower room on the roof of the existing building. This would probably require strengthening of the building as well as localized strengthening of the framing to support the added weight.

1.8.2.10 Central Plant

The 24,103-square-foot Central Plant was constructed in two phases. The Phase I component is a single-story building, with partial mezzanine floor, built in the 1960s. Roof structure consists of reinforced concrete one-way slab supported by tapered steel girder. Concrete shear walls form the perimeter of the building and provide the seismic bracing for the building. Foundation system of the building consists of cast-in-place concrete piles. However, the mechanical, electrical, and plumbing equipment upgrade within it and some structural work (voluntary) were performed in 1993 under OSHPD permit number HS912289. OSHPD records show the building rated as SPC-1. Under the CEQA-exempt ongoing project, the building will be upgraded seismically to bring it up to OSHPD SPC-4 or SPC-5, thus allowing the building to be used for hospital function until the year 2030 and beyond.

The Central Plant Phase II building, located to the south of the Phase I building, was constructed in 1975. The building structure currently has an SPC-4 rating; therefore, no seismic retrofit upgrade of the building is required. The construction of the Phase II building is similar to the Phase I building. There is an underground water storage tank, measuring 47 feet by 47 feet by 22.5 feet deep and occupying the southern half of the building. Construction of water storage tank consists of cast-in-place concrete slabs and walls. Under the CEQA-exempt ongoing project, new plant equipment will be placed on the floor slab above the tank, which may require strengthening.

The CEQA-exempt ongoing project, a 6,000-square-foot expansion to the Central Plant will include installation of chiller equipment on the roof.

1.8.2.11 Plant Management Building

The 15,648-square-foot Plant Management Building supports campus functions at the proposed project site. This building is architecturally comparable to the other structures on the proposed project site in that it has concrete walls. Under the CEQA-exempt ongoing project, renovations and improvements to the interior of the building may be required.

1.8.2.12 North Support Building

The existing 52,276-square-foot North Support Building is a two-story building, constructed in two phases. The original building, which consisted of the lower full level and a partial second level, was built as a concrete structure in 1973. The second floor and roof consist of two-way waffle slab supported on concrete columns. Perimeter concrete walls provide lateral bracing to the structure. Foundation system consists of cast-in-place drilled pile. The second phase consisted of capturing the setback area over the second floor at the east side to provide additional space in the late 1980s. The addition was constructed of steel framing with concrete fill roof deck. The two phases appear to be connected so that the buildings function structurally as one. Under the CEQA-exempt ongoing project, interior renovations to the first and second floors will be included.

1.8.2.13 South Support Building

The 34,762-square-foot South Support building is a single-story concrete building with partial mezzanine floor, built in the early 1970s. Construction is similar to the North Support building. The gravity system of the building consists of concrete waffle slab supported on concrete columns. The lateral-force-resisting system is composed of reinforced concrete shear walls. Under the CEQA-exempt ongoing project, interior renovations will be included.

1.8.2.14 Interns and Physicians Building

The 124,391-square-foot Interns and Physicians Building is a six-story building also built in the 1970s. This building is currently not fully operational. This building housed mainly the interns and physicians involved in the Physician Assistant Program of the Charles R. Drew Postgraduate Medical School. This building is architecturally comparable to the other structures on the proposed project site in that it has concrete walls.

1.8.2.15 Emergency Room

The 3,300-square-foot Emergency Room is connected to the northwestern portion of the existing MACC Building. This one-story structure served as a waiting room for the emergency room. This structure would be demolished following the reuse or replacement of the existing MACC building.

1.8.2.16 Storage Building

The 1,060-square-foot, one-story Storage Building is currently used for campus storage. This building is located south of the existing MACC building and would be demolished following the reuse or replacement of the existing MACC building.

1.8.2.17 Magnetic Resonance Imaging Building

The 1,100-square-foot MRI Building houses the MRI systems. This one-story structure is located north of the existing MACC building and may be relocated in Tier I of the proposed project.

1.8.2.18 Claude Hudson Auditorium

The 3,922-square-foot Claude Hudson Auditorium is a one-story structure that is attached by a walkway to the existing MACC building. This building would remain following the reuse or replacement of the existing MACC building.

1.8.2.19 Cooling Towers

The 6,790-square-foot Cooling Towers are one-story structures that serve the heat removal and heating, ventilating, air conditioning functions of the existing MACC. These structures would likely be demolished following the reuse or replacement of the existing MACC building in Tier II of the proposed project.

1.8.2.20 Hub Clinic

The 12,265-square-foot Hub Clinic is situated north of the Hawkins Building off East 120th Street. This is a one-story building. The Hub Clinic services the needs of children and families in the foster care system.

1.8.2.21 Storage Building

The 2,533-square-foot, one-story Storage Building is currently used for storage. This building is located south of the Central Plant and Medical Records and Laundry Buildings.

1.8.2.22 Additional Support Structures

1.8.2.22.1 Existing Tunnel

The existing underground utility tunnel was constructed in two phases. The Phase I tunnel extends north from the north side of Central Plant Phase I and connects to the east-west segment serving the existing MACC building to the east and Interns and Physicians Building to the west. Phase I tunnel was constructed in the early 1970s. Under the CEQA-exempt ongoing project, the existing Phase I tunnel will be seismically retrofitted to obtain an SPC-5 rating.

The Phase II tunnel consists of north-south segment extending north from the Phase I tunnel to serve the Hawkins Building and Inpatient Tower. The Phase II tunnel was built in late 1970s.

1.8.2.22.2 Existing Retaining Wall between Hawkins Building and Inpatient Tower

The existing concrete retaining wall is about 500 feet long spanning in the east-west direction, between the Hawkins Building to the north and the service road to the south. The retaining wall was built in the late 1970s. The existing retaining wall and footings appear to be structurally adequate under the current lateral soil loadings. Strengthening of the retaining wall is not anticipated.

1.8.3 Existing Operational Conditions

The existing campus currently provides urgent care services and outpatient clinic services. The Urgent Care Center consists of 27 treatment spaces and operates out of the space that was previously occupied by the Emergency Department.[9,10] There are currently 70 specialty Outpatient Clinics operating at the existing hospital.[11]

The Outpatient Clinics and Departments available at MLK include but are not limited to:[12]

- Ancillary Services
  - Echocardiogram
  - Electroencephalogram
  - Occupational Therapy
  - Physical Therapy
- Community Health Plan
  - Adult
  - Pediatric
- Internal Medicine
  - Cardiology
  - Chemotherapy
  - Chest
  - Dermatology
  - Diabetic
  - Dietary
  - Endocrinology
  - Gastroenterology
  - General medicine
  - Geriatrics
  - Hematology-Oncology
  - Hypertension

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[9] Los Angeles County Health Services. *Departments and Clinics*. Accessed on February 2, 2010. Available at: http://www.ladhs.org/wps/portal/KingHomepage

[10] The Urgent Care Center treats non-life threatening medical problems such as sprains or fractures, minor injuries and rashes, and colds and fevers.

[11] Los Angeles County Health Services. *Departments and Clinics*. Accessed on February 2, 2010. Available at: http://www.ladhs.org/wps/portal/KingHomepage

[12] Los Angeles County Health Services. *Departments and Clinics*. Accessed on February 2, 2010. Available at: http://www.ladhs.org/wps/portal/KingHomepage

    - Neurology
    - OASIS HIV/AIDS Clinic
    - Renal
- Obstetrics/Gynecology
    - Colposcopy
    - Gynecology
    - Gynecology oncology
    - Obstetrics
- Ophthalmology
    - General eye
- Oralmaxillofacial
    - General Dental
    - Oral surgery
- Orthopedic
    - General Orthopedic
    - Hand Orthopedic
- Otolaryngology (Ear, Nose, and Throat)
    - Adult allergy
    - Audiology
    - General (Ear, Nose, and Throat)
    - Oncology (Head and Neck)
- Pediatric
    - Allergy
    - Cardiology
    - Chest
    - Dermatology
    - HUB (Children in Foster Care)
    - Pediatric Intervention Program
    - Nutrition
- Pulmonary Services
- Pharmacy
- Radiology Services
    - Magnetic Resonance Imaging (MRI)
    - Mammography
    - Nuclear Medicine
    - Ultrasound
- Surgery
    - Breast (Minor)
    - General surgery
    - Prostate
    - Urology

Although the proposed project site is not currently operating at full capacity, the past operational use of the existing campus will provide a reference for the capacity of the proposed project site to operate at full capacity and will also be utilized to further establish baseline conditions for this analysis.

1.8.3.1 Patient Volume

The existing patient volume on the campus is largely determined by the MACC patient volume and services. The patient volume for the MACC, based on the 2008–2009 workload, is as follows: 160,000 annual outpatient services visits (including 11,000 walk-in clinic visits); 10,000 inpatient visits; 30,000 annual emergency services visits; 2,700 inpatient surgery procedures; and 3,500 outpatient surgery procedures.

1.8.3.2 Accessibility

The existing campus is accessible via both pedestrian and vehicular traffic. Public access is available off 120th Street and Wilmington Avenue. There is a service entry to the loading docks and buildings located off Compton Avenue, and there is one ambulance ED entry to the existing campus located off 120th Street.

1.8.3.3 Parking

There are 1,925 parking spaces on the existing campus.[13] Although 2,994 parking spaces would be required by County Code, a parking forecast prepared for the existing campus determined that approximately 1,915 parking spaces were required on the existing campus due to the proximity of public transportation.[14]

1.8.3.4 Public Transportation

The existing campus is currently accessible by public transportation. There are two bus stations located on the existing campus boundary: one bus station is located on the northern boundary on 120th Street, and one bus station is located on the eastern boundary on Wilmington Avenue. In addition, a blue line and green line metro stations are located approximately 0.5 mile northeast of the existing campus; the blue line and green line metro stations have a shuttle bus that transports individuals between the existing campus and blue line and green line metro stations. It is anticipated that these public transportation services would continue to operate following completion of the proposed project.

The County Board of Supervisors currently funds the *Hahn's Trolley and Shuttle Service*, which provides shuttle services to the community surrounding the existing campus. *Hahn's Trolley and Shuttle Service* operates three interconnecting routes. The County also funds a van service, *L.A. County Dial-A-Ride,* in the community surrounding the campus that provides transportation service for senior citizens and people with disabilities who reside within the unincorporated areas of Willowbrook, Walnut Park, Florence/Graham, Athens, Rosewood, and Rancho Dominguez.

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[13] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[14] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

1.8.3.5 Utilities

The existing campus is connected to the public utilities, water, gas, and sewer through a system of underground piping, valves, and access points to all the buildings. This complex piping system is used to maintain the connectivity from the buildings to the utilities in the streets.[15]

Existing utilities for the campus are provided through the following equipment and structures: underground utility tunnel, cooling towers, electrical equipment, bulk oxygen (O_2) storage, gas cylinders, generator fuel storage, central plant, underground fuel tanks, and emergency generators.

1.8.3.5.1 Electrical Infrastructure

The existing campus is served by the Southern California Edison Company. The existing campus has the capacity to supply approximately 10 megawatts of power to the campus. A review of the existing electrical infrastructure has determined the following: (1) portions of the existing campus electric system equipment and cable, which receive power at 4160 V, have not been upgraded since the hospital was constructed in the 1970s; these systems would be replaced as part of the ongoing campus improvements; (2) many building power systems on the existing campus would need to meet the requirements of the California Electric Code and National Fire Protection Association 99, Standard for Health Care facilities. Furthermore, building power diesel generators do not meet the existing Air Quality Management District emissions requirements, and the electrical systems require modifications that will be addressed under the CEQA-exempt ongoing project.

1.8.3.6 Water Use

Water use at the existing campus has varied over time. The average water use on the campus between the years 2002 and 2006 was more than 80 million gallons (or 107,793 hundred cubic foot (HCF) unit) of water per year.[16] The maximum amount of water consumption at the campus was roughly 88 million gallons. It is anticipated that the maximum water consumption amounts for the campus following development would not be significantly greater than the maximum operational usage amount of approximately 88 million gallons.

1.8.4 Existing Campus Surroundings

The areas surrounding the existing Martin Luther King, Jr. Medical Center Campus include various commercial, retail, transit, and institutional land uses. Among these uses are the Charles Drew University of Medicine and Science (CDU), the Rosa Parks Transit Station, the Kenneth Hahn Plaza and Village, and various residential neighborhoods, commercial businesses, public and semipublic, industrial, open space, and transportation corridor uses (Figure 1.6-1).

1.8.4.1 Charles Drew University of Medicine and Science

The CDU is located between 118th Street to the north and 120th Street to the south. Historically, the existing campus and CDU have maintained a complimentary relationship; the existing campus has been used by CDU as a teaching hospital. In 2008, CDU opened a health clinic to provide

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[15] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[16] One (1) HCF equals 748 gallons of water.

service to some patients that have been impacted by the suspension of the license for the provision of inpatient services at the Martin Luther King, Jr. Medical Center Campus.[17] Just north of the existing campus, CDU is joined by other institutional uses, including the King Drew Magnet High School of Medicine and Science, and Lincoln Drew Elementary School.

1.8.4.2 Rosa Parks Transit Station

The Rosa Parks Transit Station is located northeast of the existing campus. This station houses the blue line and green line metro stations described in Section 1.8.3.4, *Public Transportation,* of this project description. As previously noted, the blue line and green line metro stations have a shuttle bus that transports individuals between the existing campus and blue line and green line metro stations.

1.8.4.3 Other Surrounding Uses

The Kenneth Hahn Plaza and Village at Willowbrook shopping center are located northeast and east of the existing campus. These areas house commercial, retail, and other uses including a public library.

These properties are not currently included in the Martin Luther King, Jr. Redevelopment efforts, as they are owned and operated by various private and public entities. However, in response to the community's interest in the inclusion of the development of these properties along with the existing campus (which is owned by the County), the County is currently reviewing alternatives and opportunities to include these properties in a master plan that encompasses the surrounding community.

1.9 PROJECT DESCRIPTION

The proposed project entails two tiers. Tier I involves project-level development of the new MACC and the Ancillary Building, tenant improvements in existing buildings, site improvements, and the potential relocation of the MRI Building. The existing buildings that would be part of Tier I of the proposed project include the North Support Building, South Support Building, Interns and Physicians Building, and the Plant Management Building.

Development of the new MACC and the Ancillary Building are currently registered with the U.S. Green Building Council under Leadership in Energy and Environmental Design for New Construction (LEED-NC).[18] The County will seek LEED Silver certification for the MACC and the Ancillary buildings.[19] The LEED program recognizes and promotes a project's success in five areas: (1) sustainable sites, (2) water efficiency, (3) energy and atmosphere efficiencies, (4) materials and resources, and (5) indoor environmental quality. In addition, the federal government has a program titled "Green Guide for Healthcare Construction" (GGHC), which is designed to help hospitals navigate through the LEED program. The proposed project would incorporate energy efficient and sustainable strategies throughout the construction, development, and operation of the proposed project.

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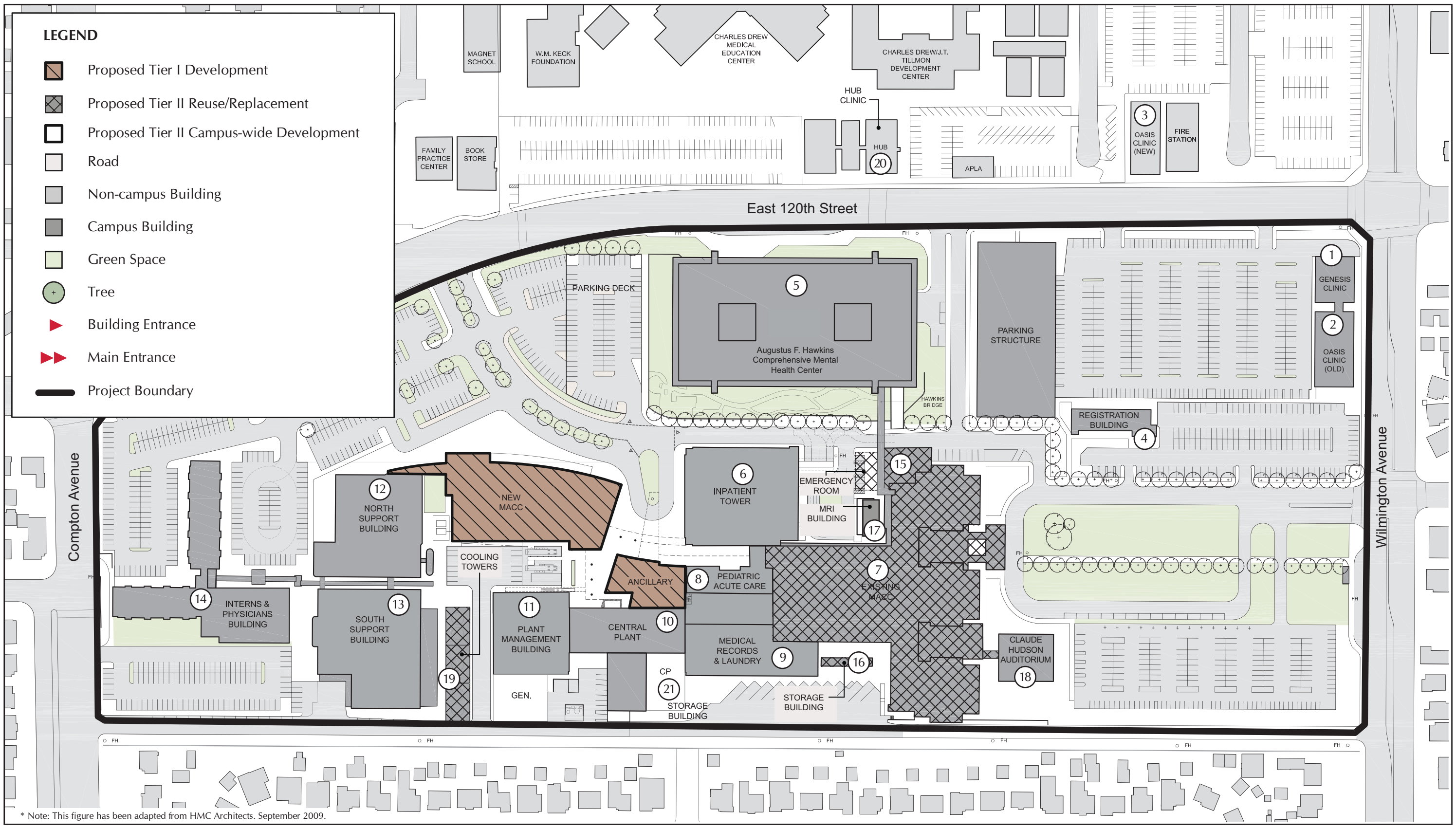
[17] Charles Drew University of Medicine and Science. Accessed 26, January 2010. Available at: http://www.cdrewu.edu/news/2008/urgent-care-clinic

[18] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus - Campus Planning and Programming Report*. Los Angeles, CA.

[19] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus - Campus Planning and Programming Report*. Los Angeles, CA.

Tier II of the proposed project would entail the reuse or replacement of the existing MACC Building, Emergency Room Expansion, Storage Building, and Cooling Towers, and master-planned, mixed-use development, which may include the potential for medical office, commercial, retail, residential, recreational, office space, and other development that is appurtenant to and compatible with the primary land use, in support of the campus.

To establish a proposed programmed development level for the mixed-use portion of Tier II, the currently undeveloped areas of the campus (undeveloped in this case includes parking lots and structures but not buildings) were calculated and adjustments were made for buildings to be demolished and developed, to obtain a surface area from which to calculate allowable build-out. A maximum build-out of this remaining area was calculated using maximum build-out criteria from the Los Angeles County Zoning Code restrictions applicable to the site. Initially, this maximum build-out number was in excess of 2 million square feet and included zoning code allowances of a maximum of three stories in building height and 10 percent open space (i.e., areas without structures). To determine a more accurate level of development for Tier II, the following assumptions were added: (1) open space sitewide would remain 10 percent in order to maintain some of the current character of the site as an open and landscaped campus; (2) the site area to be set aside for the potential development of an up to 100-unit residential component, parking structures or parking lots, and walkways would be 40 percent of the entire site; and (3) although a maximum of three stories would be allowed for new buildings, an average height of 2.5 stories was assumed. With these assumptions added in, the maximum programmed development for Tier II could consist of up to 1,814,696 square feet (Figure 1.9-1, *MLK Proposed Campus Plan*, and Table 1.9-1, *Proposed Campus Development Matrix*).



* Note: This figure has been adapted from HMC Architects. September 2009.

FIGURE 1.9-1
MLK Proposed Campus Plan

TABLE 1.9-1
PROPOSED CAMPUS DEVELOPMENT MATRIX

	Building Name	Current Total Floor Area (sq ft)	To Remain	Floors	Proposed Total Floor Area of Campus Buildings (sq ft)	Proposed Footprint of Campus Buildings (sq ft)
1	Geneses Clinic	2,100	Y	1	2,100	2,100
2	Oasis Clinic (old)	2,580	Y	1	2,580	2,580
3	Oasis Clinic (new)	1,850	Y	1	1,850	1,850
4	Registration Building	10,950	Y	2	10,950	5,475
5	Augustus F. Hawkins Comprehensive Mental Health Center	226,818	Y	3[a]	226,818	75,606
6	Inpatient Tower	187,676	Y	5[a]	187,676	37,535.2
7	Existing MACC[b]	495,335	N	5[a]	0	0
8	Pediatric Acute Care	7,878	Y	1	7,878	7,878
9	Medical Records and Laundry	26,355	Y	1	26,355	26,355
10	Central Plant	24,103	Y	1	24,103	24,103
11	Plant Management	15,648	Y	1	15,648	15,648
12	North Support Building	52,276	Y	2	52,276	26,138
13	South Support Building	34,762	Y	2	34,762	17,381
14	Interns and Physicians Building	124,391	Y	6	124,391	20,731.83
15	Emergency Room	3,300	N	1	0	0
16	Storage Building	1,060	N	1	0	0
17	MRI Building	1,100	Y	1	1,100	1,100
18	Claude Hudson Auditorium	3,922	Y	1	3,922	3,922
19	Cooling Towers[c]	6,790	N	1	0	0
20	Hub Clinic	12,265	Y	1	12,265	12,265
21	Storage Building[d]	2,533	Y	1	2533	2,533
	TIER I DEVELOPMENT					
	New MACC			4	130,000	32,500
	Ancillary Building			2	22,000	11,000
	Total Campus Area (38.36 acres)					**1,670,920**
	TIER II DEVELOPMENT					
	Total Campus Area (less the buildings retained)					1,344,219
	Total Campus Area (less 10% open space)					1,209,797
	Total Campus Area (less 40% potential residential area and parking)					725,878
	Total Campus Area (multiplied by average building stories 2.5)					1,814,696
	Total Campus Potential Build-out					**1,814,696**

NOTES:

- "Less" as used in this table means that the value is subtracted from the specified value.
- The calculations assume that the campus would retain 10-percent open space through use of landscape for the purpose of aesthetic designs / beautification, noise barriers, stormwater runoff reduction, air quality, and overall health and sustainability. The County Zoning Code specifications require a minimum of 10 percent open space).
- The calculations assume that a maximum of 40 percent of the campus would be reserved for the potential residential component and parking structures or parking lots.
- The calculations include a 2.5-story-average building-height limit, based on the existing structures. The County Zoning Code specifications require a 35' (3-story) height limit.
- There is no required setback for the development.

a. These buildings also have basements.

b. This scenario takes into account the replacement of the MACC Building. Should this structure be reused, 130,000 square feet for the MACC Building should be accounted for in both the proposed total floor area and proposed footprint of the campus buildings.

c. These structures would likely be demolished following the reuse or replacement of the existing MACC building.

d. This building is in the footprint of the Central Plant expansion but may just be incorporated during design and remain.

1.9.1 Tier I: Project Development

Tier I of the proposed project would entail the development of two new buildings: the new MACC and the Ancillary Building, tenant improvements in existing buildings, site improvements, and potential relocation of the MRI Building. Project-level environmental impact report (EIR) analysis will be provided for Tier I.

1.9.1.1 Multiservice Ambulatory Care Center Building

The proposed MACC Building would be a four-story building consisting of approximately 130,000 square feet of floor area. This building would house the walk-in clinic, outpatient imaging, outpatient surgery, and various other outpatient clinics that are currently operating in the existing MACC. The proposed building would most likely be of structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. Similar to the proposed Ancillary Building, the lateral-force-resisting system of the MACC building can be any one of the following: moment frames, braced frames, or a combination of the two. The lateral-force-resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

1.9.1.2 Ancillary Building

The proposed Ancillary Building would be a two-story structure consisting of approximately 22,000 square feet of floor area. This building would house the campus kitchen and cafeteria, and administrative offices. The building would be constructed to the east of the new MACC. A new pedestrian foot bridge would be provided at the east end of the building for connection to the existing Inpatient Tower for the transportation of materials and supplies. The bridge would most likely be constructed of steel with a seismic joint at the Inpatient Tower.

The new building would most likely be structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. The lateral-force-resisting system for the building can be any one of the following: moment frames, braced frames, or a combination of the two. It is anticipated that the lateral-force-resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

1.9.1.3 Tenant Improvements

The tenant improvements would be performed in the North Support Building to provide space for the MACC administrative departments. The South Support Building would be reorganized to serve as the main warehouse for the MACC. The South Support Building may also serve as a central distribution center for other Los Angles County healthcare facilities in the area. Other tenant improvements would be performed in the Interns and Physicians and Plant Management Buildings for support functions to the MACC.

1.9.1.4 Site Improvements

The site work would consist of a new parking terrace, new parking lots, re-striping of existing lots, and new landscaping at the entry of the new MACC and its surrounding area. A service yard with technical (tech) dock positions that connect mobile radiology equipment would also be provided.

1.9.2 Tier II: Master Plan Development

Tier II of the proposed project would entail the development of a campuswide master plan. It is anticipated that the development described in the Master Plan would seek to prepare the proposed project site for future mixed-use campus support development that would provide the health services necessary to respond to and address the needs of the community. Tier II would have the potential to build out approximately 1,814,696 square feet of development on the proposed project site with mixed uses including medical office, commercial, retail, office space, recreation, and other development in support of the campus. In addition, up to 100 residential units, to be developed at a multifamily density consistent with surrounding residential area multifamily development densities, are proposed in Tier II. The Tier II components would also entail the reuse or replacement of the existing MACC building. The Tier II components are conceptual at this time, and will therefore only be discussed in a programmatic level in the EIR, as permitted under CEQA. Once the detailed future development plans for Tier II components are prepared, consistent with the guidelines for programmatic EIRs under CEQA, the projects will be examined in light of the program EIR analysis, to determine whether an additional environmental document must be prepared.

1.10 STATEMENT OF OBJECTIVES

1.10.1 Goal

The goal of the proposed project is to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care.

The County seeks to establish the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development. The campus provides an opportunity to develop up to 1,814,696 square feet for a mix of uses, including space for medical offices, commercial, retail, residential, recreation, and general offices, in addition to any other development that will improve the community-based health program facility.

1.10.1.1 Tier I: Project Development Objectives

The County identified and prioritized the basic objectives that are important in achieving the proposed project goals for Tier I:

- Revitalize the Martin Luther King, Jr. Medical Center Campus through the provision of comprehensive medical care.
- Demonstrate leadership in sustainable planning and design.
- Create a campus environment that encourages pedestrian movement and optimizes connectivity, staff interaction, and links to the community.

- Develop a campus that is contextually integrated with the County of Los Angeles and respects the surrounding communities.
- Improve the efficiency and quality of staff and tenant services.
- Maintain the 2,100-square-foot Genesis Clinic; 2,580-square-foot Oasis Clinic (old); 1,850-square-foot Oasis Clinic (new); 10,950-square-foot Registration Building; 226,818-square-foot Augustus F. Hawkins Comprehensive Mental Health Center; 187,676-square-foot Inpatient Tower; 7,878-square-foot Pediatric Acute Care; 26,355-square-foot Medical Records and Laundry; 24,103-square-foot Central Plant; 15,648-square-foot Plant Management; 52,276-square-foot North Support Building; 34,762-square-foot South Support Building; 124,391-square-foot Interns and Physicians Buildings; 3,922-square-foot Claude Hudson Auditorium; 1,100-square-foot MRI Building; and 12,265-square-foot Hub Clinic Building.
- Provide a 22,000-building-gross-square-footage (BGSF) space to accommodate the Ancillary Building to house the cafeteria, administrative functions, and support services for the MACC and the Inpatient Tower.
- Provide a 130,000-BGSF space to accommodate the MACC program.
- Provide 30,000 square feet of tenant improvements to accommodate support functions in the North Support, South Support, Interns and Physicians, and Plant Management Buildings.
- Connect to an upgraded central plant to service the MACC, North Support Building, South Support Building, and Interns and Physicians Building.
- Provide a parking terrace to allow sufficient parking for patients, client, visitors, employees, medical staff; site work; and landscaping.
- Provide for a possible relocation of the MRI Building.

1.10.1.2 Tier II: Master Plan Development Objectives

The County identified and prioritized the basic objectives that are important in achieving the proposed project goals for Tier II:

- Provide opportunities for development of up to 1,814,696 square feet of mixed use, including medical office, commercial, retail, residential, recreational, office space, and other development in support of the campus that are appurtenant to and compatible with the primary land use of a community-based health program facility.
- Provide sufficient parking for mixed-use development.

1.11 CONSTRUCTION SCENARIO

1.11.1 Tier I Construction Scenario

Tier I of the proposed project—which consists of the construction of the new MACC and the Ancillary Building tenant improvements, site improvements, and potential relocation of the MRI Building—would require approximately 37 months to complete (November 2010 to December 2013). Construction at the proposed project site is anticipated to be in accordance with all federal, state, regional, and County regulations, including the National Pollution Discharge Elimination System[20] and the County General Plan.[21]

It is anticipated that construction related to Tier I for the proposed project may require the type of equipment listed below in Table 1.11.1-1, *Anticipated Construction Equipment*. The information contained in Table 1.11.1-1 will be used in the assessment of potential construction impacts to air quality, ambient noise levels, and traffic and circulation for Tier I of the proposed project.

TABLE 1.11.1-1
ANTICIPATED CONSTRUCTION EQUIPMENT

Approximate Quantity	Type of Equipment or Vehicle	Approximate Duration of On-site Construction Activity (in months)
2	Man lift	3
4	Pickup truck	8
2	Hand compactor	5
2	Crane	3
1	Concrete mixer	4
1	Backhoe	3
40–60	Crew members	8
50	Crew vehicles (maximum)	8
1	Pile Driver	6
1	Large Bulldozer	3
2	Dozer	3
1	Front-end loader	1
1	Water truck	2
1	Grader	1
5	Dump truck	6
16	Concrete mix truck	9
1	Roller	1
3	Fork lift / grade all	3

Site preparation and construction of the proposed project would be in accordance with all federal, state, and County building codes. Daily construction activities would be subject to County noise regulations. All construction-related activities would be scheduled in compliance with the County Noise Ordinance, which prohibits construction activities and operation of construction equipment between the hours of 8:00 p.m. and 7:00 a.m., Monday through Friday, or at any time on Sunday or holidays. Work conducted on Saturdays would commence at 7:00 a.m. and cease no later than 5:00 p.m. Noise levels exceeding 65 dBA (decibels, A-weighted sound levels) for single-family residences and 70 dBA for multifamily residences during construction hours are prohibited.

The construction contractor would ensure that source-reduction techniques and the development of recycling programs during construction and operation of the proposed project are considered

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[20] U.S. Environmental Protection Agency. 2009. *National Pollution Discharge Elimination System*. Available at: http://cfpub.epa.gov/npdes/

[21] County of Los Angeles Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

and implemented whenever possible.[22] In addition, employee vehicles, construction equipment and vehicles, and storage and materials used throughout the proposed project site would be located in a designated staging area in an effort to minimize impacts to the site, pedestrians, and medical center employee or visitor traffic.

It is anticipated that there would be grading activities associated with the development of Tier I of the proposed project. It is anticipated that excavation may exceed 20 feet but would not be expected to be greater than 60 feet deep. It is anticipated that a geotechnical engineer would be available for observation and testing of the earthwork-related tasks to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered would be evaluated by the proposed project engineering geologist and the soil engineer.[23]

The construction contractor would be required to incorporate best management practices (BMPs) consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[24] Should the construction period continue into the rainy season, supplemental erosion measures would need to be implemented, including, but not limited to, the following:

- Mulching
- Geotextiles and mats
- Earth dikes
- Temporary drains and gullies
- Silt fence
- Straw-bale barriers
- Sandbag barrier
- Brush or rock filter
- Sediment trap

The anticipated construction period would begin in November 2010 and conclude in December 2013. BMPs to control surface runoff and soil erosion would be required for construction taking place during rainy periods.

Construction equipment would be turned off when not in use. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times. It is currently anticipated that up to 90 construction workers would be on site at any given time during the construction of the proposed project.

Construction-related ingress and egress to the proposed project site would occur primarily off East 120th Street to the north or Wilmington Avenue to the east.

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[22] *Los Angeles County Code*. Title 12, "Environmental Protection," Chapter 20.87.08.060, "Approval of Recycling and Reuse Plan." Available at: http://ordlink.com/codes/lacounty/index.htm

[23] URS. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

[24] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

1.11.2 Tier II Construction Scenario

The Tier II of the proposed project consists of a campus-wide master plan and up to 1,814,696 square feet of development on the proposed project site. The potential construction scenario for Tier II may be envisioned as a multiphase process to be completed concurrently with Tier I. The longest scenario is to develop Tier II within a 10-year timeframe, between 2010 and 2020. This analysis approach of the construction scenario has been developed based on an aggressive scenario (which allows the proposed project site to be developed to the maximum extent possible) to allow the consideration of a reasonable worst-case scenario in the even that the County chooses to complete up to 1,814,696 square feet of development.

The type and quantity of equipment that would potentially be used in construction of Tier II would vary for each component. However, for the purposes of this analysis, it is anticipated that development of Tier II would require up to eight phases that would utilize equipment that is comparable to the equipment described in Table 1.11.1-1 for each phase.

Site preparation and construction of the proposed project would be in accordance with all federal, state, and County building codes.

As with Tier I of the proposed project, the construction contractor would ensure that source-reduction techniques and the development of recycling programs during construction and operation of the proposed project are considered and implemented whenever possible.[25] The construction contractor would be required to incorporate BMPs consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[26]

BMPs to control surface runoff and soil erosion would be required for construction taking place during rainy periods.

Any construction equipment used during the potential development of Tier II would be turned off when not in use. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times. It is currently anticipated that up to 150 construction workers would be on-site at any given time during the construction of the proposed project.

Construction-related ingress and egress to the proposed project site would occur primarily off East 120th Street to the north or Wilmington Avenue to the east.

1.12 RELATED PROJECTS

Related projects are projects that are within the area surrounding the proposed project site that are currently in progress or proposed for the future that, when considered with the proposed project, could potentially result in cumulative environmental impacts.

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[25] *Los Angeles County Code*. Title 12, "Environmental Protection," Chapter 20.87.08.060, "Approval of Recycling and Reuse Plan." Available at: http://ordlink.com/codes/lacounty/index.htm

[26] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

There are nine related projects that are anticipated within the next year and that lie within an approximate 1-mile radius of the proposed project site. These are shown in Table 1.12-1, *List of Related Projects*.

TABLE 1.12-1
LIST OF RELATED PROJECTS[a]

Cumulative Project	Location	Description
County of Los Angeles		
MLK Campus Improvements	12021 South Wilmington Avenue	Hospital[27]
South Public Health Clinic[b]	11815 Bandera Street	Health Clinic
Charter High School[b]	12628 Avalon Boulevard	High School
Avalon II Apartment Project[c]	13218 Avalon Boulevard	Apartments
Townhouses	East 121st Street between Main Street and San Pedro Street	Townhouses
Single-family Houses	2354 East 118th Street	Single-family Residences
City of Compton		
Recycle Center[d]	3100 North Alameda Street	Recycling Center
Warehouse[d]	409 East Euclid Avenue	Warehouse
City of Los Angeles		
Charter High School[e]	800 East 111th Place	High School
City of Lynwood		
Warehouse[f]	11298 Alameda Street	Warehouse

SOURCE:
a. Raju Associates, Inc. November 2009.
b. County of Los Angeles Regional Planning Web site.
c. Raju Associates. June 2006. "Traffic Study for the Avalon II Affordable Housing Residential Project."
d. City of Compton Planning Department Web site.
e. City of Los Angeles Department of Transportation.
f. City of Lynwood Planning Department.

1.13 REQUIRED APPROVALS

The anticipated approvals that would be required for the proposed project includes but are not limited to those listed in Table 1.13-1, *Required Approvals*. Table 1.13-1 describes the anticipated permits, approvals, and licenses that would be required for development of the proposed project and specifies the agency(ies) and programs responsible for issuing each approval.

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[27] This includes the improvements and minor renovation as described in Section 1.8.1, Background, of the project description.

TABLE 1.13-1
REQUIRED APPROVALS

Permit / Approval / License Title	Agency/Program
Clinic License	• County of Los Angeles Department of Health Services, Health Facilities Inspection Division • State of California Department of Health Services, Licensing, and Certification Division • California Department of Public Health Licensing and Certification Program
Asbestos and Lead-Based Paint Abatement	• U.S. Environmental Protection Agency
Asbestos Abatement Notification / Asbestos Worker Notification	• California EPA, Department of Toxic Substances Control • California Division of Occupational Safety and Health • South Coast Air Quality Management District
Building, Grading, Excavation, Encroachment Permit	• County of Los Angeles Department of Regional Planning • County of Los Angeles Department of Public Works
Construction Permit	• County of Los Angeles Department of Regional Planning • County of Los Angeles Department of Public Works • County of Los Angeles Fire Department • Office of Statewide Health Planning and Development
Conditional Use Permit	• County of Los Angeles Department of Regional Planning • County of Los Angeles Department of Public Works • Office of Statewide Health Planning and Development
Demolition Permit	• County of Los Angeles Department of Public Works • California Division of Occupational Safety and Health • Office of Statewide Health Planning and Development
Abatement, Notification, Grading, and Operating Permit	• South Coast Air Quality Management District
NPDES Permit / SUSMP / SWPPP	• County of Los Angeles Department of Public Works
Notification (Cultural Resources)	• Advisory Council on Historic Preservation
Transportation permits - encroachment permit, parking, transportation permit for the use of oversized vehicles, and traffic modifications on state highways	• State of California Department of Transportation • Metropolitan Transportation Authority (MTA) • County of Los Angeles Department of Regional Planning
Campus Plan Approval	• Office of Statewide Health Planning and Development • County of Los Angeles Department of Public Works • County of Los Angeles, Board of Supervisors

SECTION 2.0
ENVIRONMENTAL CHECKLIST

This section contains a copy of the Environmental Checklist prepared for the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment (proposed project). The checklist used is consistent with Appendix G to the State CEQA Guidelines. A summary of the substantial evidence that was used to support the responses in the Environmental Checklist is contained in Section 3. The answers contained in this Environmental Checklist are based on literature review of published and unpublished documents (see Section 4.0, References), for a list of reference materials consulted, and site reconnaissance of the proposed project site (conducted on October 20, 2009).

DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

X I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

2-18-10
Date

SABRA WHITE
Printed Name

COUNTY OF LOS ANGELES
For

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
2.1. AESTHETICS—Would the proposed project:				
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?		X		
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?		X		
2.2. AGRICULTURE AND FOREST RESOURCES—In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land—including the Forest and Range Assessment Project and the Forest Legacy Assessment project—and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the proposed project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on				X

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land [as defined in Public Resources Code section 12220(g)], timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production [as defined by Government Code section 51104(g)]?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment, which due to their location or nature could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X
2.3. AIR QUALITY—Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the proposed project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?		X		
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	X			

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the proposed project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	X			
d) Expose sensitive receptors to substantial pollutant concentrations?	X			
e) Create objectionable odors affecting a substantial number of people?		X		
2.4. BIOLOGICAL RESOURCES—Would the proposed project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				X
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?				X
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X
2.5. CULTURAL RESOURCES—Would the proposed project:				
a) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		X		
c) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	X			
d) Disturb any human remains, including those interred outside of formal cemeteries?				X
2.6. GEOLOGY AND SOILS—Would the proposed project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the			X	

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?		X		
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?		X		
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?		X		
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X
2.7. GREENHOUSE GAS EMISSIONS—Would the proposed project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?		X		
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?		X		

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
2.8. HAZARDS AND HAZARDOUS MATERIALS—Would the proposed project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		X		
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		X		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?		X		
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?		X		
e) For a proposed project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the proposed project area?				X
f) For a proposed project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the proposed project area?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X
2.9. HYDROLOGY AND WATER QUALITY—Would the proposed project:				
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?				X
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				X
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?		X		
f) Otherwise substantially degrade water quality?				X

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche, tsunami, or mudflow?				X
2.10. LAND USE AND PLANNING—Would the proposed project:				
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X	
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X
2.11. MINERAL RESOURCES—Would the proposed project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X
2.12. NOISE—Would the proposed project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?		X		
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the proposed project expose people residing or working in the proposed project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the proposed project expose people residing or working in the proposed project area to excessive noise levels?				X

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
2.13. POPULATION AND HOUSING— Would the proposed project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	_____	X	_____	_____
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	_____	_____	_____	X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	_____	_____	_____	X
2.14. PUBLIC SERVICES				
a) Would the proposed project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	_____	X	_____	_____
Police protection?	_____	X	_____	_____
Schools?	_____	_____	X	_____
Parks?	_____	X	_____	_____
Other public facilities?	_____	X	_____	_____

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
2.15. RECREATION				
a) Would the proposed project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?		X		
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?		X		
2.16. TRANSPORTATION AND TRAFFIC—Would the proposed project:				
a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?		X		
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?		X		
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in inadequate emergency access?			X	
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				X

2.17. UTILITIES AND SERVICE SYSTEMS—Would the proposed project:

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			X	
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		X		
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?		X		
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?		X		
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
g) Comply with federal, state, and local statutes and regulations related to solid waste?			X	

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
2.18. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	X			
b) Does the project have impacts that are individually limited, but cumulatively considerable? (Cumulatively considerable means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?		X		
c) Does the proposed project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	X			

SECTION 3.0
ENVIRONMENTAL ANALYSIS

The environmental analysis provided in this section describes the information that was considered in evaluating the questions in Section 2.0, Environmental Checklist. The information used in this evaluation is based on a review of relevant literature and technical reports (see Section 4.0, References, for a list of reference material consulted).

3.1 AESTHETICS

This analysis is undertaken to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact to aesthetics that would require the consideration of mitigation measures or alternatives in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Aesthetics at the proposed project site were evaluated with regard to the County of Los Angeles General Plan;[2] California Department of Transportation (Caltrans) Scenic Highway Program designations; previously published information regarding the visual character of the proposed project site, including light and glare, site reconnaissance, and conceptual elevations; and existing and proposed site plans of the Martin Luther King, Jr. Medical Center Campus.[3]

The State CEQA Guidelines recommend the consideration of four questions when addressing the potential for significant impacts to aesthetics.

Would the proposed project have any of the following effects:

a) Have a substantial adverse effect on a scenic vista?

The proposed project would not be expected to result in impacts to aesthetics in relation to scenic vistas. Based on the review of the County of Los Angeles General Plan Recreation element and studies of regional maps, the proposed project site is not within a scenic vista, and there are no scenic vistas identified within the vicinity of the proposed project site.[4] Existing development at the proposed project site consists of the Martin Luther King, Jr. Medical Center Campus, which provides medical services to the South Los Angeles community. The proposed project would modify the existing medical services facilities, including development of a new Multiservice Ambulatory Care Center (MACC) and Ancillary Buildings, reuse or replacement of the existing MACC Building, and renovations and other improvements to other existing buildings. Additional Master Plan development would allow for up to 1,814,696 square feet of development on the proposed project site, along with up to 100 units of residential development. Public facilities, commercial development, and residential development—all of which are typical of an urban setting—comprise the land uses surrounding the proposed project site. Therefore, there would be no expected impacts to aesthetics related to scenic vistas. No further analysis is warranted.

b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

The proposed project would not be expected to result in impacts to aesthetics in relation to substantial damage to scenic resources within a state scenic highway. According to the California Scenic Highway Program, the nearest eligible or officially designated scenic highway or historic parkway is California

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[3] California Department of Transportation. 2 October 2009. *The California Scenic Highway System: A List of Eligible (E) and Officially Designated (OD) Routes (by Route)*. Available at: http://www.dot.ca.gov/hq/LandArch/scenic_highways/scenic_hwy.htm

[4] County of Los Angeles Regional Planning Commission. 1965. *County of Los Angeles General Plan, Recreation Element, Regional Recreation Areas Plan*. Los Angeles, CA. Available at: http://planning.co.la.ca.us/generalplan

State Route 110 (SR 110), located approximately 2 miles to the west of the proposed project site.[5] The proposed project site cannot be viewed from SR 110 due to distance. Moreover, the elevation of the proposed project site ranges from 86 feet above mean sea level (MSL) at the southwest corner to 90 feet above MSL at the northeast corner. As such, the topography of the proposed project site can be characterized as flat. The distance from the scenic route, the site's flat topography, and the fact that none of the proposed project structures are anticipated to exceed the height of existing structures, all serve to curtail any potential structural obstruction of available public access views. Therefore, there would be no expected impacts to aesthetics related to substantial damage to scenic resources within a state scenic highway. No further analysis is warranted.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

The proposed project would be expected to result in potentially significant impacts to aesthetics in relation to the degradation of the existing visual character of the proposed project site and its surroundings. Incorporation of mitigation measures would be required to reduce the proposed project's impacts to below the level of significance. The existing Martin Luther King, Jr. Medical Center Campus is composed of a six-story main hospital tower located on the south-facing portion of the campus, as well as an adjacent five-story building, and various other structures and support buildings that surround these structures. The support buildings include a two-story medical records building, the one-story Pediatric Acute Care Building, and the three-story Hawkins Building, as well as other support buildings that range in height from one to six stories. The area surrounding the proposed project site is characterized by common urban development, where land uses include public facilities, commercial development, and residential development. The proposed project includes the construction of a new MACC and Ancillary Building, as well as the reuse or replacement of the existing MACC Building and program-level development of a campuswide Master Plan. The proposed project area can currently be seen from adjacent homes located across from the existing MACC, and as such, future planned development may create a major visual impact by obstructing current views or by having inconsistent visual character with the existing neighborhood as viewed from these residential areas due to potential placement of the proposed structures. This potential impact would result from a building design that, due to differences in scale, design, and character, would be inconsistent with the existing visual character of the surrounding area. In this way, neighborhood visual quality may be affected. Therefore, there would be potentially significant impacts to aesthetics related to degradation of the existing visual character of the proposed project site and its surroundings, which would be expected to be reduced to below the level of significance with the incorporation of mitigation measures. Further analysis is warranted.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Impacts to aesthetics related to the creation of a new source of substantial light or glare that would adversely affect daytime or nighttime views in the proposed project area would be expected to be less than significant with the incorporation of mitigation measures. It is anticipated that construction of the proposed project would utilize existing light sources and would create additional safety lighting around the proposed project site and in the parking structures. However, the development of the campus-wide Master Plan may potentially lead to the construction of structures containing reflective surfaces that could create additional glare because of the windows and lighting structures that would be viewed from surrounding areas, including residential uses. In addition, the activation of interior

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[5] California Department of Transportation. 2 October 2009. *The California Scenic Highway System: A List of Eligible (E) and Officially Designated (OD) Routes (by Route)*. Available at: http://www.dot.ca.gov/hq/LandArch/scenic/schwy1.html

lighting within the proposed facilities during nondaytime hours would be expected to create additional effects from bright lighting. As previously noted, the area surrounding the proposed project site can be characterized as a typical urban setting. As such, there exist tree lights and other sources of light and glare from the existing structures at the proposed project site and in the surrounding community. The proposed project area can be seen from adjacent homes located across from the existing MACC, and as such, future planned development may create a major visual impact with respect to significantly increasing the intensity of nighttime lighting effects and glare. Street lights, neon store signage, and the absence of treescape and other landscaping coverage could potentially contribute to the increase in these lighting and glare effects, thus potentially adversely affecting daytime or nighttime views. Although the existing medical center has a setback from residences facing its buildings that would reduce the impact of glare and nighttime lighting effects, further review of the Master Plan development and of the proposed development would be required to ensure that the proposed project would not create new source of substantial light or glare. Therefore, impacts to aesthetics related to the creation of a new source of substantial light or glare that would adversely affect daytime or nighttime views in the proposed project area would be expected to be reduced to below the level of significance with the incorporation of mitigation measures. Further analysis is warranted.

3.2 AGRICULTURE AND FOREST RESOURCES

This analysis is undertaken to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact to agricultural resources, thus requiring the consideration of mitigation measures or alternatives in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Agricultural resources at the proposed project site were evaluated with regard to the California Department of Conservation (CDC) Farmland Mapping and Monitoring Program (FMMP)[2] and the County of Los Angeles General Plan (County General Plan).[3]

State CEQA Statutes {[§21060.1(a)] Public Resources Code 21000-21177} define agricultural land to mean "prime farmland, farmland of statewide importance, or unique farmland, as defined by the United States Department of Agriculture (USDA) land inventory and monitoring criteria, as modified for California" and is herein collectively referred to as "Farmland." Public Resources Code section 12220(g), defines forest land as " land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits."

State CEQA Guidelines recommend the consideration of five questions when addressing the potential for significant impacts to agriculture and forest resources.

Would the proposed project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The proposed project would not be expected to result in impacts to agricultural resources in relation to the conversion of Farmland. The County of Los Angeles General Plan land use designation for the proposed project is Public and Semipublic Facilities (P). According to the County of Los Angeles General Plan Land Use element, areas designated P are intended for major existing and proposed public and semipublic uses, including airports and other major transportation facilities, solid and liquid waste disposal sites, utilities, public buildings, public and private educational institutions, religious institutions, hospitals, detention facilities, and fairgrounds.[4]

The proposed project site is located in the unincorporated area of Willowbrook, County of Los Angeles (County), California. The existing zoning for the proposed project site is Neighborhood Commercial (C-2; Neighborhood Business Zone). This zoning designation is established to identify

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. 2004. *Important Farmland in California, 2002*. Sacramento, CA.

[3] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[4] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

community-related commercial uses and allows the following uses: drugstores, medical clinics (including laboratories), professional or business office space, parking lots and buildings, and hospital equipment and supply rentals.[5] The proposed project does not include the development of agricultural land and is located within an urban area in the unincorporated area of Willowbrook. The most recent mapping of the County of Los Angeles for Farmland undertaken by the CDC FMMP was reviewed for the proposed project site.[6] Based on the review of the land use designations and applicable Important Farmland map for the proposed project site,[7] there are no Farmlands located within or immediately adjacent to the proposed project site. Therefore, there would be no expected impacts to agricultural resources related to the conversion of Farmland. No further analysis is warranted.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

The proposed project would not be expected to result in impacts to agricultural resources in relation to a conflict with existing zoning for agricultural use or a Williamson Act contract. Based on an analysis of zoning within the County of Los Angeles, the proposed project site is not zoned for agricultural use.[8] In addition, no parcels within or adjacent to the proposed project site are subject to Williamson Act Contracts, as the County of Los Angeles does not offer Williamson Act contracts.[9] Based on the review of the County's zoning and the status of Williamson Act contracts, there would be no expected impacts to agricultural resources related to a conflict with existing zoning for agricultural use or a Williamson Act contract. No further analysis is warranted.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

The proposed project would not be expected to result in impacts to forest resources, in relation to the potential to conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by the Government Code section 51104(g)). As noted above, the Public Resources Code section 12220(g), defines forest land as " land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." Public Resources Code section 4526 states that "Timberland" means land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species

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[5] County of Los Angeles. July 1996. County Code, Title 22, "Planning and Zoning."

[6] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. 2006. *Los Angeles Important Farmland, 2006*. Sacramento, CA.

[7] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. 2004. *Important Farmland in California, 2002*. Sacramento, CA.

[8] County of Los Angeles Department of Regional Planning. *GIS-NET*. Accessed 1 October 2009. Available at: http://planning.lacounty.gov/gisnet

[9] California Department of Conservation, Division of Land Resource Protection. Accessed 1 October 2009. *Williamson Act Program—Basic Contract Revisions*. Available at: http://www.consrv.ca.gov/dlrp/lca/basic_contract_provisions/Pages/index.aspx#does my county participate

used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis after consultation with the district committees and others.[10] Government Code section 51104 (g) states, "'Timberland production zone' or 'TPZ' means an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h). With respect to the general plans of cities and counties, 'timberland preserve zone' means 'timberland production zone."[11] Sections 51112 and 51113 relate to timberland production within timberland production zones.[12] Finally, subdivision (h) states, a "'compatible use' is any use which does not significantly detract from the use of the property for, or inhibit, growing and harvesting timber" and provides six specific instances where such uses would be 'contrary' or inconsistent with the land being considered a 'compatible use.'[13]

According to the Department of Forestry and Fire Protection, the state of California consists of approximately 5,418,979 acres of land that has been classified as TPZ.[14] TPZ is designated in 32 counties within the state. The County of Los Angeles does not contain land that is designated as a timberland production zone.[15,16] The proposed project site is a hospital campus and is not zoned for forest land, timberland, or timberland production, nor is it adjacent to land zoned as such.[17] Based on the review of the County's zoning and the forest land, timberland, and Timberland Production codes, there would be no expected impacts to agricultural and forest resources in relation to a conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)). No further analysis is warranted.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

The proposed project would not be expected to result in impacts to agricultural and forest resources in relation to the loss of forest land or conversion of forest land to non-forest use. The proposed project site is located in the unincorporated community of Willowbrook which is an urban area. As such, the proposed project would not result in the loss of forest land or conversion of forest land to non-forest use because there is no forest land on or immediately adjacent to the proposed project site.[18] Therefore, the proposed project would not be expected to result in impacts to agricultural and forest resources in relation to the loss of forest land or conversion of forest land to non-forest use.

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[10] *California Public Resources Code*. Section 4526.

[11] *California Government Code*. Article 1, General Provisions, Sections 51100-51104. Section 51104 (g).

[12] *California Government Code*. Article 2, Timberland Production Zones, Sections 51110-51119.5. Sections 51112-51113.

[13] *California Government Code*. Article 1, General Provisions, Sections 51100-51104. Section 51104 (h).

[14] Department of Forestry and Fire Protection. 3 January 2002. *Timberland Site Class on Private Lands Zoned for Timber Production*. Technical working paper. Sacramento, CA.

[15] Department of Forestry and Fire Protection. 3 January 2002. *Timberland Site Class on Private Lands Zoned for Timber Production*. Technical working paper. Sacramento, CA.

[16] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[17] County of Los Angeles Department of Regional Planning. *GIS-NET*. Accessed 1 October 2009. Available at: http://planning.lacounty.gov/gisnet

[18] California Department of Forestry and Fire Protection. Accessed 27 January 2010. Available at: http://www.fire.ca.gov/

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

The proposed project would not be expected to result in impacts to agricultural resources in relation to changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use. Based on the review of the most recent mapping of the County for Farmland undertaken by the CDC FMMP, there is no Farmland on or immediately adjacent to the proposed project site.[19] The proposed project would not enhance the suitability of any designated farmland for development because there are no designated farmlands within the proposed project area. Forest land is not located on or immediately adjacent to the proposed project site. The proposed project would not cause the conversion of forest land to non-forest use because no forest land is located in the unincorporated area of Willowbrook. Therefore, there would be no expected impacts to agricultural resources related to changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use. No further analysis is warranted.

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[19] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. 2006. *Los Angeles Important Farmland, 2006*. Sacramento, CA.

3.3 AIR QUALITY

This analysis is undertaken to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact to air quality, thus requiring the consideration of mitigation measures or alternatives in accordance with Section 15063 of the California Environmental Quality Act (CEQA) Guidelines.[1] Air quality at the proposed project site was evaluated with regard to the County of Los Angeles (County) General Plan,[2] the National Ambient Air Quality Standards (NAAQS),[3] the California Ambient Air Quality Standards,[4] and the Clean Air Act (CAA).[5]

Data on existing air quality in the South Coast Air Basin (SCAB), where the proposed project site is located, is monitored by a network of air monitoring stations operated by the California Environmental Protection Agency, the California Air Resources Board (CARB), and the South Coast Air Quality Management District (SCAQMD). The assessment of construction impacts was based on a construction scenario for a building of comparable size to the proposed project and a construction schedule of comparable duration. The conclusions reflect guidelines established by the SCAQMD *CEQA Air Quality Handbook*.[6]

The proposed project is located in the SCAQMD South Central Los Angeles County Air Monitoring Subregion No. 12, which is served by the Lynwood Monitoring Station, approximately 1.7 miles east-northeast of the proposed project site at 11220 Long Beach Boulevard, Lynwood, California. This monitoring station measures particulate matter ($PM_{2.5}$ and PM_{10}), CO, O_3, and NO_2.

The potential for the project to result in new or substantially more adverse significant impacts to air quality was evaluated in relation to five questions recommended for consideration by the State CEQA Guidelines.[7]

Would the proposed project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

Impacts to air quality related to whether the proposed project conflicts with or obstructs implementation of the applicable air quality plan would be expected to be reduced to below the level of significance with the incorporation of mitigation measures. The proposed project area is located in the unincorporated area of Willowbrook, which is located within the SCAQMD portion of the SCAB. Ozone (O_3) is the pollutant of greatest concern throughout the SCAB. No single source is responsible for most of the emissions of O_3 precursors, nitrogen oxides (NO_x) and volatile organic compounds; many sources are spread throughout the basin. The SCAB is designated as a

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. January 1993. *County of Los Angeles Streamlined General Plan*. Los Angeles, CA.

[3] U.S. Environmental Protection Agency. 2008. *National Ambient Air Quality Standards (NAAQS)*. Available at: http://www.epa.gov/air/criteria.html

[4] Air Resources Board. 2008. *California Ambient Air Quality Standards (CAAQS)*. Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm

[5] U.S. Environmental Protection Agency. 2008. *Federal Clean Air Act,* Title I, "Air Pollution Prevention and Control." Available at: http://www.epa.gov/air/caa//

[6] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[7] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

federal-level nonattainment area for the O_3 and particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$) air quality standards, but the basin has recently improved from nonattainment to attainment with the NAAQS for both nitrogen dioxide (NO_2) and carbon monoxide (CO).[8] The SCAB is a state-level nonattainment area for the O_3 and $PM_{2.5}$ air quality standards, and the County is a state-level nonattainment area for the O_3, PM_{10}, and $PM_{2.5}$, based on the California Ambient Air Quality Standards.[9]

The most recent update to the SCAQMD Air Quality Management Plan (AQMP) was prepared for air quality improvements to meet both state and federal CAA planning requirements for all areas under AQMP jurisdiction. This update was adopted by CARB for inclusion in the State Implementation Plan on September 27, 2007. The AQMP sets forth strategies for attaining the federal PM_{10} and $PM_{2.5}$ air quality standards and the federal 8-hour O_3 air quality standard, as well as meeting state standards at the earliest practicable date. With the incorporation of new scientific data, emission inventories, ambient measurements, control strategies, and air quality modeling, this 2007 AQMP focuses on O_3 and $PM_{2.5}$ attainments.

Existing air quality within the proposed project vicinity is characterized by a mix of local emission sources that include stationary activities, such as space and water heating, landscape maintenance, and consumer products; and mobile sources, such as primarily automobile and truck traffic. Motor vehicles are the primary source of pollutants within the proposed project vicinity because they have the potential to generate elevated localized concentrations of CO, termed CO *hotspots*. Section 9.4 of the SCAQMD *CEQA Air Quality Handbook* identifies CO as a localized problem requiring additional analysis when a proposed project is likely to expose sensitive receptors to CO hotspots.[10]

The SCAQMD evaluates the project in terms of air pollution thresholds.[11] The proposed project would be considered significant if implementation of the proposed project would result in daily operation, daily construction, or operation-related emissions that cause or exceed the SCAQMD thresholds of significance. As described in Section 1.0, *Project Description*, of this Initial Study, the proposed project would require construction and use of new facilities covering an area of up to approximately 38 acres. In addition, construction of the proposed project, as currently conceived, would occur daily for a period of 37 months for the Tier I portion of the proposed project (and on a multiphased schedule for approximately 120 months [10 years] for the Tier II portion of the proposed project). Therefore, the proposed project would be expected to result in significant impacts in relation to its consistency with the applicable air quality plan.

Implementation of the proposed project would be expected to be consistent with the County General Plan land use designations for the area.[12] The proposed project, as currently conceived, entails development of new buildings and renovations to existing buildings, as well as development of the campuswide Master Plan, which would include up to 1,814,696 square feet of mixed-use development and up to 100 units of residential development. Implementation of the proposed project would be expected to create new activity that would contribute to air quality

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[8] South Coast Air Quality Management District. June 2007. *Final 2007 Air Quality Management Plan*. Diamond Bar, CA.

[9] South Coast Air Quality Management District. June 2007. *Final 2007 Air Quality Management Plan*. Diamond Bar, CA.

[10] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[11] South Coast Air Quality Management District. 1993. "Developing Baseline Air Quality Information." In *Air Quality Guidance Handbook*. Diamond Bar, CA.

[12] County of Los Angeles Department of Regional Planning. January 1993. *County of Los Angeles Streamlined General Plan*. Los Angeles, CA.

impacts in the surrounding area. In addition, during operation of the proposed project, emissions generated daily from space and water heating and vehicle trips generated by new employees and visitors traveling to and from the proposed project area would be expected to have the potential to result in operational air quality impacts beyond the SCAQMD thresholds of significance.

Impacts to air quality associated with the proposed project in relation to its consistency with the applicable air quality plan would have the potential to be significant and require the incorporation of mitigation measures specified by SCAQMD to mitigate these impacts to below the level of significance. Further analysis is warranted.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Implementation of the proposed project would be expected to result in significant impacts to air quality related to a violation of any air quality standard or a substantial contribution to an existing or projected air quality violation. Construction-related air quality impacts may result from combustion emissions from on-site construction and mobile equipment and from fugitive dust emissions from demolition, grading, and site preparation activities. The proposed project would be expected to entail several construction components, such as demolition, mass site grading, fine site grading, trenching, paving, facility construction, and architectural coating. The total area that would be under construction is approximately 38 acres. Construction of the proposed project would be expected to last 37 months for the Tier I portion of the proposed project and up to 120 months (10 years) for the Tier II portion of the proposed project and to potentially contribute to an exceedance of air quality standards, especially if all construction work occurred in one phase.

Operational phase impacts may occur from increased equipment emissions as a result of maintenance for new buildings and landscape, from increased emissions from new building support systems as a result of space and water heating, and from increased vehicle emissions generated from trips to and from the proposed project site. Once constructed, the proposed project is likely to result in an increase in employees and visitors to the proposed project site, resulting in the production of a significant number of daily vehicular trips. Although the operational function of the proposed project as a hospital and mixed-use facility would not be expected to cause a new air quality violation, the size, the number, and the capacity of the proposed new buildings suggest that the proposed project has the potential to cause a measurable increase in existing violations.

Emissions of criteria pollutants associated with the proposed project would have the potential for cumulative and significant impacts due to the relatively large area that would be scheduled for construction activities and the 37-month construction duration of Tier I of the proposed project (as well as the anticipated 10-year multiphase Tier II portion of the proposed project. In addition, maintenance of the new building and additional daily commute trips by new employees and visitors to and from the proposed project site would increase criteria pollutant emissions associated with the operational phase of the proposed project. Therefore, the proposed project has the potential to result in impacts to air quality in relation to violating applicable air quality standards or contributing to an existing or projected air violation. These impacts may not be able to be reduced to below the level of significance through the incorporation of mitigation measures specified by SCAQMD.[13] Therefore, the consideration of alternatives to the proposed project may be required. Further analysis is warranted.

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[13] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Implementation of the proposed project would be expected to result in significant impacts to air quality related to a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard. The proposed project site is located within the SCAB, which is designated as a nonattainment area according to the state and federal O_3 and $PM_{2.5}$ air quality standards. During the construction phase, primary emissions would include ozone precursor emissions and particulate matter. Ozone precursor emissions from vehicles coming to and from the proposed project site would be the primary source of impact to air quality associated with operation of the proposed project. Due to the relatively large size of the proposed project, the proposed project would be expected to result in a cumulatively considerable net increase of one or more criteria pollutant for which the project region is in nonattainment status under the applicable federal or state ambient air quality standards. These impacts may not be able to be reduced to below the level of significance through the incorporation of mitigation measures. Therefore, the consideration of alternatives to the proposed project may be required. Further analysis is warranted.

d) Expose sensitive receptors to substantial pollutant concentrations?

Implementation of the proposed project would be expected to result in significant impacts to air quality related to the exposure of sensitive receptors to substantial pollutant concentrations. Construction of the proposed project would occur within an area of up to approximately 38 acres, bounded by East 120th Street to the north, Wilmington Avenue to the east, East 122nd Street to the south, and Compton Avenue to the west. Area sensitive receptors that may be affected by project-related pollutant concentrations include the following: King Drew Magnet High School located adjacent to the MLK campus on East 120th Street, Lincoln Drew Elementary School located 0.10 mile to the north, Harriet Tubman High School located 0.25 mile south, Cesar Chavez Alternative School located 0.25 mile south, Compton Community Day Middle School located 0.25 mile south and Carver Elementary located 0.21 mile to the west; all are located within 0.25 miles of the site. Sensitive receptors may be exposed to construction emissions such as fugitive dust, combustion emissions, and diesel particulate matter. Operation of the proposed project may also expose sensitive receptors in the vicinity of the proposed project site to equipment and building emissions as a result of building operational activities, maintenance activities, and space and water heating and to automotive combustion emissions as a result of the generation of increased vehicle trips. With two elementary schools identified within 0.25 miles of the proposed project site, consideration of the SCAQMD standard list of mitigation measures would be required to reduce significant impacts. Therefore, the proposed project has the potential to result in impacts to air quality in relation to the exposure of sensitive receptors to substantial pollutant concentrations. These impacts may not be able to be reduced to below the level of significance through the incorporation of mitigation measures. Therefore, the consideration of alternatives to the proposed project may be required. Further analysis is warranted.

e) Create objectionable odors affecting a substantial number of people?

Impacts to air quality related to whether the proposed project would create objectionable odors affecting a substantial number of people would be expected to be reduced to below the level of significance with the incorporation of mitigation measures. Construction of the proposed project would require the use of diesel-powered equipment. Odors associated with emissions from diesel equipment may be considered unpleasant by some people. Because a relatively large square footage of buildings would be under construction and the use of diesel-powered equipment would be anticipated to occur daily during its construction phase, construction of the proposed project would be expected to result in impacts in relation to creating objectionable odors. However, these construction-related air quality impacts would be expected to be below the level of significance because the use of diesel-powered equipment would occur only in the short-term during the construction period. In addition, the proposed project would implement best management practices (BMPs) during construction (such as reducing queuing and idling time) that would further reduce this potential impact. Therefore, with a potential to create objectionable odors during its construction, the proposed project would be expected to result in impacts that would be below the level of significance.

The proposed project would operate as a medical and mixed-use facility, and as such, the operational function of the proposed project would not be likely to result in the creation of objectionable odors. However, given the size and numerous components involved in the proposed project, operation of the proposed project would have the potential to result in significant impacts to air quality related to creating objectionable odors affecting a substantial number of people, thus requiring the consideration of mitigation measures to reduce these impacts to below the level of significance. Further analysis is warranted.

3.4 BIOLOGICAL RESOURCES

This analysis is undertaken to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact on biological resources, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Biological resources at the proposed project site were evaluated with regard to (1) the County of Los Angeles (County) General Plan;[2] (2) a query of the California Natural Diversity Database (CNDDB)[3] for the U.S. Geological Survey (USGS) 7.5-minute South Gate series topographic quadrangle[4] where the proposed project is located and all surrounding USGS 7.5-minute series topographic quadrangles, including Inglewood,[5] Long Beach,[6] Whittier,[7] Torrance,[8] Los Alamitos,[9] El Monte,[10] Hollywood,[11] and Los Angeles;[12] (3) and a review of published and unpublished literature germane to the proposed project.

State CEQA Guidelines recommend the consideration of six questions when addressing the potential for significant impacts to biological resources:

Would the proposed project have any of the following effects:

a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[3] California Department of Fish and Game. 2009. *Rarefind 3: A Database Application for the Use of the California Department of Fish and Game Natural Diversity Data Base*. Sacramento, CA

[4] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[5] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Inglewood, California, Topographic Quadrangle. Reston, VA.

[6] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Long Beach, California, Topographic Quadrangle. Reston, VA.

[7] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Whittier, California, Topographic Quadrangle. Reston, VA.

[8] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Torrance, California, Topographic Quadrangle. Reston, VA.

[9] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Los Alamitos, California, Topographic Quadrangle. Reston, VA.

[10] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, El Monte, California, Topographic Quadrangle. Reston, VA.

[11] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Hollywood, California, Topographic Quadrangle. Reston, VA.

[12] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Seal Beach, California, Topographic Quadrangle. Reston, VA.

3.4.1 Listed Species

The proposed project would not be expected to result in impacts to biological resources in relation to species listed as rare, threatened, or endangered pursuant to the federal and state Endangered Species Acts (ESAs). This analysis is based on the habitat requirements and historical occurrences of the listed species with the potential to occur in the proposed project area. The proposed project site is within an urbanized area of the County of Los Angeles, with developed areas surrounding the proposed project site, and consists of streets, parking lots, existing buildings, and landscaping with nonnative plant species that are open to the public. The subject property is a hospital facility, characterized by hospital and medical functions. The proposed project site is a completely developed property. A query of the CNDDB identified 18 listed species that are known from the region, including 8 plant species and 10 wildlife species. Of the 18 species listed as rare, threatened, or endangered pursuant to the federal and state ESAs that were identified as having the potential to occur in the region of southwestern County of Los Angeles (Table 3.4.1-1, *Listed Plant and Wildlife Species with the Potential to Occur in the Region of the Proposed Project Site*), none were determined to have the potential to occur within the proposed project area due to lack of suitable habitat. Therefore, there would be no expected impacts to biological resources related to species listed as rare, threatened, or endangered pursuant to the federal and state Endangered Species Acts. No further analysis is warranted.

TABLE 3.4.1-1
LISTED PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE

Species	Status	Habitat Requirements	Habitat Assessment
Plant			
Lyon's pentachaeta (*Pentachaeta lyonii*)	FE, SE, CNPS 1B.1	Chaparral, coastal scrub, and valley and foothill grassland; occurs between 90 and 1,980 feet (30 and 630 meters) above mean sea level (MSL); annual herb in the *Asteraceae* family that blooms from March to August.	No suitable habitat occurs within the proposed project site.
Gambel's water cress (*Nasturtium gambelii*)	FE, ST, CNPS 1B.1	Marshes and swamps, brackist marshes at the margins of lakes or streams; occurs between 15 and 990 feet (5 and 330 meters) above MSL; annual herb in the *Brassicaceae* family that blooms from April to October.	No suitable habitat occurs within the proposed project site.
Marsh sandwort (*Arenaria paludicola*)	FE, SE, CNPS 1B.1	Marshes and swamps, dense mats of typha, juncus, and scirpus in freshwater marshes; occurs between 30 and 510 feet (10 and 170 meters) above MSL; stoloniferous herb in the family *Caryophyllaceae* that blooms from May to August.	No suitable habitat occurs within the proposed project site.
Braunton's milk-vetch (*Astragalus brauntonii*)	FE, CNPS 1B.1	Chaparral, coastal scrub, and valley and foothill grassland; occurs between 12 and 1,860 feet (4 and 620 meters) above MSL; perennial herb in the *Fabaceae* family that blooms from January to August.	No suitable habitat occurs within the proposed project site.

TABLE 3.4.1-1
LISTED PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, Continued

Species	Status	Habitat Requirements	Habitat Assessment
Coastal dunes milk-vetch (*Astragalus tener* var. *titi*)	FE, SE, CNPS 1B.1	Coastal bluff scrub, coastal dunes, and coastal prairie; occurs between 3 and 150 feet (1 and 50 meters) above MSL; perennial herb in the *Fabaceae* family that blooms from March to May.	No suitable habitat occurs within the proposed project site.
Moran's navarretia (*Navarretia fossalis*)	FT, CNPS 1B.1	Chenopod scrub, marshes and swamps, playas, and vernal pools; occurs between 90 and 3,900 feet (30 and 1,300 meters) above MSL; annual herb in the *Polemoniaceae* family that blooms from April to July.	No suitable habitat occurs within the proposed project site.
Salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*)	FE, SE, CNPS 1B.2	Coastal dunes, marshes, and swamps; occurs between 0 and 90 feet (0 and 30 meters) above MSL; annual herb in the *Scrophulariaceae* family that blooms from May to October.	No suitable habitat occurs within the proposed project site.
California Orcutt grass (*Orcuttia californica*)	FE, SE, CNPS 1B.1	Vernal pools; occurs between 45 and 1,980 feet (15 and 660 meters) above MSL; annual herb in the *Poaceae* family that blooms from April to August.	No suitable habitat occurs within the proposed project site.
Wildlife			
Palos Verde blue butterfly (*Glaucopsyche lygdamus palosverdesensis*)	FE	Occurs in coastal sage scrub on the Palos Verdes Peninsula and requires either deerweed or locoweed as a host plant.	No suitable habitat occurs within the proposed project site.
Mohave tui chub (*Gila bicolor mohavensis*)	FE, SE	Found in deep pools and slough-like areas of the Mojave River but now only occurs in highly modified refuge sites in San Bernardino County.	No suitable habitat occurs within the proposed project site.
California brown pelican (*Pelecanus occidentalis californicus*)	FE, SE	Nest on islands in the Gulf of California and along the coast to West Anacapa and Santa Barbara Islands; they rarely occur inland.	No suitable habitat occurs within the proposed project site.
California least tern (*Sternula antillarum browni*)	FE, SE	Nest in colonies on bare or sparsely vegetated flat substrates near the coast.	No suitable habitat occurs within the proposed project site.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	SE	Found in association with riparian forest, along lower flood bottom of larger river systems.	No suitable habitat occurs within the proposed project site.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	FE, SE	Found in association with riparian habitat where willow, cottonwoods, and stinging nettles are dense.	No suitable habitat occurs within the proposed project site.

TABLE 3.4.1-1
LISTED PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, Continued

Species	Status	Habitat Requirements	Habitat Assessment
Coastal California gnatcatcher (*Polioptila californica californica*)	FT, CSC	Occurs in or near sage scrub habitat, which includes the following plant communities: Venturan coastal sage scrub, Diegan coastal sage scrub, maritime succulent scrub, Riversidean sage scrub, Riversidean alluvial fan scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub.	No suitable habitat occurs within the proposed project site.
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	SE	Resides year-round in coastal salt marshes from Goleta Slough in Santa Barbara County to northern Baja California; nests primarily in pickleweed habitat.	No suitable habitat occurs within the proposed project site.
Least Bell's vireo *(Vireo bellii pusillus)*	FE, SE	Summer resident in low riparian habitat in vicinity of water or in dry river bottoms below 2,000 feet; nests along margins of bushes or on twigs projecting into pathways, usually willow, baccharis, mesquite.	No suitable habitat occurs within the proposed project site.
Pacific pocket mouse (*Perognathus longimembris pacificus*)	FE, CSC	Found on soils of fine, alluvial sands near the ocean; open spaces in otherwise dense, weedy areas.	No suitable habitat occurs within the proposed project site.

KEY:
Rare = Listed as rare by the State of California
CNPS 1B = Listed as rare, threatened, or endangered in California and elsewhere by the California Native Plant Society
CSC = California Department of Fish and Game species of special concern
FC= Federal candidate species
FE = Listed as endangered under the federal Endangered Species Act
FT = Listed as threatened under the federal Endangered Species Act
SE = Listed as endangered by the State of California
ST = Listed as threatened by the State of California

The eight plant species include the following: Lyon's pentachaeta (*Pentachaeta lyonii*), Gambel's water cress (*Nasturtium gambelii*), marsh sandwort (*Arenaria paludicola*), Braunton's milk-vetch (*Astragalus brauntonii*), coastal dunes milk-vetch (*Astragalus tener* var. *titi*), Moran's navarretia (*Navarretia fossalis*), salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*), and California Orcutt grass (*Orcuttia californica*). The subject plant species require natural habitats with specific aquatic, lowland and upland characteristics that were determined to be absent from the proposed project site. Due to the lack of habitats suitable to support the subject species, they have been determined absent from the proposed project site.

The 10 wildlife species include the following: Palos Verde blue butterfly (*Glaucopsyche lygdamus palosverdesensis*), Mohave tui chub (*Gila bicolor mohavensis*), California brown pelican (*Pelecanus occidentalis californicus*), California least tern (*Sternula antillarum browni*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), southwestern willow flycatcher (*Empidonax traillii extimus*), coastal California gnatcatcher (*Polioptila californica californica*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), least Bell's vireo (*Vireo bellii pusillus*), and Pacific pocket mouse (*Perognathus longimembris pacificus*). The subject wildlife species require natural habitats with specific aquatic, lowland and upland characteristics that were determined to be absent from the proposed project site. Due to the lack of habitats suitable to support the subject species, they have been determined absent from the proposed project site.

3.4.2 Sensitive Species

The proposed project would not be expected to result in impacts to biological resources in relation to sensitive species recognized by the U.S. Fish and Wildlife Service (USFWS) as federal species of concern or by the California Department of Fish and Game (CDFG) as California special concern species. Sensitive wildlife species are those not listed pursuant to the state and federal ESAs but listed as federal species of concern, proposed for listing, or identified by the CDFG as California species of special concern. This analysis is based on the habitat requirements and historical occurrences of the sensitive species with the potential to occur in the area. The proposed project site is within an urbanized area of the County of Los Angeles, with developed areas surrounding the site, and consists of streets, parking lots, existing buildings, and landscaping with nonnative plant species that are open to the public. The proposed project site is a hospital facility, characterized by hospital and medical functions. A query of the CNDDB identified no plant species and 15 sensitive wildlife species that are known from the region. Of the 15 sensitive species that were identified as having the potential to occur in the region of southwestern County of Los Angeles (Table 3.4.2-1, *Sensitive Plant and Wildlife Species with the Potential to Occur in the Region of the Proposed Project Site*), none were determined to have the potential to occur within the proposed project area due to lack of suitable habitat: western spadefoot (*Spea hammondii*), southwestern pond turtle (*Clemmys marmorata pallida*), coast (San Diego) horned lizard (*Phrynosoma coronatum blainvillii*), Coastal California gnatcatcher (*Polioptila californica californica*), burrowing owl (*Athene cunicularia*), tricolored blackbird (*Agelaius tricolor*), Southern California saltmarsh shrew (*Sorex ornatus salicornicus*), Pacific pocket mouse (*Perognathus longimembris pacificus*), greater western mastiff bat (*Eumops perotis californicus*), western yellow bat (*Lasiurus xanthinus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), big free-tailed bat (*Nyctinomops macrotis*), pallid bat (*Antrozous pallidus*), American badger (*Taxidea taxus*), and south coast marsh vole (*Microtus californicus stephensi*). The subject sensitive wildlife species require natural habitats with specific aquatic, lowland and upland characteristics that were determined to be absent from the proposed project site. Due to the lack of habitats suitable to support the subject species, they have been determined absent from the proposed project site. Therefore, there would be no expected impacts to biological resources related to sensitive species recognized by the USFWS as federal species of concern or by the CDFG as California special concern species. No further analysis is warranted.

TABLE 3.4.2-1
SENSITIVE PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE

Species	Status	Habitat	On-site Potential
Amphibians			
Western spadefoot (*Spea hammondii*)	CSC	Require temporary rain pools, with water temperatures between 9 and 30 degrees Celsius for reproducing; soil characteristics of burrow refuge sites have not been studied; occurs between near sea level and 1,363 meters above MSL.	No suitable habitat occurs within the proposed project site.
Reptiles			
Southwestern pond turtle (*Actinemys marmorata pallida*)	CSC, BLM	Require some slack- or slow-water aquatic habitat; reach higher densities where many aerial and aquatic basking sites are available; nests are located on unshaded slopes usually within 200 meters of the aquatic site.	No suitable habitat occurs within the proposed project site.
Coast (San Diego) horned lizard (*Phrynosoma coronatum blainvillii*)	CSC	Coastal sage, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest.	No suitable habitat occurs within the proposed project site.
Birds			
Coastal California gnatcatcher (*Polioptila californica californica*)	CSC	Obligate, permanent resident of coastal sage scrub below 2,500 feet in southern California; low, coastal sage scrub in arid washes, on mesas and slopes.	No suitable habitat occurs within the proposed project site.
Burrowing owl (*Athene cunicularia*)	CSC	Found in open grasslands, agricultural and range lands, and desert habitats and are often associated with burrowing animals, specifically the California ground squirrel; they can also inhabit grass, forbs, and shrub stages of pinyon and ponderosa pine habitats.	No suitable habitat occurs within the proposed project site.
Tricolored blackbird (*Agelaius tricolor*)	CSC	Freshwater marshes and croplands.	No suitable habitat occurs within the proposed project site.
Mammals			
Southern California saltmarsh shrew (*Sorex ornatus salicornicus*)	CSC	No information other than coastal marshes; likely requires dense ground cover and nesting sites above mean high tide and free from inundation.	No suitable habitat occurs within the proposed project site.

TABLE 3.4.2-1
SENSITIVE PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, Continued

Species	Status	Habitat	On-site Potential
Pacific pocket mouse (*Perognathus longimembris pacificus*)	CSC	Inhabits the narrow coastal plains from the Mexican border north to El Segundo; prefers soils of fine alluvial sands near the ocean.	No suitable habitat occurs within the proposed project site.
Western mastiff bat (*Eumops perotis californicus*)	CSC	Occurs in many open, semiarid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, and desert scrub; also occurs in urban habitats.	No suitable habitat occurs within the proposed project site.
Western yellow bat (*Lasiurus xanthinus*)	CSC	Valley foothill riparian, desert riparian, desert wash, and palm oasis; roosts in trees, particularly palms; forages over water and among trees.	No suitable habitat occurs within the proposed project site.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	CSC	Associated with rocky, desert areas with relatively high cliffs.	No suitable habitat occurs within the proposed project site.
Big free-tailed bat (*Nyctinomops macrotis*)	CSC	Rocky areas in the arid southwest, roosting primarily in crevices in cliffs.	No suitable habitat occurs within the proposed project site.
Pallid bat (*Antrozous pallidus)*	CSC	Deserts, grasslands, shrublands, woodlands, and forests; most common in open, dry habitats with rocky areas for roosting.	No suitable habitat occurs within the proposed project site.
American badger (*Taxidea taxus*)	CSC	Found in arid, open habitats, particularly grasslands, savannahs, mountain meadows, and desert scrub openings; needs friable soils for digging and open, uncultivated ground; occurs at low to moderate slopes; has been associated with Joshua tree woodland and pinyon-juniper habitats.	No suitable habitat occurs within the proposed project site.
South coast marsh vole (*Microtus californicus stephensi*)	CSC	Marshland habitat (generally restricted to this habitat type).	No suitable habitat occurs within the proposed project site.

KEY:
CSC = California Department of Fish and Game Species of Special Concern
BLM = Sensitive species under Bureau of Land Management

3.4.3 Locally Important Species

The proposed project would not be expected to result in impacts to biological resources in relation to locally important species afforded protection by the California Native Plant Society (CNPS). Locally important plant species are those not listed pursuant to the state or federal ESA but identified by CNPS as sensitive species that should be considered in assessing the potential effects of proposed projects. A query of the CNDDB identified 24 locally important plant species that are known from the region. Of the 24 locally important species that were identified as having the potential to occur in the region of southwestern County of Los Angeles (Table 3.4.3-1, *Locally Important Plant and Wildlife Species with the Potential to Occur in the Region of the Proposed Project Site*), none were determined to have the potential to occur within the proposed project area due to lack of suitable habitat: southern tarplant (*Centromadia parryi* ssp. *australis*), Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), San Bernardino aster (*Symphyotrichum defoliatum*), Greata's aster (*Symphyotrichum greatae*), Coulter's saltbush (*Atriplex coulteri*), south coast saltscale (*Atriplex pacifica*), Parish's brittlescale (*Atriplex parishii*), Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), estuary seablite (*Suaeda esteroa*), Santa Barbara morning-glory (*Calystegia sepium* ssp. *bingamiae*), many-stemmed dudleya *(Dudleya multicaulis)*, round-leaved filaree (*California macrophylla*), Parish's gooseberry (*Ribes divaricatum* var. *parishii*), mud nama (*Nama stenocarpum*), Brand's star phacelia (*Phacelia stellaris*), southern mountains skullcap (*Scutellaria bolanderi* ssp. *austromontana*), Salt Spring checkerbloom (*Sidalcea neomexicana*), Orcutt's linanthus (*Linanthus orcuttii*), prostrate vernal pool navarretia (*Navarretia prostrate*), coast woolly-heads (*Nemacaulis denudata* var. *denudate*), mesa horkelia (*Horkelia cuneata* ssp. *puberula*), and Plummer's mariposa-lily (*Calochortus plummerae*). The subject plant species require natural habitats with specific aquatic, lowland and upland characteristics that were determined to be absent from the proposed project site. Due to the lack of habitats suitable to support the subject species, they have been determined absent from the proposed project site. Therefore, there would be no expected impacts to biological resources related to locally important species afforded protection by CNPS. No further analysis is warranted.

TABLE 3.4.3-1
LOCALLY IMPORTANT PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE

Species	Status	Habitat	On-site Potential
Plants			
Southern tarplant (*Centromadia parryi* ssp. *Australis*)	CNPS 1B.1	Marshes and swamps, valley and foothill grassland, and vernal pools; occurs between 9 and 1,275 feet (0 and 425 meters) above MSL; annual herb in the *Asteraceae* family that blooms from May to November.	No suitable habitat occurs within the proposed project site.
Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*)	CNPS 1A	Coastal salt and freshwater marshes and swamps; occurs between 15 and 5,025 feet (5 and 1,675 meters) above MSL; rhizomatous herb in the *Asteraceae* family that blooms from August to October.	No suitable habitat occurs within the proposed project site.

TABLE 3.4.3-1
LOCALLY IMPORTANT PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, Continued

Species	Status	Habitat	On-site Potential
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	CNPS 1B.1	Coastal salt marshes and swamps, playas, and vernal pools; occurs between 3 and 3,660 feet (1 and 1,220 meters) above MSL; annual herb in the *Asteraceae* family that blooms from February to June.	No suitable habitat occurs within the proposed project site.
White rabbit-tobacco (*Pseudognaphalium leucocephalum*)	CNPS 2.2	Riparian woodland, cismontane woodland, coastal scrub, chaparral; occurs between 0 and 6,300 feet (0 and 2,100 meters) above MSL; perennial herb in the *Asteraceae* family that blooms from August to November.	No suitable habitat occurs within the proposed project site.
San Bernardino aster (*Symphyotrichum defoliatum*)	CNPS 1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grassland; occurs between 6 and 6,120 feet (2 and 2,040 meters) above MSL; rhizomatous herb in the *Asteraceae* family that blooms from July to November.	No suitable habitat occurs within the proposed project site.
Greata's aster (*Symphyotrichum greatae*)	CNPA 1B.3	Chaparral, cismontane woodland, mesic canyons; occurs between 2,400 and 4,500 feet (800 and 1500 meters) above MSL; rhizomatous herb in the *Asteraceae* family that blooms from June to October.	No suitable habitat occurs within the proposed project site.
Coulter's saltbush (*Atriplex coulteri*)	CNPS 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; occurs between 15 and 1,380 feet (3 and 460 meters) above MSL; annual herb in the *Chenopodiacea* family that blooms from March to October.	No suitable habitat occurs within the proposed project site.
South coast saltscale (*Atriplex pacifica*)	CNPS 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, and playas; occurs between 1 and 420 feet (0 and 140 meters) above MSL; annual herb in the *Chenopodiaceae* family that blooms from March to October.	No suitable habitat occurs within the proposed project site.

TABLE 3.4.3-1
LOCALLY IMPORTANT PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, Continued

Species	Status	Habitat	On-site Potential
Parish's brittlescale (*Atriplex parishii*)	CNPS 1B.1	Chenopod scrub, playas, and vernal pools; occurs between 75 and 5,700 feet (25 and 1,900 meters) above MSL; annual herb in the *Chenopodiaceae* family that blooms from June to October.	No suitable habitat occurs within the proposed project site.
Davidson's saltscale (*Atriplex serenana* var. *davidsonii*)	CNPS 1B.2	Coastal bluff scrub and coastal scrub; occurs between 30 and 600 feet (10 and 200 meters) above MSL; annual herb in the *Chenopodiaceae* family that blooms from April to October.	No suitable habitat occurs within the proposed project site.
Estuary seablite (*Suaeda esteroa*)	CNPS 1B.2	Marshes and swamps; occurs between 0 and 15 feet (0 and 5 meters) above MSL; perennial herb in the *Chenopodiaceae* family that blooms from May to October.	No suitable habitat occurs within the proposed project site.
Santa Barbara morning-glory (*Calystegia sepium* ssp. *bingamiae*)	CNPS 1A	Coastal marches; occurs between 0 and 60 feet (0 and 20 meters) above MSL; rhizomatous herb in the *Convolvulaceae* family that blooms from April to May.	No suitable habitat occurs within the proposed project site.
Many-stemmed dudleya (*Dudleya multicaulis*)	CNPS 1B.2	Chaparral, coastal scrub, valley and foothill grassland; occurs in heavy, often clayey soils or grassy slopes between 0 and 2,370 feet (0 and 790 meters) above MSL; perennial herb in the *Crassulaceae* family that blooms from April to June.	No suitable habitat occurs within the proposed project site.
Round-leaved filaree (*Erodium macrophylla*)	CNPS 1B.1	Cismontane woodland, valley and foothill grassland; occurs in clay soils between 75 and 3,600 feet (15 and 1,200 meters) above MSL; annual herb in the *Geraniaceae* family that blooms from March to May.	No suitable habitat occurs within the proposed project site.
Parish's gooseberry (*Ribes divaricatum* var. *parishii*)	CNPS 1A	Riparian woodland, salix swales; occurs between 195 and 300 feet (65 and 100 meters) above MSL; deciduous shrub in the *Grossulariaceae* family that blooms from February to April.	No suitable habitat occurs within the proposed project site.

TABLE 3.4.3-1
LOCALLY IMPORTANT PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, Continued

Species	Status	Habitat	On-site Potential
Mud nama (*Nama stenocarpum*)	CNPS 2.2	Marshes and swamps; occurs between 15 and 1,500 feet (5 and 500 meters) above MSL; annual/perennial herb in the *Hydrophyllaceae* family that blooms from January to July.	No suitable habitat occurs within the proposed project site.
Brand's star phacelia (*Phacelia stellaris*)	CNPS 1B.1	Coastal dunes and coastal scrub; occurs between 3 and 1,200 feet (1 and 400 meters) above MSL; annual herb in the *Hydrophyllaceae* family that blooms from March to June.	No suitable habitat occurs within the proposed project site.
Southern mountains skullcap (*Scutellaria bolanderi* ssp. *austromontana*)	CNPA 1B.2	Chaparral, cismontane woodland, lower montane coniferous forests, gravely soils on streambanks or in mesic sites in oak or pine woodland; occurs between 1,275 and 6,000 feet (425 and 2,000 meters) above MSL; rhizomatous herb in the *Lamiaceae* family that blooms from June to July.	No suitable habitat occurs within the proposed project site.
Plummer's mariposa-lily (*Calochortus plummerae*)	CNPS 1B.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest; occurs on rocky and sandy sites between 270 and 4,830 feet (90 and 1610 meters) above MSL; bulbiferous herb in the *Liliaceae* family that blooms from June to August.	No suitable habitat occurs within the proposed project site.
Salt Spring checkerbloom (*Sidalcea neomexicana*)	CNPS 2.2	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and playas; occurs between 75 and 4,590 feet (15 and 1,530 meters) above MSL; perennial herb in the *Malvaceae* family that blooms from March to June.	No suitable habitat occurs within the proposed project site.
Orcutt's linanthus (*Linanthus orcuttii*)	CNPS 1B.3	Chaparral, lower montane coniferous forest; occurs between 3,180 and 6,000 feet (1,060 to 2,000 meters) above MSL; annual herb in the *Polemoniaceae* family that blooms from May to June.	No suitable habitat occurs within the proposed project site.

TABLE 3.4.3-1
LOCALLY IMPORTANT PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, Continued

Species	Status	Habitat	On-site Potential
Prostrate vernal pool navarretia (*Navarretia prostrata*)	CNPS 1B.1	Coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools; occurs between 75 and 2,100 feet (15 and 700 meters) above MSL; annual herb in the *Polemoniaceae* family that blooms from April to July.	No suitable habitat occurs within the proposed project site.
Coast woolly-heads (*Nemacaulis denudata* var. *denudate*)	CNPS 1B.2	Coastal dunes; occurs between 0 and 300 feet (0 and 100 meters) above MSL; annual herb in the *Polygonaceae* family that blooms from April to September.	No suitable habitat occurs within the proposed project site.
Mesa horkelia (*Horkelia cuneata* ssp. *puberula*)	CNPS 1B.1	Chaparral, cismontane woodland, coastal scrub; occurs between 210 and 2,430 feet (70 and 810 meters) above MSL in sandy or gravelly sites; perennial herb in the *Rosaceae* family that blooms from February to July.	No suitable habitat occurs within the proposed project site.

KEY:

CNPS = California Native Plant Society (as List 1, List 2, List 3, or List 4 species). Listed as rare, threatened, or endangered in California and elsewhere by the California Native Plant Society

CNPS2 = CNPS listings from its January 2000 edition of *Inventory of Rare and Endangered Vascular Plants of California*. List 2 (CNPS2) indicates that plants are rare, threatened, or endangered in California but are common elsewhere (Skinner and Pavlik, 1994).

CNPS 3 = Plants about which we need more information

CNPS1A = Plant presumed extinct in California by the CNPS

CNPS1B = Plants considered rare, threatened, or endangered in California and elsewhere by the CNPS
Threat ranks:
0.1: Seriously threatened in California.
0.2: Fairly threatened in California.
0.3: Not very threatened in California.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or the U. S. Fish and Wildlife Service?

The proposed project would not be expected to result in impacts to biological resources in relation to riparian habitat or other sensitive natural communities. Based on the results of the review of the USGS 7.5-minute series South Gate topographic quadrangle[13] and the National Wetlands Inventory map,[14] no natural communities exist within the proposed project area. The proposed project site is an urbanized area with no riparian areas or sensitive natural communities and consists of existing buildings, as well as paved and landscaped areas. No natural plant communities or habitats exist within the proposed project site. Therefore, there would be no expected impacts to biological

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[13] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[14] U.S. Fish and Wildlife Service. June 1976. *National Wetland Inventory, Pasadena, California*. Washington, DC.

resources related to riparian habitat or other sensitive natural communities. No further analysis is warranted.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) Through direct removal, filling, hydrological interruption, or other means?

The proposed project would not be expected to result in impacts to biological resources in relation to federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means. Based on the results of the review of the USGS 7.5-minute series South Gate topographic quadrangle[15] and the National Wetlands Inventory map,[16] wetlands or waters under the jurisdiction of the U.S. Army Corps of Engineers pursuant to the Section 404 of the Clean Water Act do not exist at the proposed project site. The proposed project site has been previously developed and includes multiple buildings, paved areas, and landscaped gardens. Therefore, there would be no expected impacts to biological resources related to federally protected wetlands as defined by Section 404 of the Clean Water Act. No further analysis is warranted.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The proposed project would not be expected to result in impacts to biological resources in relation to movement of any migratory fish or wildlife species or with an established wildlife corridor. The entire proposed project area is set within an urbanized section of Los Angeles County with developed areas surrounding each of its borders. Due to the absence of native plant communities or natural aquatic resources, there are no established wildlife corridors within the proposed project site.[17] No suitable habitat exists to encourage wildlife movement.[18] Therefore, there would be no expected impacts to biological resources related to movement of any migratory fish or wildlife species or with an established wildlife corridor. No further analysis is warranted.

The proposed project would not be expected to result in impacts to biological resources in relation to impeding the use of native wildlife nursery sites. The entire proposed project area is set within an urbanized section of Los Angeles County with development surrounding all sides of the proposed project site. The proposed project site has some landscaping and large trees that may be suitable for nesting birds that surround the proposed project site. However, the scope of the proposed project only includes minor construction activities, which would not be expected to have an effect on nesting birds in the area. Therefore, there would be no expected impacts to biological resources related to impeding the use of native wildlife nursery sites. No further analysis is warranted.

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[15] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[16] U.S. Fish and Wildlife Service. June 1976. *National Wetland Inventory, Pasadena, California*. Washington, DC.

[17] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[18] U.S. Fish and Wildlife Service. June 1976. *National Wetland Inventory, Pasadena, California*. Washington, DC.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The proposed project would not be expected to result in impacts to biological resources in relation to conflicts with any local policies or ordinances protecting biological resources. The proposed project does not include activities that would interfere with or impact the biological resources at the proposed project site. Therefore, there would be no expected impacts to biological resources related to conflicts with any local policies or ordinances protecting biological resources. No further analysis is warranted.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The proposed project would not be expected to result in impacts to biological resources in relation to conflicts with the provisions of any adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP). Based on review of all currently proposed and adopted HCP, NCCP, and other approved local, regional, and state HCPs, it was determined that the proposed project area was not subject to the jurisdiction of a proposed or adopted HCP.[19,20] Further review of local, regional, and state HCPs not presently listed as an HCP or NCCP determined no proposed or adopted plans with jurisdictional boundaries containing the proposed project site. Therefore, there would be no expected impacts to biological resources related to conflicts with the provisions of any adopted HCP or NCCP. No further analysis is warranted.

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[19] California Department of Fish and Game. *Natural Community Conservation Plans*. 6 January 2009. Available at: http://www.dfg.ca.gov/habcon/nccp/images/region.gif

[20] U.S. Fish and Wildlife Service. *Habitat Conservation Plans*. 6 January 2009. Available at: http://www.fws.gov/carlsbad/HCPs/hcp_map%20area%20plans%200507.pdf

3.5 CULTURAL RESOURCES

This analysis is undertaken to determine if the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact to cultural resources, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines. Cultural resources at the proposed project site were evaluated with regard to existing information regarding the proposed project site.

State CEQA Guidelines recommend the consideration of four questions when addressing the potential for significant impacts to cultural resources:

Would the proposed project have any of the following effects:

a) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The proposed project may result in impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource or unique geologic feature; these impacts are expected to be reduced to below the level of significance with the incorporation of mitigation measures. While the proposed project site has been substantially disturbed, it is anticipated that excavation at the proposed project site has the potential to exceed 20 feet in depth, and in such event, the excavation activities would impact native soils and underlying rock units. A paleontological records search[1] revealed no known vertebrate fossil localities recorded within the proposed project site. The geology of the proposed project site is composed of surficial deposits of younger Quaternary Alluvium (Holocene) as a result of deposition from the Los Angeles River, which currently flows through a concrete channel just east of the proposed project site and Compton Creek nearby to the west. These younger deposits are underlain by older Quaternary Alluvium. The younger Quaternary deposits do not usually contain significant fossil vertebrates; however, the older Quaternary deposits have the potential to contain significant fossil vertebrates. The closest known fossil localities—identified as LACM 1295, 1344, 3266, and 4206—were recovered from these older Quaternary deposits. They are situated west of the proposed project site in the Athens vicinity around the Harbor Freeway (I-110), from north of Imperial Highway to near El Segundo Boulevard. These localities produced Late Pleistocene fossil specimens of pond turtle (*Clemmys*), puffin (*Mancalla*), turkey (*Parapova*), ground sloth (*Paramylodon*), mammoth (*Mammuthus*), dire wolf (*Canis dirus*), rabbit (*Sylvilagus*), squirrel (*Sciuridae*), deer mouse (*Microtus*), pocket gopher (*Thomomys*), horse (*Equus*), deer (*Cervus*), pronghorn antelope (*Capromeryx*), and bison (*Bison*) at depths as shallow as 15 feet below the surface. Therefore, the areas underlain by older Quaternary Alluvium deposits have a high level of sensitivity to produce unique paleontological resources. Due to level of sensitivity and the anticipated depths of excavation, excavations in older Quaternary alluvium should be monitored closely to quickly and efficiently recover any fossil remains without unduly delaying project development. Mitigation of paleontological resource impacts, where and if paleontological resources are found, would be expected to reduce impacts to below the level of significance through the requirement to fully recover paleontological resources from the area of potential effect in accordance with standards for such recovery established by the Society of Vertebrate Paleontology. Therefore, impacts to cultural resources directly or indirectly related to the destruction of a unique paleontological resource or

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[1] McLeod, Samuel A. 21 November 2009. "Vertebrate Paleontology Section, Natural History Museum of Los Angeles County, Los Angeles, California." Letter response to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

unique geologic feature would be reduced to below the level of significance by the incorporation of the specified mitigation measures.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

The proposed project may result in substantial adverse changes to cultural resources related to causing a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5; these changes are expected to be mitigated to below the level of significance by the incorporation of mitigation measures. While the proposed project site has been substantially disturbed, it is anticipated that excavation at the proposed project site has the potential to exceed 20 feet in depth, and in such event, the excavation activities would impact native soils. Further study and consultation are required to determine if the proposed project site is likely to contain previously unknown archaeological resources. Mitigation of impacts to previously unknown archaeological resources would be expected to be reduced to below the level of significance through implementation of mitigation measures specified in §21083.2 of CEQA. Therefore, impacts to cultural resources related to a substantial adverse change in the significance of an archeological resource would be reduced to below the level of significance by the incorporation of the specified mitigation measures.

c) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

The proposed project may result in substantial adverse change in the significance of a historical resource pursuant to §15064.5; these changes are expected to be reduced to a level of less than significant through the incorporation of mitigation measures. Substantial adverse change in the significance of a historical resource that may not be able to be reduced to below the level of significance through the incorporation of mitigation measures would require the consideration of project alternatives. A review of the National Register of Historic Places, California Register of Historical Resources, and the State of California Historical Resources Inventory database revealed that the Martin Luther King, Jr. Medical Center Campus has not been previously evaluated and that no historical resources on the campus have been recorded.[2] Historical research indicates the Martin Luther King, Jr. Medical Center Campus was initially constructed between 1968 and 1972 and was designed by three local architecture firms: Adrian Wilson Associates; Nielsen, Moffatt, and Wolverton; and Carey K. Jenkins. The hospital was built by contractor Robert E. McKee. The earliest improvements to the Martin Luther King, Jr. Medical Center Campus include (but are not limited to) the three wings of the Main Hospital (now known as the Multiservice Ambulatory Care Center; MACC) and the Medical Records and Laundry Building, which opened in 1972. Additional buildings were constructed in subsequent decades. The individual buildings and the Martin Luther King, Jr. Medical Center Campus as a whole have been continuously modified to meet the needs of the hospital and hospital building safety codes; between 1973 and 2008, nearly 140 construction projects were completed, with costs in excess of $143 million, including a structural and seismic upgrade valued at $28 million undertaken in 2003.[3] The hospital was constructed as a direct response by the Los Angeles County Board of Supervisors to recommendations made by the McCone Commission, convened to study the causes and effects of the civil disturbances in the

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[2] Based on assessments completed by Sapphos Environmental, Inc. cultural resources specialists in January 2009.

[3] Office of Statewide Health Planning and Development, Facilities Development Division. 9 January 2009. OSHPD Current and Historical Project List for Los Angeles County Martin Luther King, Jr. / Drew Medical Center. On file at: Sapphos Environmental, Inc., Pasadena, CA.

Watts area of Los Angeles during the summer of 1965. As such, the campus requires further study to evaluate if it meets the significance criteria and integrity requirements for identification as a historical resource as defined by CEQA Guidelines and, if so, to examine the feasibility of rehabilitation and adaptive reuse. Further analysis is warranted.

d) Disturb any human remains, including those interred outside of formal cemeteries?

The proposed project would not be expected to disturb any human remains, including those interred outside of formal cemeteries. There are no formal cemeteries on the property, and the ground has been substantially disturbed for the construction of the Martin Luther King, Jr. Medical Center Campus. A record search with the Native American Heritage Commission failed to indicate the known presence of Native American sacred sites, including burial sites, on or within a ½-mile radius of the proposed project site. Therefore, the proposed project would not be expected to disturb any human remains, including those interred outside of formal cemeteries. No further analysis is warranted.

3.6 GEOLOGY AND SOILS

This analysis is undertaken to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact to geology and soils that would require the consideration of mitigation measures or alternatives in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Geology and soils at the proposed project site were evaluated with regard to the U.S. Geological Survey (USGS) 7.5-minute series, South Gate, California, topographic quadrangle,[2] California Geological Survey Special Publication 42, and the most recent Alquist-Priolo Earthquake Fault Zoning (APEFZ) maps.[3]

State CEQA Guidelines recommend the consideration of seven questions when addressing the potential for significant impacts to geology and soils.

Would the proposed project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

   i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

The proposed project would be expected to result in less than significant impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault. There are no known surface faults within the proposed project site, and the proposed project location does not lie within an APEFZ.[4] However, the proposed project site is located approximately 1.8 miles northeast of the Newport-Inglewood Alquist-Priolo Fault Zone.[5] The proposed project site is roughly 42 miles south of the active San Andreas Fault.[6] Conformance of the proposed project to applicable requirements under the California Building Code (CBC) and Uniform Building Code (UBC) would reduce impacts related to the rupture of a surface fault to the maximum extent possible under current engineering practices. Therefore, the proposed project would be expected to result in less than significant impacts from exposing people or structures to potentially substantial adverse effects involving rupture of a known earthquake fault. No further analysis is warranted.

   ii) Strong seismic ground shaking?

The proposed project would be expected to result in less than significant impacts from exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. As previously mentioned, the proposed project site

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[3] California Geological Survey. Revised 2007. *Fault-Rupture Hazard Zones in California*. Special Publication 42. Sacramento, CA. Available at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sp/Sp42.pdf

[4] California Geological Survey. Revised 2007. *Fault-Rupture Hazard Zones in California*. Special Publication 42. Sacramento, CA. Available at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sp/Sp42.pdf

[5] URS. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

[6] URS. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

is located approximately 1.8 miles to the northeast of the Newport-Inglewood Fault Zone and is situated within a seismically active region that could potentially result in impacts from seismic shaking. However, conforming to applicable requirements under the CBC and UBC would reduce impacts from strong seismic ground shaking to the maximum extent possible under currently accepted engineering practices. Therefore, the proposed project would be expected to result in less than significant impacts related to exposing people or structures to strong seismic ground shaking. No further analysis is warranted.

iii) Seismic-related ground failure, including liquefaction?

The proposed project would be expected to result in less than significant impacts from exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. According to the California Geological Survey,[7] the proposed project site is located within a Seismic Hazard Zone for liquefaction, which indicates a potential for permanent ground displacements such that mitigation, as defined in Public Resources Code Section 2693(c), would be required.[8] However, the proposed project's compliance with Office of Statewide Planning and Development (OSHPD) standards would only further reduce any potential for impacts resulting from liquefaction. Therefore, the proposed project would be expected to result in less than significant impacts from exposing people or structures to potential substantial adverse effects involving seismic-related ground failure, including liquefaction. No further analysis is required.

iv) Landslides?

The proposed project would not be expected to result in impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. The topography of the proposed project site and surrounding area can be characterized as flat, and therefore would pose no potential risk for landslides to occur. Moreover, no areas susceptible to seismic-induced landslides are shown in the proposed project vicinity on the USGS 7.5-minute series South Gate topographic quadrangle. Therefore, due to the absence of steep slopes, there would be no expected impacts from exposing people or structures to potentially substantial adverse effects involving landslides. No further analysis is warranted.

b) Result in substantial soil erosion or the loss of topsoil?

The proposed project would be expected to result in potentially significant impacts related to substantial soil erosion and loss of topsoil that would be reduced to below the level of significance with the incorporation of mitigation measures. It is anticipated that there would be grading associated with the reuse or replacement of the existing Multiservice Ambulatory Care Center (MACC) and construction of the new MACC, Ancillary Building, support buildings, and other development related to the campuswide Master Plan. It is anticipated that the construction contractor would incorporate best management practices (BMPs) consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[9] As discussed in the Geotechnical Investigation that was prepared for the proposed project site,

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[7] California Geological Survey. Revised February 2009. Seismic Hazards Zonation Program, Seismic Hazard Zone Map, South Gate. Available at: http://gmw.consrv.ca.gov/shmp/download/pdf/ozn_sgate.pdf

[8] URS. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

[9] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

earthwork at the proposed project site should be performed in conformance with the Los Angeles, County Building Code, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills.[10] However, mitigation would be required to ensure that these, and other measures are implemented during construction of the proposed project would be required. Therefore, impacts related to substantial soil erosion or the loss of topsoil would be reduced to below the level of significance by the incorporation of the specified mitigation measures. Further analysis is warranted.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

The proposed project would be expected to result in potentially significant impacts related to being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, that would be reduced to below the level of significance with the incorporation of mitigation measures. According to the California Geological Survey,[11] the proposed project site is located within a Seismic Hazard Zone for liquefaction,[12] which indicates a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required. It is anticipated that due to seismic compliance standards established by the OSHPD, the proposed project would incorporate project design elements consistent with OSHPD standards, and thus further reduce any potential for impacts resulting from unstable geologic units and soils. However, the County's conformance with measures described in the geotechnical study would need to be verified to ensured throughout the construction and development of the proposed project. Therefore, impacts related to being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse would be expected to be reduced to below the level of significance with the incorporation of mitigation measures. Further analysis is warranted.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

The proposed project would be expected to result in potentially significant impacts related to being located on expansive soil, creating substantial risks to life or property, that would be reduced to below the level of significance with the incorporation of mitigation measures. It is anticipated that there would be grading and earthwork performed under construction, improvements, and renovations to the proposed project. However, in the event that any grading-related work is required, a geotechnical engineer should be available for observation of these tasks to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered would be evaluated by the proposed project engineering geologist and the soil engineer. Mitigation would be required to ensure that these, and other measures are implemented during construction of the proposed project would be required. Therefore, impacts related to being located on expansive soil and thereby

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[10] URS. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

[11] California Geological Survey. Revised February 2009. Seismic Hazards Zonation Program, Seismic Hazard Zone Map, South Gate. Available at: http://gmw.consrv.ca.gov/shmp/download/pdf/ozn_sgate.pdf

[12] URS. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

creating substantial risks to life or property would be reduced to below the level of significance by the incorporation of the specified mitigation measures. Further analysis is warranted.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The proposed project would not be expected to result in impacts to geology and soils in relation to being located on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. The proposed project would not require the use of septic tanks or alternative wastewater disposal systems. Sewers are available for wastewater disposal at the proposed project site. Furthermore, wastewater generated at the proposed project would be treated at the Hyperion Treatment Plant.[13] The Hyperion Treatment Plant currently supports wastewater leaving the proposed project site and would continue to do so following the development of the proposed project. The Hyperion Treatment Plant is the largest wastewater treatment plants in the City of Los Angeles and is anticipated to have the capacity to support the proposed project. Therefore, the proposed project would not be expected to result in impacts to geology and soils related to the adequate use of septic tanks or alternative wastewater disposal systems. No further analysis would be required.

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[13] Sanitation Districts of Los Angeles County. Accessed 7 October 2009. Web site. *Joint Water Pollution Control Plant.* Available at: http://www.lacsd.org/about/wastewater_facilities/jwpcp/default.asp

3.7 GREENHOUSE GAS EMISSIONS

This analysis is undertaken to determine if the proposed project may have significant environmental impacts due to greenhouse gas (GHG) emissions that would require the consideration of mitigation measures or alternatives in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] GHG emissions generated by the proposed project were evaluated based on guidance provided by regulatory publications from the California Air Pollution Control Officers Association;[2] the State Office of the Attorney General;[3] CARB;[4] and OPR.[5] According to the California Global Warming Solutions Act of 2006 (Assembly Bill 32), GHG emissions are defined as emissions of the following gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The U.S. Environmental Protection Agency (EPA) has reported that the majority of GHG emissions in the United States can be attributed to the energy sector, which accounted for 86.3 percent of total U.S. GHG emissions in 2007 due to stationary and mobile fuel combustion.[6] The industrial sector accounted for 4.9 percent of U.S. GHG emissions in 2007.[7]

The State CEQA Guidelines recommend the consideration of two questions when addressing the potential for significant impacts to GHG emissions.

Would the proposed project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impacts to greenhouse gas emissions related to whether the proposed project generates greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment would be expected to be reduced to below the level of significance with the incorporation of mitigation measures.

The primary contributors of GHG emissions for the proposed project would include the use of construction equipment and automobiles for the construction workers' daily commute trips and daily vehicle trips generated by people working at and visiting the proposed project site during its operation. Given the relatively large area that would be scheduled for construction activities and the 37-month construction duration of Tier I of the proposed project (in addition to the anticipated

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] California Air Pollution Control Officers Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.* Sacramento, CA.

[3] California Department of Justice, Office of the Attorney General. 21 May 2008 (Updated 26 September 2008). *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

[4] California Air Resources Board. 24 October 2008. *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. Available at: http://www.opr.ca.gov/ceqa/pdfs/Prelim_Draft_Staff_Proposal_10-24-08.pdf

[5] California Governor's Office of Planning and Research Technical Advisory. 19 June 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Sacramento, CA.

[6] U.S. Environmental Protection Agency. April 2009. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007.* Washington, DC.

[7] U.S. Environmental Protection Agency. April 2009. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007.* Washington, DC.

10-year multiphase Tier II portion of the proposed project), emissions of GHGs associated with construction of the proposed project would have the potential for cumulative and significant impacts. During the operational phase of the proposed project, the potential electricity consumption by the new buildings and additional daily commute trips by new employees and visitors to and from the proposed project site would increase the GHG emissions associated with the proposed project. Although it is anticipated that a portion of this consumption may be offset by the Leadership in Energy and Environmental Design (LEED) elements of the proposed project, additional analysis is required to determine the potential impacts to the anticipated GHG emissions from these elements. Therefore, the proposed project has the potential to generate greenhouse gas emissions that may have significant impacts on the environment and would require the consideration of mitigation measures in order to reduce these impacts to below the level of significance. Further analysis is warranted.

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Impacts to greenhouse gas emissions related to whether the proposed project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases would be expected to be reduced to below the level of significance with the incorporation of mitigation measures.

Assembly Bill 32 established the goal of reducing GHG emissions in California to the year 1990 levels by 2020. The proposed project's incremental impact on GHG emissions would be considered to conflict with the goals of AB 32 if the size, nature, or duration of the construction phase would generate a substantial amount of GHG emissions. It is anticipated that the Tier I portion of the proposed project would take approximately 37 months to complete; Tier II of the proposed project would take approximately 120 months (or up to 10 years of multiphased construction) to occur and would cover an area of up to approximately 38 acres in size. During construction, heavy-duty construction equipment would be operated. The construction duration, the relatively large area under construction, and the nature of the construction activities would be expected to generate greenhouse gas emissions, but these emissions would be temporary and would not be considered to be significant on a regional scale. However, the construction impacts of the proposed project would be expected to be cumulatively considerable when taken into account with related past, present, or reasonably foreseeable, probable future projects. The construction impacts of the proposed project with relation to creating conflicts with the guidelines established by AB 32 would be expected to be reduced to below the level of significance with the incorporation of mitigation measures.

During the operational phase of the proposed project, emissions of GHG would occur from daily operation and maintenance and from vehicular trips traveling to and from the proposed project site. Daily operational emissions would be caused by electricity use for space and water heating, lighting, and electrical appliances. Although the proposed project's application as a medical and mixed-use facility would cause far less GHG emissions than a larger industrial building such as a power plant or factory, the proposed project has the potential to result in impacts to greenhouse gas emissions with respect to the issue of potential conflict with the State's goal of reducing GHG emissions in California to 1990 levels by 2020. As previously noted, these impacts may be reduced by the LEED elements that would be incorporated into the proposed project; however, these impacts would require the consideration of mitigation measures to be reduced to below the level of significance. Further analysis is warranted.

3.8 HAZARDS AND HAZARDOUS MATERIALS

This analysis is undertaken to determine if the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact related to hazards and hazardous materials, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1]

Hazardous wastes are by-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Hazardous wastes possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special Environmental Protection Agency (EPA) lists.[2]

Hazards and hazardous materials at the proposed project site were evaluated based on expert opinion supported by facts, review of an environmental database,[3] and the County of Los Angeles (County) General Plan.[4]

State CEQA Guidelines include a list of classes of projects that have been determined not to have a significant effect on the environment and which shall, therefore, be exempt from the provisions of CEQA.[5] Projects that have a reasonable possibility of resulting in a significant effect on the environment due to unusual circumstances do not qualify for a categorical exemption.

State CEQA Guidelines recommend the consideration of eight questions when addressing the potential for significant impacts to Hazards and Hazardous Materials.

Would the proposed project have any of the following effects:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The proposed project would be expected to result in less than significant impacts with the incorporation of mitigation measures from hazards and hazardous materials with respect to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The proposed project would involve the use of minimal hazardous materials during the construction phase, which may include standard cleaning materials, lubricants, and oils. In addition, the proposed project site is a hospital registered as a small- and large-quantity generator of hazardous materials such as waste oil and mixed oil; oxygenated solvents including acetone, butanol, and ethyl acetate; spent halogenated solvents; and other hazardous materials including batteries, lamps, pesticides, thermostats, mercury, and silver. The hospital may also deal with biomedical and radiological wastes. However, there are specific government regulations restricting the transport, use, and disposal of these hazardous materials, and the proposed project would not entail use of such materials beyond regulated parameters.

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] *Code of Federal Regulations*. Title 40, Chapter 1, Part 261.

[3] Environmental Data Resources. 2008. *The EDR Radius Map™ Report with GeoCheck®*. Inquiry Number: 2388899.2s, 23 December 2008. Milford, CT.

[4] County of Los Angeles Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan, Safety Element*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

[5] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Section 15300.

Therefore, the proposed project would be expected to result in less than significant impacts with the incorporation of mitigation measures from hazards and hazardous materials related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Further analysis is warranted.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous material?

The proposed project would be expected to result in less than significant impacts with the incorporation of mitigation measures from hazards and hazardous materials in relation to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous material. The proposed project site is the location of documented past releases of gasoline and oil from leaking underground storage tanks (LUSTs), which occurred prior to existing underground storage tank (UST) regulations. Cleanup of the site has been completed for the release of oil and gasoline, and no further action is warranted.[6] Because the proposed project site is both a small- and a large-quantity generator of hazardous materials, the potential exists for a hazardous materials release to occur. As discussed in the project description, the proposed project would directly address seismic safety compliance with upgrades of all the existing buildings. While the proposed project elements do not directly address hospital operations that require the use or transport of hazardous materials, such use is controlled by existing government regulations, the proposed project would not entail use of such materials beyond regulated parameters. However, as part of the proposed project, it is anticipated that some emergency generators and USTs may have to be relocated. To prevent impacts, tank relocation would be conducted according to the following applicable federal and state regulations related to tank management: Code of Federal Regulations (CFR) 40, Part 112; 40 CFR, Part 280; CFR 281; 40 CFR, Part 282; and the California Code of Regulations (CCR) Title 22 and Title 23 Regulations. It is unlikely that the proposed project would result in accidental leaks and spills that would affect the public or the environment. Therefore, the proposed project would be expected to result in less than significant impacts with the incorporation of mitigation measures from hazards and hazardous materials related to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous material. Further analysis is warranted.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The proposed project would be expected to result in less than significant impacts with the incorporation of mitigation measures from hazards and hazardous materials with respect to the emission of hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. The nearest schools to the proposed project site are Lincoln Drew Elementary School located 0.10 mile to the north, Carver Elementary located 0.21 mile to the west, Harriet Tubman High School located 0.25 mile south, Cesar Chavez Alternative School located 0.25 mile south, Compton Community Day Middle School located 0.25 mile south, and King Drew Magnet High School located adjacent to the proposed project campus on East 120th Street.

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[6] Environmental Data Resources. 2008. *The EDR Radius Map™ Report with GeoCheck®*. Inquiry Number: 2388899.2s, 23 December 2008. Milford, CT.

Although the proposed project site is the current location of a hospital and some hazardous materials are handled and transported for disposal, and the proposed project would likely increase the volume of hazardous materials on site, such use is controlled by existing government regulations, and the proposed project would not entail use of such materials beyond regulated parameters. Therefore, the proposed project would be expected to result in less than significant impacts with the incorporation of mitigation measures from hazards and hazardous materials with respect to the emission of hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. Further analysis is warranted.

d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to the Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?

The proposed project would be expected to result in less than significant impacts with the incorporation of mitigation measures from hazards and hazardous materials in relation to the proposed project being located on a site included on a list of hazardous materials sites. Project features may also be required to assure that hazards and hazardous materials sites do not adversely affect the residential component of the proposed project.

Due to the nature of the site use as a hospital, the proposed project site is included on multiple environmental regulatory databases for permitted USTs and LUSTs. The LUST at the proposed project site was initially identified at the site in 1998. This LUST involved an unauthorized release of gasoline, which affected soil. Cleanup of the LUST was completed and the case was closed by the Regional Water Quality Control Board in 1996. Therefore, this LUST would not result in impacts to people or the environment.

An additional release of 14,000 gallons of oily water occurred at the site in 2006 due to a ruptured pipe coming from the on-site power plant. The substance was pumped into tanker trucks and cleanup is near completion. No significant impact to people or the environment occurred as a result of this release. This release was reported through the California Hazardous Material Incident Reporting System (CHMIRS) database.[7]

The proposed project site is included on a list of Resource Conservation and Recovery Act (RCRA) small quantity generators (SQGs), but no violations have been reported. The proposed project site is also listed under the Hazardous Waste Information System (HAZNET) because it disposes waste oil and mixed oil, paint sludge, inorganic solid waste, oxygenated solvents, polychlorinated biphenyls (PCBs), mercury waste, and asbestos-containing waste. In addition, the proposed project site is considered an RCRA large-quantity generator (LQG) of waste products such as batteries, lamps, pesticides, thermostats, mercury, silver, halogenated solvents, as well as other ignitable and corrosive hazardous materials. However, no violations were identified.[8]

Three LUST sites are located within 0.5 mile upgradient of the proposed project site. All three of these LUST sites are undergoing remediation and are not expected to impact the proposed project site. The nearest is the Hooper Texaco Service located at 11913 Compton Avenue, 0.04 mile from

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[7] Environmental Data Resources. 2008. *The EDR Radius Map™ Report with GeoCheck®.* Inquiry Number: 2388899.2s, 23 December 2008. Milford, CT.

[8] Environmental Data Resources. 2008. *The EDR Radius Map™ Report with GeoCheck®.* Inquiry Number: 2388899.2s, 23 December 2008. Milford, CT.

the site. In addition, a One-Hour Photo and High Sky Cleaners are located 0.2 mile north of the proposed project site, but no violations have been reported for either of these SQGs.[9]

Although the proposed project would not be expected to result in significant impacts from hazards and hazardous materials related to location on a hazardous waste site, mitigation measures may be required in order to ensure that no hazardous waste related event would occur in the future. Further analysis is warranted.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

The proposed project would not be expected to result in impacts from hazards and hazardous materials in relation to proximity to an airport and the creation of safety hazards for people residing or working in the proposed project area. The nearest airports are the Compton Airport, located at 901 West Alondra Boulevard in the City of Compton, approximately 2.1 miles south; the Saint Francis Medical Center Helistop in the City of Lynwood, approximately 2.7 miles east; the Gardena Valley Airport in the City of Gardena, approximately 4 miles southeast; and the Hawthorne Municipal Airport in the City of Hawthorne, approximately 4.6 miles west of the proposed project site. The proposed project site is located at an existing hospital campus. Therefore, the proposed project would not be expected to result in significant impacts from hazards and hazardous materials in relation to proximity to an airport and the creation of safety hazards for people residing or working in the proposed project area. No further analysis is warranted.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The proposed project would not be expected to result in impacts from hazards and hazardous materials due to the proposed project being located in the vicinity of a private airstrip and the potential for safety hazards for people residing or working in the proposed project area. The nearest private airstrip is located in Playa Vista at 5510 Lincoln Boulevard, approximately 11.5 miles northwest of the proposed project site.[10] However, a heliport is located on site at the proposed project site. Because the proposed project would only improve the safety of the facilities, impacts involving this heliport would not be expected to result from the proposed project. Therefore, the proposed project would not be expected to result in significant impacts from hazards and hazardous materials due to the proposed project being located in the vicinity of a private airstrip and the potential for safety hazards for people residing or working in the project area. No further analysis is warranted.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The proposed project would not be expected to result in impacts from hazards and hazardous materials related to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan. Consistent with the Safety element of the

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[9] Environmental Data Resources. 2008. *The EDR Radius Map™ Report with GeoCheck®*. Inquiry Number: 2388899.2s, 23 December 2008. Milford, CT.

[10] Airport IQ Data Center. Accessed on 10 April 2008. Web site. Available at: http://www.gcr1.com/5010web/

County of Los Angeles General Plan,[11] the purpose of the proposed project is to improve conditions related to healthcare services. No part of the proposed project is anticipated to interfere with an emergency response plan or evacuation plan. Therefore, the proposed project would not be expected to result in significant impacts from hazards and hazardous materials related to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan. No further analysis is warranted.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The proposed project would not be expected to result in impacts from hazards and hazardous materials related to exposure of people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. The proposed project site is located in an urban environment without adjacent or nearby wildlands. In addition, the proposed project location is not considered to be in a fire hazard severity zone.[12] Therefore, the proposed project would not be expected to result in significant impacts from hazards and hazardous materials related to exposure of people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. No further analysis is warranted.

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[11] County of Los Angeles Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan, Safety Element*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

[12] California Department of Forestry and Fire Protection, 1997. Los Angeles Fire Hazard Severity Zoning (FHSZ) Map. Sacramento, CA. Available at: http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_losangeles.php

3.9 HYDROLOGY AND WATER QUALITY

This analysis is undertaken to determine if the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact to hydrology and water quality, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Hydrology and water quality at the proposed project site were evaluated with regard to the Los Angeles County (County) Department of Public Works Hydrology Manual,[2] the National Pollution Discharge Elimination System (NPDES),[3] the County General Plan,[4] the Los Angeles Regional Water Quality Control Board (LA-RWQCB),[5] National Flood Insurance Program Flood Insurance Rate Maps for the County,[6] the California Storm Water Best Management Practice Handbook,[7] and the U.S. Geological Survey (USGS) 7.5-minute series, South Gate, California, topographic quadrangle.[8]

State CEQA Guidelines recommend the consideration of 10 questions when addressing the potential for significant impacts to hydrology and water quality.

Would the proposed project have any of the following effects:

a) Violate any water quality standards or waste discharge requirements?

The proposed project would be expected to result in less than significant impacts to hydrology and water quality in relation to violating any water quality standards or waste discharge requirements. The proposed project would entail both construction and operational elements in Tier I, as well as demolition, construction, and operational elements in Tier II, which would be expected to involve ground-disturbing activities. The construction of the proposed project may contribute to erosion, sediment-laden runoff, discharge of non-storm water runoff from the proposed project site, or other water quality–related events that would violate water quality standards or waste discharge requirements. In addition, both Tier I and Tier II of the proposed project would include construction-related activities and operational activities that would be expected to result in shifts from current hydrology-related activities at the proposed project site.

The proposed project would implement best management practices (BMPs) to reduce or eliminate non-storm discharges to the storm water system. These requirements meet the water quality standards set forth by the responsible agencies, and address storm runoff quantity and flow rate, suspended solids (primarily from erosion), and contaminants such as phosphorus and

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[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Public Works. *2006 Hydrology Manual*. Available at: http://ladpw.org/wrd/publications

[3] U.S. Environmental Protection Agency. 2009. *National Pollution Discharge Elimination System*. Available at: http://cfpub.epa.gov/npdes/

[4] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

[5] Los Angeles Regional Water Quality Control Board. 2007. Web site. Available at: http://www.swrcb.ca.gov/rwqcb4/

[6] Federal Emergency Management Agency. *Flood Maps*. Available at: http://www.fema.gov/hazard/map/index.shtm

[7] California Stormwater Quality Association. 1993. *California Stormwater Best Management Practice Handbook*. Available at: http://www.cabmphandbooks.com

[8] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

hydrocarbons. BMPs would be incorporated in accordance with the NPDES permit issued to the County by the LA-RWQCB, the County Storm Water Management, and the County General Plan. Therefore, the proposed project would be expected to result in less than significant impacts to hydrology and water quality in relation to violating any water quality standards or waste discharge requirements. No further analysis is warranted.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

The proposed project would not be expected to result in impacts to hydrology and water quality in relation to groundwater supplies or groundwater recharge. The proposed project site is located within the Central Basin Municipal Water District.[9] Although groundwater has been encountered at the site at approximately 38 to 52 feet below ground surface, the proposed project site and its existing uses do not influence the local groundwater basin; and the site does not serve as a groundwater recharge site.[10] Further, neither Tier I nor Tier II of the proposed project would use groundwater supplies or interfere with groundwater recharge into this basin. There is no potential for the proposed project to contribute to the depletion of groundwater supplies or to create substantial interference with groundwater recharge for the area. Therefore, the proposed project would not be expected to result in impacts to hydrology and water quality in relation to groundwater supplies or groundwater recharge. No further analysis is warranted.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?

The proposed project would not be expected to result in impacts to hydrology and water quality in relation to alteration of existing drainage patterns in a manner that would result in substantial erosion or siltation on or off site. The proposed project would not substantially alter the existing drainage pattern of the proposed project site or area, or alter the course of any existing streams or rivers in the proposed project area.

Review of the proposed project site on the USGS 7.5-minute series South Gate topographic quadrangle,[11] indicates that there is no potential for impacts to hydrology and water quality in relation to alteration of existing drainage patterns in a manner that would result in substantial erosion or siltation on or off site. There are no existing drainage patterns on or within the vicinity that would be impacted by the proposed project. The proposed project entails the redevelopment of a previously disturbed site. Furthermore, as previously mentioned, the proposed project would be required to incorporate BMPs during construction and operation of both Tiers. BMPs are consistent with guidelines provided in the *California Storm Water Best Management Practices Handbook for Construction Activities* and in the Los Angeles County Storm Water Management Program for substantiated erosion or siltation.

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[9] Central Basin Municipal Water District. Accessed 2 October 2009. "Water Demand." Available at: http://www.centralbasin.org/chartWaterDemand.html

[10] URS Corporation. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

[11] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

As such, the proposed project would not be expected to result in impacts to hydrology and water quality in relation to alteration of existing drainage patterns in a manner that would result in substantial erosion or siltation on or off site. No further analysis is warranted.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site?

The proposed project would not be expected to result in impacts to hydrology and water quality in relation to alteration of existing drainage patterns in a manner that would result in flooding on site or off site. As previously mentioned, the proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site. The USGS 7.5-minute series South Gate topographic quadrangle was reviewed, and there is no potential for impacts to hydrology and water quality in relation to the alteration of existing drainage patterns in a manner that would result in flooding on site or off site.[12] Therefore, there would be no expected impacts to hydrology and water quality related to alteration of existing drainage patterns in a manner that would result in flooding on site or off site. No further analysis is warranted.

e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or providing substantial additional sources of polluted runoff?

The impacts to hydrology and water quality related to exceeding the capacity of existing or planned stormwater drainage systems or providing substantial additional sources of polluted runoff from the proposed project would be expected to be reduced to below the level of significance with the incorporation of mitigation measures. While the proposed project site is part of the Los Angeles storm drain system and the County of Los Angeles Department of Public Works has implemented measures to initiate storm water pollution reduction programs throughout the County;[13] the proposed project would entail construction and operational activities that may impact the existing the capacity of the existing or planned storm water drainage systems. The existing campus is not currently operating at full capacity. It is anticipated that Tier I of the proposed project, development of Leadership in Energy and Environmental Design (LEED) efficient Multiservice Ambulatory Care Center (MACC) and Ancillary Buildings would require the campus to function at levels that could be absorbed with the current capacity. Further, the addition of the two buildings would not be expected to contribute to runoff as the buildings would be developed on existing impervious surface lots.

However, it is anticipated that elements of Tier II of the proposed project, specifically the reuse or replacement of the existing MACC may require alterations to the existing stormwater drainage systems. As noted, the proposed project would implement BMPs and would be required to comply with County, state, and federal guidelines (including the NPDES), which would reduce the potential impacts related to some demolition, construction, and operation activities at the site. However, the demolition-related activities as described in Tier II of the proposed project may entail activities (such as site preparation or grading) that have the potential to result in impacts related to

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[12] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[13] County of Los Angeles Department of Public Works. Accessed 2 October 2009. "Stormwater Pollution Prevention Home." Available at: http://ladpw.org/PRG/StormWater/Page_03.cfm

runoff water. In addition, the construction of additional structures on pervious areas of the campus, has the potential to reduce the amount of pervious areas at the site and create or contribute to runoff at the site. Further analysis and the implementation of mitigation measures may be required to ensure that the demolition and construction activities of the proposed project (specifically as they relate to the activities as described in Tier II), do not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or providing substantial additional sources of polluted runoff.

Therefore, impacts to hydrology and water quality in relation to exceeding the capacity of existing or planned stormwater drainage systems or providing substantial additional sources of polluted runoff would be reduced to below the level of significance with the incorporation of specified mitigation measures. Further analysis is warranted.

f) Otherwise substantially degrade water quality?

The proposed project would not be expected to result in impacts to hydrology and water quality in relation to substantial degradation of water quality. The proposed project would be required to comply with the NPDES requirements and the County of Los Angeles General Plan, and as such there is no potential for impacts to hydrology and water quality in relation to substantial degradation of water quality for the proposed project.[14,15] As previously stated, construction and operation of the proposed project would incorporate BMPs that would further reduce the potential for the proposed project degrade water quality. Therefore, there would be no expected impacts to hydrology and water quality in relation to substantial degradation of water quality. No further analysis is warranted.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The proposed project would not be expected to result in impacts to hydrology and water quality in relation to placement of housing within a 100-year flood hazard area. The proposed project does not entail housing components nor does it include the development of housing. Further, the proposed project site is not located within a 100-year or 500-year flood zone.[16] Therefore, there would be no expected impacts to hydrology and water quality related to placement of housing within a 100-year flood hazard area. No further analysis is warranted.

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

The proposed project would not be expected to result in significant impacts to hydrology and water quality in relation to placement of structures (other than housing) within a 100-year flood hazard area. The proposed project site is not located within a 100-year or 500-year flood zone. The proposed project consists of the development and redevelopment of the existing campus. The proposed project site would not involve the development of structures within a 100-year flood hazard area. Therefore, there would be no expected impacts to hydrology and water quality related

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[14] County of Los Angeles Department of Public Works. *2006 Hydrology Manual*. Available at: http://ladpw.org/wrd/publications.

[15] County of Los Angeles Department of Regional Planning. November 1980.*County of Los Angeles General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

[16] Federal Emergency Management Agency. *Flood Maps*. Available at: http://www.fema.gov/hazard/map/index.shtm

to placement of structures (other than housing) within a 100-year flood hazard area. No further analysis is warranted.

i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

The proposed project would not be expected to result in impacts to hydrology and water quality in relation to the failure of a levee or dam. The County of Los Angeles maintains over 15 major dams and a host of other flood control facilities such as spreading grounds within the County.[17] The flood control facilities within the proposed project vicinity are maintained by the County Flood Control District and are in compliance with local, state, and federal regulations.[18] It is anticipated that the proposed project would have no impacts on the operation of the existing levees or dams. Therefore, there would be no expected impacts to hydrology and water quality related to the failure of a levee or dam. No further analysis is warranted.

j) Inundation by seiche, tsunami, or mudflow?

The proposed project introduces no potential threat of seiches, tsunamis, or mudflow. Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Tsunamis are tidal waves generated in large bodies of water in response to ground shaking. The proposed project would not be expected to result in impacts to hydrology and water quality in relation to the inundation by seiche, tsunami, or mudflow. The elevation of the project site ranges from approximately as low as 85 feet above mean sea level (MSL) to as high as 105 feet above MSL. The proposed project site is roughly 10 miles east of the Pacific Ocean. Due to the elevation of the proposed project area and its distance from the ocean and other bodies of water, there would be no direct or indirect impacts related to seiches or tsunamis.

A mudflow is a large flow of mud resulting from soil saturation on steep slopes. The proposed project site is not located in a section of the County that is susceptible to mudslides and there are no steep slopes with soils or vegetation on or immediately adjacent to the proposed project area. Therefore, there would be no potential for impacts related to mudflows. The proposed project would not be expected to result in impacts to hydrology and water quality in relation to the inundation by seiche, tsunami, or mudflow. No further analysis is warranted.

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[17] County of Los Angeles Department of Public Works. Accessed 2 October 2009. Web site. "Water Resources." Available at: http://dpw.lacounty.gov/wrd/index.cfm

[18] County of Los Angeles Department of Public Works. Accessed 2 October 2009. Web site. "Water Resources." Available at: http://dpw.lacounty.gov/wrd/index.cfm

3.10 LAND USE AND PLANNING

This analysis is undertaken to determine if the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact to land use, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Land use and planning at the proposed project site was evaluated with regard to the County of Los Angeles (County) General Plan,[2] adopted published maps and other adopted plans, and in coordination with the U.S. Fish and Wildlife and the California Department of Fish and Game.

State CEQA Guidelines recommend the consideration of three questions when addressing the potential for significant impacts to land use and planning.

Would the proposed project:

a) Physically divide an established community?

The proposed project would not be expected to result in impacts to land use and planning through the physical division of an established community. The Land Use element of the County General Plan[3] (including General Plan Land Use and Zoning maps) and the U.S. Geological Survey (USGS) 7.5-minute series South Gate topographic quadrangle[4] were reviewed to determine the relationship of the proposed project to the surrounding communities. The proposed project would entail two tiers of development. Tier I would consist of the construction of a new Multiservice Ambulatory Care Center (MACC) and Ancillary Building. Tier II of the proposed project would entail the reuse or replacement of the existing MACC Building, Emergency Room Expansion, MRI Modular Building, and Cooling Towers, and master planned mixed-use development, which may include the potential for: (1) up to 1,814,696 square feet of medical office, commercial, recreational, retail, office space, and other development in support of the campus, which are appurtenant to and compatible with the primary land use, a community-based health program facility, and (2) up to 100 units of multifamily residential development. Both tiers of the proposed project would occur on the same parcels as the existing Martin Luther King, Jr. Medical Center Campus and would not encroach on the surrounding community. A review of site plan maps in conjunction with site reconnaissance reveal that the existing Martin Luther King, Jr. Medical Center Campus is set back from the residential development immediately surrounding the proposed project site, as it is bordered by East 120th Street to the north, South Wilmington Avenue to the east, East 122nd Street to the south, and Compton Avenue to the west. The proposed project would not extend development beyond the existing medical facility site and, therefore, would not cause a physical division within the established community. There would be no expected impacts to land use and planning resulting in a physical division to the established community. No further analysis is warranted.

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[3] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[4] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The proposed project would be expected to result in less than significant impacts to land use and planning in relation to a conflict with adopted or proposed land use plans, policies, or regulations. The General Plan Land Use element and Zoning Ordinance were reviewed to determine the compatibility of the proposed project with adopted land use plans, policies, and regulations.[5,6] According to the General Plan, the proposed project site is designated for Public and Semipublic land use (P), which provides for activities by public and quasipublic entities and allows for the establishment of facilities, infrastructure, and their related operations in these areas that are public or semipublic in nature, including hospitals.[7] As such, the intended use of the proposed project site as a medical facility is in conformance with this land use designation. Furthermore, the proposed project site is zoned as Neighborhood Commercial (C-2; Neighborhood Business Zone), which includes community-related commercial uses and permits the following uses: drugstores, medical clinics (including laboratories), professional or business office space, parking lots and buildings, and hospital equipment and supply rentals.[8] The proposed project's hospital-related uses would be consistent with the permitted uses of this zoning designation, and no General Plan amendment or zone change would be required. However, the uses related to the development of the residential units would be subject to a conditional use permit (CUP) and would be required to meet the conditions of the permit.[9] It is anticipated that the County would obtain a CUP during the planning phase of the proposed project and would be required to meet the specified conditions. The potential residential component, along with all Tier II components, are conceptual at this time, and will therefore only be discussed in a programmatic level in the Environmental Impact Report (EIR), as permitted under CEQA. Once the detailed future development plans for Tier II components are prepared, consistent with the guidelines for programmatic EIRs under CEQA, the projects will be examined in light of the program EIR analysis, to determine whether an additional environmental document must be prepared. Therefore, impacts to land use and planning related to a conflict with adopted or proposed land use plans, policies, or regulations would be less than significant. No further analysis is warranted.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

The proposed project would not be expected to result in impacts to land use and planning in relation to conflicting with any applicable habitat conservation plan or natural community conservation plan. The proposed project area would not be located in an area proposed or adopted as part of a habitat conservation plan or natural community conservation plan.[10,11] Therefore, there

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[5] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[6] County of Los Angeles. July 1996. County Code, Title 22, "Planning and Zoning."

[7] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[8] County of Los Angeles. July 1996. County Code, Title 22, "Planning and Zoning."

[9] County of Los Angeles. Accessed 12 November 2009. *Title 22, Planning and Zoning*. Available at: http://ordlink.com/codes/lacounty/_DATA/TITLE22/Chapter_22_28_COMMERCIAL_ZONES.html#3

[10] California Department of Fish and Game. Accessed 7 October 2009. "Natural Community Conservation Planning." Sacramento, CA. Available at: http://www.dfg.ca.gov/nccp/

would be no expected impacts to existing land use and planning related to a conflict with any adopted habitat conservation plan or natural community conservation plan. No further analysis is warranted.

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[11] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

3.11 MINERAL RESOURCES

This analysis is undertaken to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact to mineral resources, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Mineral resources at the proposed project site were evaluated with regard to California Geological Survey publications[2,3] and the County of Los Angeles (County) General Plan.[4]

State CEQA Guidelines recommend the consideration of two questions when addressing the potential for significant impact to mineral resources:

Would the proposed project have either of the following effects:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The proposed project would not be expected to result in impacts to mineral resources in relation to the loss of availability of a known mineral resource. Based on a review of the California Geological Survey report,[5] there are no known mineral resources of statewide or regional importance produced within the proposed project site. According to the *Mines and Minerals Producers Active in California (1977–1998)*,[6] the County of Los Angeles contains 25 active mines. However, there are no mining districts located in or around the vicinity of the proposed project site. Therefore, there would be no expected impacts to mineral resources related to the loss of availability of a known mineral resource. No further analysis is warranted.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

The proposed project would not be expected to result in impacts to mineral resources in relation to the loss of availability of a known mineral resource recovery site. Based on a review of the Conservation element of the County General Plan,[7] mineral resources are not specifically addressed in this document. Furthermore, this site has not been delineated in any known local plans as a site of local importance,[8] and thus, no significant impacts would be expected. Therefore,

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] California Geological Survey. [1966] Reprinted 13 March 2008. *Bulletin 189: Minerals of California*. Centennial Volume (1866–1966). Los Angeles, CA.

[3] California Geological Survey. Revised 1999. *Mines and Mineral Producers Active in California (1997–1998)*. Special Publication 103. Los Angeles, CA.

[4] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[5] California Geological Survey. [1966] Reprinted 13 March 2008. *Bulletin 189: Minerals of California*. Centennial Volume (1866–1966). Los Angeles, CA.

[6] California Geological Survey. Revised 1999. *Mines and Mineral Producers Active in California (1997–1998)*. Special Publication 103. Los Angeles, CA.

[7] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[8] City of Los Angeles Department of City Planning. March 2002 (Adopted 8 January 2003). *Central City Community Plan*. Los Angeles, CA.

there would be no expected impacts to mineral resources related to the loss of availability of a known locally important mineral resource recovery site. No further analysis is warranted.

3.12 NOISE

This analysis is undertaken to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact to noise, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Noise at the proposed project site was evaluated with regard to the County of Los Angeles (County) General Plan[2] and the County Noise Ordinance.[3]

State CEQA Guidelines recommend the consideration of six questions when addressing the potential for significant impact to noise:

Would the proposed project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

The proposed project would be expected to result in potentially significant impacts to noise in relation to exposure or generation of noise levels in excess of established standards that would be expected to be reduced to below the level of significance with the incorporation of mitigation measures. In addition, the proposed project's residential component could be affected by the noise levels in the vicinity, to an extent that requires project features or mitigation.

The County General Plan and the County Noise Ordinance have established standards governing noise within the County. The Noise element of the County General Plan outlines the County's approach to controlling noise, including a definition of the nature of sound, a description of existing noise levels in the County, and a proposed safe noise environment for the County.[4] If noise disturbance crosses a residential or commercial property line, the County Noise Control Ordinance prohibits any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m. or at any time on Sundays or holidays.[5]

Sensitive receptors in the vicinity of the proposed project that may be affected by noise levels in excess of established standards range from schools to child care centers. Sensitive receptors located within a 0.25-mile radius of the proposed project site include: Lincoln Drew Elementary School located 0.10 mile to the north; Carver Elementary located 0.21 mile to the west; Harriet Tubman High School located 0.25 mile to the south; Cesar Chavez Alternative School located 0.25 mile to the south; Compton Community Day Middle School located 0.25 mile south; and King Drew Magnet High School located adjacent to the Martin Luther King, Jr. Medical Center Campus on East 120th Street. Sensitive receptors located within a 0.5-mile radius include: New Designs Charter

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[3] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ordinance 11778, Section 2 (Article 1, Section 101); Ordinance 11773, Section 2 (Article 1, Section 101). Chapter 12.08. Available at: http://ordlink.com/codes/lacounty/index.htm

[4] *Los Angeles County Code*. Title 12, "Environmental Protection," Chapter 12.08.08.90, "Exterior Noise Standards." Available at: http://ordlink.com/codes/lacounty/index.htm.

[5] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ordinance 11778, Section 2 (Article 1, Section 101); Ordinance 11773, Section 2 (Article 1, Section 101). Chapter 12.08. Available at: http://ordlink.com/codes/lacounty/index.htm.

School located 0.28 mile to the northwest; Los Angeles Computer Science Academy located 0.36 mile to the northeast; Ronald E. McNair Elementary located 0.41 mile to the south; Martin Luther King, Jr. Elementary located 0.43 mile to the east; and Willowbrook Middle School located 0.47 mile to the south.

The proposed project, as currently conceived, would involve reuse or replacement of obsolete buildings and structures, retrofitting of existing buildings and structures, and construction of new facilities. With a large square footage currently scheduled for construction activities, construction of the proposed project would be expected to use heavy equipment over a long construction period. Therefore, construction of the proposed project would be expected to result in significant impacts resulting from exposure of sensitive receptors near the proposed project site to construction-related noise levels exceeding the adopted standards of the County Noise element and Noise Ordinance, thus requiring the consideration of mitigation measures.

As discussed in Section 3.15, *Transportation and Traffic*, of this Initial Study, operation of the proposed project would be expected to generate additional vehicle trips in the proposed project area. With increased traffic anticipated from the proposed project, operation of the proposed project would result in potential significant impacts resulting from exposure of sensitive receptors near the proposed project site to operation-related noise levels exceeding the adopted standards of the County Noise element and Noise Ordinance.

As the proposed project Tier II development includes a residential component, an analysis of noise levels appropriate for residential development, based on the County Noise element and Noise Ordinance, would be required. Project features or mitigation measures may be required.

Implementation of the proposed project would result in potentially significant impacts to noise levels, related to exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, that would be reduced to below the level of significance with the incorporation of mitigation measures. Further analysis is warranted.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Implementation of the proposed project would be expected to generate excessive groundborne vibration or groundborne noise levels, resulting in potentially significant impacts, thus requiring the consideration of mitigation measures. Groundborne vibration or groundborne noise levels associated with the proposed project would originate from earth movement and the use of heavy equipment during the construction phase. Such noise levels would be expected to be reduced to below the level of significance with the incorporation of mitigation measures.

As shown in Table 3.12-1, *Vibration Velocities for Construction Equipment*, use of heavy equipment (e.g., a large bulldozer) generates vibration levels of 0.089 inch per second peak particle velocity (PPV) at a distance of 25 feet. The proposed project may require pile driving. Impact pile driving would generate a vibration level of up to 0.644 inch per second at a distance of 25 feet. It is anticipated that any heavy equipment used for impact pile driving would be located at a distance away from sensitive receptors so that vibration impacts would be minimized. Therefore, vibration levels at nearby sensitive receptors, such as King-Drew Magnet High School, would be perceptible but would not exceed the potential building damage threshold of 0.3 inch per second PPV.

TABLE 3.12-1
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT

Equipment	PPV at 25 Feet (Inches/Second)[a]
Pile Driving (Impact)	0.644
Pile Driving (Sonic)	0.170
Caisson Drilling	0.089
Large Bulldozer	0.089
Loaded Trucks	0.076

[a] Typical concrete and steel buildings can be exposed to groundborne vibration levels of 0.3 inch per second PPV without experiencing structural damage.

SOURCE: Federal Transit Authority. May 2006. Transit Noise and Vibration Impact Assessment.

Operation of the proposed project would not require continued use of heavy equipment or earth-moving activities, and, therefore, would not be expected to generate impacts related to ground-borne vibration or ground-borne noise levels. Impacts to noise in relation to generation of excessive ground-borne vibration or ground-borne noise would be reduced to below the level of significance with the incorporation of mitigation measures. Further analysis is warranted.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Implementation of the proposed project would have the potential to permanently increase the ambient noise levels in the proposed project's vicinity, exceeding the existing baseline conditions established in the County General Plan Noise element and Noise Ordinance, thus requiring the incorporation of mitigation measures. The proposed project would result in increased traffic levels due to the construction-related activities, the ongoing operation and maintenance of the proposed project, and increased vehicle trips to and from the proposed project site. The increase in ambient noise levels has the potential to result in significant impacts unless mitigation measures are incorporated. Therefore, impacts to noise in relation to permanent increases in ambient noise levels in the vicinity of the proposed project would be reduced to below the level of significance with the incorporation of mitigation measures. Further analysis is warranted.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity about levels existing without the project?

Implementation of the proposed project would be expected to generate high noise levels during construction, which would increase ambient noise levels in the proposed project's vicinity, exceeding the existing baseline conditions. The County Noise Control Ordinance prohibits any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m. or at any time on Sundays or holidays.[6] Valid permits shall be obtained from the County for construction, and in accordance with the noise ordinance no construction, repair, or remodeling noise impacts shall exceed 85 decibels A-weighted [db(A)] across any property boundary at any time during the course of a day. Demolition and construction activities associated with the proposed project would be expected to generate high noise levels during the anticipated 37-month Tier I construction phase. In addition, construction of the proposed project would require heavy construction equipment to be utilized over an extended

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[6] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ordinance 11778, Section 2 (Article 1, Section 101); Ordinance 11773, Section 2 (Article 1, Section 101). Chapter 12.08. Available at: http://ordlink.com/codes/lacounty/index.htm.

construction period during both the Tier I and Tier II construction phase (anticipated at approximately 120 months), and the use of heavy construction equipment would periodically increase ambient noise levels above significance thresholds. Noise impacts in relation to a periodic increase in ambient nose levels, as a result of the proposed project, would be expected to be reduced to below the level of significance with the incorporation of mitigation measures. Further analysis is warranted.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The proposed project would not be expected to result in impacts to noise in relation to public airports. The nearest airports are the Compton Airport, located at 901 West Alondra Boulevard in the City of Compton, approximately 2.1 miles south; the Saint Francis Medical Center Helistop in the City of Lynwood, approximately 2.7 miles east; the Gardena Valley Airport in the City of Gardena, approximately 4 miles southeast; and the Hawthorne Municipal Airport in the City of Hawthorne, approximately 4.6 miles west of the proposed project site. The proposed project would not be located within 2 miles of a public airport, and thus the proposed project would not result in significant impacts from the exposure of people residing or working in the project area to excessive noise levels caused by a public airport. Therefore, there would be no expected impacts to noise related to public airport. No further analysis is warranted.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The proposed project would not be expected to result in impacts to noise in relation to private airstrips. The nearest private airstrip is located in Playa Vista at 5510 Lincoln Boulevard, approximately 11.5 miles northwest of the proposed project site.[7] In addition, a heliport is located at the proposed project site for hospital-specific use. Use of the heliport would not be expected to increase substantially with the proposed project; therefore, impacts to people residing or working in project area would not be expected to increase as a result of the proposed project. Therefore, there would be no expected impacts to noise related to private airstrips. No further analysis is warranted.

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[7] Airport IQ Data Center. Accessed on 10 April 2008. Web site. Available at: http://www.gcr1.com/5010web/

3.13 POPULATION AND HOUSING

This analysis is undertaken to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment project (proposed project) may have a significant impact to population and housing that would require the consideration of mitigation measures or alternatives in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Population and housing at the proposed project site were evaluated with regard to County of Los Angeles (County) General Plan;[2] state, regional, and local data and forecasts for population and housing; and the proximity of the proposed project to existing and planned utility infrastructure.

The State CEQA Guidelines recommend the consideration of three questions when addressing the potential for significant impacts to population and housing:

Would the proposed project have any of the following effects:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed project would be expected to result in potentially significant impacts to population and housing in relation to inducing substantial direct or indirect population growth that may require the incorporation of mitigation measures. Implementation of the proposed project would take place in two Tiers. Tier I of the proposed project would incorporate the construction of a new Multiservice Ambulatory Care Center (MACC) and Ancillary Buildings, as well as seismic improvements and renovations to support buildings already existing at the project site. Tier II would entail the reuse or replacement of the existing MACC Building and development of the campuswide Master Plan that would result in the potential construction of up to 1,814,696 square feet of mixed uses, including medical office space and other uses that are appurtenant to and compatible with the primary land use, namely, a community-based health program facility. The mixed-use component of Tier II of the proposed project may also entail the development of residential units. Development of up to 100 multifamily residential units on the proposed project site would be expected to induce population growth at the proposed project site and within the area. The proposed project development, including up to 1,814,696 square feet of new mixed uses in Tier II, would provide employment opportunities. These jobs would be expected to be filled with the workforce in the surrounding communities and possibly in other areas within a commuting distance of the project site; therefore, no indirect population growth would be anticipated. No growth-inducing extensions of infrastructure, including roadways, are proposed as a part of the project. Considering the size of the no-residential portions of the proposed project and the available workforce in the immediate and surrounding area, it is anticipated that the growth in population within the area would not exceed Section 15064.7 of the State CEQA Guidelines' thresholds of significance for housing and population growth.

However, the proposed project would propose new homes. Tier II has the potential for development of up to 100 units of multifamily housing. Therefore, the Tier II portion of the proposed project may result in potentially significant impacts to population and housing in relation

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

to inducing substantial direct or indirect population growth, unless mitigation measures are incorporated. Further analysis is warranted.

b) Displace substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere?

The proposed project would be expected to result in no impacts to population and housing in relation to the displacement of substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere. There are currently no housing units on the proposed project; therefore, none would be removed. Therefore, no displacement of housing necessitating the construction of replacement housing would occur. No further analysis is warranted.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The proposed project would be expected to result in no impacts to population and housing related to the displacement of substantial numbers of people, necessitating the construction of replacement housing elsewhere. Implementation of the proposed project includes the construction of a new MACC and Ancillary Buildings, reuse or replacement of the existing MACC Building, and development of the campuswide Master Plan that would result in the potential construction of mixed-use development. No residential buildings would be demolished as part of the proposed project. As such, there would be no displacement of a substantial number of people. Therefore, there would be no impacts to population and housing in relation to the displacement of substantial numbers of people, necessitating the construction of replacement housing elsewhere. No further analysis is warranted.

3.14 PUBLIC SERVICES

This analysis is undertaken to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment project (proposed project) may have a significant impact to public services that would require the consideration of mitigation measures or alternatives in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Public services at the proposed project site were evaluated based on review of the County of Los Angeles (County) General Plan,[2] the City of Los Angeles Web site,[3] the County of Los Angeles Fire Department Web site,[4] and the County of Los Angeles Sheriff's Department Web site.[5]

State CEQA Guidelines recommend the consideration of the following five-part question when addressing the potential for significant impact to public services:

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following five public services:

    i) Fire protection

The proposed project could potentially result in significant impacts to public services in relation to fire protection that would require mitigation measures. The proposed two-tier project development, including the campuswide Master Plan, would result in additional buildings, residents, and additional employees and visitors on the site requiring fire protection. The Los Angeles County Fire Department provides fire services to the unincorporated County of Los Angeles, including the proposed project site.[6] The first responding fire station is Los Angeles County Fire Department Station Number 41, located less than 0.1 north of the proposed project. Station Number 147 also provides as-needed fire-protection support to the proposed project site and is located approximately 1.5 miles northeast of the proposed project. Additional information will be obtained from the Fire Department to determine that adequate services (such as service ratios, response times, adequate design features, or other performance objectives) can be provided. Potentially significant impacts to public services related to fire protection could occur that warrant further analysis in the Environmental Impact Report (EIR). Significant impacts, if found, would require the consideration of mitigation measures. Further analysis is warranted (Table 3.14-1, *Fire Stations in the Proposed Project Vicinity*).

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[3] City of Los Angeles. n.d. Web Site. Available at: http://www.ci.la.ca.us/

[4] County of Los Angeles Fire Department. 2008. Web site. Available at: http://www.fire.lacounty.gov/default.asp

[5] Los Angeles County Sheriff's Department. 2008. Web site. Available at: http://www.lasd.org/

[6] Los Angeles County Fire Department. 2009. Web site: see Battalion 13. Available at: http://www.fire.lacounty.gov/HometownFireStations/HometownFireStations.asp

TABLE 3.14-1
FIRE STATIONS IN THE PROPOSED PROJECT VICINITY

Station No.	Location	Distance from Site
41	1815 East 120th Street, Los Angeles 90059	Less than 0.1 mile north
147	3161 East Imperial Highway, Lynwood 90262	1.5 mile northeast

SOURCE: Los Angeles County Fire Department. 2009. Web site. Available at: http://www.fire.lacounty.gov/HometownFireStations/HometownFireStations.asp

ii) Police protection

The proposed project could potentially result in significant impacts to public services in relation to police protection that would require mitigation measures. The proposed two-tier project development, including the campuswide Master Plan, would result in additional buildings, residents, and additional employees and visitors on the site requiring police protection. Police protection services in the proposed project area are provided by the Los Angeles County Sheriff's Department's Century Station, located approximately 0.8 mile northeast of the proposed project site, at 11703 Alameda Street, Lynwood, California 90262. The Century Station is responsible for providing law enforcement services to more than 200,000 individuals residing within 13 square miles of southern Los Angles County, including the Willowbrook area where the proposed project is located.[7] Additional information will be obtained from the Sheriff's Department to determine that adequate services (such as service ratios, response times, adequate design features, or other performance objectives) can be provided. Potentially significant impacts to public services related to police protection could occur that warrant further analysis in the EIR. Significant impacts, if found, would require the consideration of mitigation measures. Further analysis is warranted.

iii) Schools

The proposed project would be expected to result in less than significant impacts to public services in relation to schools. School-age children residing within the Willowbrook Community attend schools in the Los Angeles Unified School District and in the Compton Unified School District.[8,9] There are 11 schools and education facilities located within a 0.5-mile radius of the proposed project site: King Drew Magnet High School located adjacent to the MLK campus on East 120th Street, Lincoln Drew Elementary School located 0.10 mile to the north, Los Angeles Computer Science Academy located 0.36 mile northeast, Martin Luther King Elementary located 0.43 mile east, Harriet Tubman High School located 0.25 mile south, Cesar Chavez Alternative School located 0.25 mile south, Compton Community Day Middle School located 0.25 mile south, Ronald E. McNair Elementary located 0.41 mile south, Willowbrook Middle School located 0.47 mile south, Carver Elementary located 0.21 mile to the west, and New Designs Charter School located 0.28 mile northwest. Although implementation of the campuswide Master Plan could induce a growth in population due to the potential creation of new employment opportunities, it is anticipated that existing schools would support the needs of the proposed project. The Los Angeles Unified School District is expected to complete a multiphase program that would provide

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[7] Los Angeles County Sheriff's Department, Century Station. 2007. Web site. Available at: http://www.lasd.org/stations/for2/century/index.html

[8] Los Angeles Unified School District. 2009. *Local District 7*. Available at: http://notebook.lausd.net/portal/page?_pageid=33,135565&_dad=ptl&_schema=PTL_EP

[9] Compton Unified School District. 2009. *School/Transportation Information*. Available at: http://transport.compton.k12.ca.us/elinkrp/Students/BasicTransBoundarySearch.aspx

classroom seats to address the current need for classroom seats within its service area (which included the proposed project site).[10] Furthermore, as determined by the State of California, mandated payment of school fees for new development in compliance with Senate Bill (SB) 50, is considered full mitigation under CEQA. School fees are collected prior to project development.[11] Therefore, impacts related to public services related to schools would be expected to be less than significant. No further analysis is warranted (Table 3.14-2, *Schools in the Proposed Project Vicinity*).

TABLE 3.14-2
SCHOOLS IN THE PROPOSED PROJECT VICINITY

School Name	Location	Distance from Site
King Drew Magnet High School	1601 East 120th Street, Los Angeles 90059	Adjacent to the northwest boundary
Lincoln Drew Elementary	1667 East 118th Street, Los Angeles 90059	0.10 mile north
Carver Elementary	1425 East 120th Street, Los Angeles 90059	0.21 mile west
Harriet Tubman High School	12501 South Wilmington Avenue, Compton 90222	0.25 mile south
Cesar Chavez Alternative School	12051 South Wilmington Avenue, Compton 90222	0.25 mile south
Compton Community Day Middle School	12501 South Wilmington Avenue, Compton 90222	0.25 mile south
New Designs Charter School	1339 East 120th Street, Los Angeles 90059	0.28 mile northwest
Los Angeles Computer Science Academy	2209 East 118th Street, Los Angeles 90059	0.36 mile northeast
Ronald E. Mc Nair Elementary	1450 West El Segundo Boulevard, Compton, 90222	0.41 mile south
Martin Luther King Elementary	2270 East 122nd Street, Compton 90222	0.43 mile east
Willowbrook Middle School	2601 North Wilmington Avenue, Compton 90222	0.47 mile south

iv) Parks

The proposed project would be expected to result in potentially significant impacts to public services in relation to parks that would require mitigation measures. There are currently six area parks within a 1-mile radius of the proposed project site: 109th Street Recreational Center Park (0.83 miles north of the proposed project), Sibrie Park (0.42 miles south of the proposed project), Enterprise Park (0.77 miles southwest of the proposed project), Mona Park (0.51 miles west of the proposed project), Earvin Magic Johnson Park (0.59 miles west of the proposed project), and George W. Carver Park (0.25 miles northwest of the proposed project). As the proposed project would be expected to induce some population growth, as described in Section 3.12, Population

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[10] Los Angeles Unified School District. January 2009. *Strategic Execution Plan*. Available at: http://www.laschools.org/sepdocs/sep/pdf/sep-2009-web.pdf

[11] California Department of Education. Accessed on November 12, 2009. *Chaptered Senate Bills*. Available at: http://www.cde.ca.gov/re/lr/ga/chapsen07.asp

and Housing, it would be anticipated that the capacity of the existing park facilities in the neighboring areas during operation would need to be evaluated to ensure that they are able to support the demand for recreational facilities generated by the proposed project. Significant impacts, if found, would require the consideration of mitigation measures. Further analysis is warranted.

v) Other public facilities

The proposed project would be expected to result in potentially significant impacts to public services in relation to other public facilities that would require mitigation measures. Implementation of the two-tiered project, including the campuswide Master Plan, is anticipated to include up to 1,814,696 square feet of mixed use development, including development of up to 100 multifamily dwelling units and medical office buildings that are appurtenant to and compatible with the primary land use of a community-based health program facility. Furthermore, the proposed project would induce some population growth, as described in Section 3.12, and therefore would necessitate substantial additional public facilities needs. Existing public facilities include the Willowbrook Library at 11838 South Wilmington Avenue, located less than 0.1 mile north of the proposed project site,[12] and a U.S. Post Office at 2241 East El Segundo Boulevard, located approximately 0.6 mile southeast of the proposed project site.[13] Significant impacts, if found, would require the consideration of mitigation measures. Further analysis is warranted.

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[12] County of Los Angeles Public Library. Accessed 8 October 2009. Web site. Available at: http://www.colapublib.org

[13] United States Postal Service. Accessed 8 October 2009. Web site. "Locator." Available at: http://usps.whitepages.com/post_office

3.15 RECREATION

This analysis is undertaken to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) may have a significant impact to recreation, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State California Environmental Quality (CEQA) Guidelines.[1] Recreation at the proposed project site was evaluated with regard to the County of Los Angeles (County) General Plan,[2] expert opinion, previously published information, and the consideration of the potential for growth-inducing impacts evaluated in Section 3.12, Population and Housing.

State CEQA Guidelines recommend the consideration of two questions when addressing the potential for significant impact to recreation.

Would the proposed project have any of the following effects:

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The proposed project would be expected to result in potentially adverse impacts to recreation in relation to increased use of existing neighborhood and regional parks or other recreational facilities that would contribute to their physical deterioration that could be reduced to below the level of significance with the incorporation of mitigation measures. A review of recreation maps shows that there are currently five County parks within a 1-mile radius of the proposed project site: 109th Street Recreational Center Park (0.83 mile north of the proposed project), Sibrie Park (0.42 mile south of the proposed project), Enterprise Park (0.77 mile southwest of the proposed project), Mona Park (0.51 mile west of the proposed project), Earvin Magic Johnson Park (0.59 mile west of the proposed project), and George W. Carver Park (0.25 mile northwest of the proposed project). These parks and facilities serve the existing recreational needs of the surrounding community. However, the proposed project is intended to provide health services to the residents and visitors of the Willowbrook area and, in accordance with proposed project components. The proposed project's Tier II development includes a potential residential component of up to 100 multifamily residential units, development of which may induce population growth in the surrounding area, as discussed in Section 3.12. Therefore, the existing neighborhood, park, or recreation facilities may be expected to experience increased usage and potentially a physical deterioration as a result of an increase in the number of people (proposed project residents) visiting existing park facilities. Although it is anticipated that the proposed project would have a residential component, the proposed project would be expected to result in potentially adverse impacts to recreation in relation to increased use of existing neighborhood and regional parks or other recreational facilities that would contribute to their physical deterioration that could be reduced to below the level of significance with the incorporation of mitigation measures. Further analysis is warranted.

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[1] *California Code of Regulations.* Title 14, Division 6, Chapter 3, Sections 15000-15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The proposed project would be expected to result in potentially significant impacts related to adverse physical effects on the environment as a result of proposed construction or expansion of recreational facilities that could be reduced to below the level of significance with the incorporation of mitigation measures. Implementation of the proposed project would entail development of a new Multiservice Ambulatory Care Center and Ancillary Buildings at the existing project site, renovations and improvements to the existing Inpatient Tower, and development of a hospital-related mixed-use component consistent with the campus-wide Master Plan. It is anticipated that development of the mixed-use component of the proposed project would entail the development of residential units, which may be slightly offset by the development of recreational space in the proposed project; however, construction would not include expanded recreational facilities in the surrounding area. The proposed project would require further analysis to determine whether it would be expected to result in new population growth that would increase the usage of recreational facilities and may increase the need for the expansion of existing recreation facilities or the construction of new recreational facilities beyond those anticipated in the proposed project. Therefore, there would be potentially significant impacts related to adverse physical effects on the environment as a result of existing recreational facilities or proposed construction or expansion of recreational facilities that could be reduced to below the level of significance with the incorporation of mitigation measures. Further analysis is warranted.

3.16 TRANSPORTATION AND TRAFFIC

This analysis is undertaken to determine if the proposed Martin Luther King, Jr. Medical Center Campus (proposed project) may have a significant impact to transportation and traffic, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Transportation and traffic at the proposed project site was evaluated with regard to the Circulation element of the County of Los Angeles (County) General Plan,[2] the County Congestion Management Program (CMP),[3] and California Department of Transportation (Caltrans) Traffic Guidelines.[4]

State CEQA Guidelines recommend the consideration of six questions when addressing the potential for significant impacts to transportation and traffic:

Would the proposed project have any of the following effects:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Implementation of the proposed project would be expected to result in significant impacts to transportation and traffic by creating a substantial increase in traffic within the circulation system that would be expected to conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, unless mitigation measures are incorporated. The proposed project entails, as currently conceived in Tier I, construction of two new facilities. Tier II of the proposed project would entail the reuse or replacement of the existing MACC building, Emergency Room Expansion, MRI Modular Building, and Cooling Towers, and the construction of new master planned mixed-use development, which may include the potential development of up to 1,814,696 square feet for (1) medical office, commercial, retail, office space, and other development in support of the campus, which are appurtenant to and compatible with the primary land use, a community-based health program facility, and (2) up to 100 units of multifamily residential development.

With a large square footage currently scheduled for construction activities, construction of the proposed project would be expected to require a large number of construction workers and a large number of hauling and delivery trucks to travel to and from the proposed project site over a long construction period. Therefore, construction of the proposed project would be expected to generate a large number of additional vehicle trips to and from the proposed project site and would be expected to result in impacts to transportation and traffic on the existing traffic load and capacity of the street system established by the County CMP[5] for designated roads or highways from the

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[3] County of Los Angeles, Metropolitan Transit Authority. 1998. *Congestion Management Program*. Los Angeles, CA.

[4] California Department of Transportation. 2002. *Caltrans Guide for the Preparation of Traffic Impact Studies*. Available at: http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/

[5] County of Los Angeles, Metropolitan Transit Authority. 1998. *Congestion Management Program*. Los Angeles, CA.

proposed project. Incorporation of mitigation measures would be required to reduce these construction-related impacts to transportation and traffic to below the level of significance.

Operation of the proposed project would also be expected to result in significant impacts to transportation and traffic by creating a substantial increase in traffic within the circulation system, and it would therefore conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system. The proposed project would be operated as a site to provide critical healthcare services and would have future mixed-use development that would provide the health services necessary to respond to and address the needs of the community. Based on such operational functions of the proposed project, the proposed project, as currently conceived, would provide facilities for critical healthcare services, and in Tier II, additional development of approximately 1,814,696 square feet of nonresidential uses and 100 units of multifamily housing. Vehicle trips as a result of the increased population would be expected to increase during the operational phase of the proposed project. Therefore, operation of the proposed project would be expected to result in impacts to transportation and traffic in regards to a conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system established by the County of Los Angeles CMP for designated roads or highways from the proposed project. Mitigation measures are required to be incorporated in order to reduce these operation-related transportation and traffic impacts to below the level of significance. Further analysis is warranted.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

The proposed project would be expected to result in impacts to transportation and traffic in relation to conflicting with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways and would require the incorporation of mitigation measures to reduce these impacts to below the level of significance. The County's CMP standard is Level-of-Service (LOS) D or better for roads and highways in the vicinity of the proposed project site. LOS is a measure of traffic operation condition whereby a letter grade, A through F, corresponding to progressively worsening operation conditions, is assigned to an intersection or roadway segment. The significance criteria of the County of Los Angeles are based on the projected increase in intersection volume-to-capacity (V/C) ratios due to the proposed project and the future intersection LOS, which includes traffic due to the proposed project, as well as other related development projects.

The proposed project would be expected to exceed the LOS beyond the level of significance because the operational purpose of the proposed project to provide future mixed-use development and provide the health services necessary to respond to and address the needs of the community would expand the existing uses at the proposed project site, and it would therefore conflict with the County's applicable congestion management program regarding LOS. Implementation of the proposed project would be anticipated to generate a significant number of additional vehicle trips. Therefore, the proposed project would be expected to result in significant impacts on the LOS of surrounding roads and be required to incorporate mitigation measures to reduce these impacts to below the level of significance. Further analysis is warranted.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The proposed project would not be expected to result in impacts to transportation and traffic in relation to a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. The nearest airport to the proposed project site is the Compton Airport located approximately 2.1 miles south of the proposed project in the City of Compton. There would be no change in relation to existing air traffic patterns as a result of the proposed project. Therefore, there would be no expected impacts to transportation and traffic related to a change in air traffic patterns that would result in substantial safety risks. No further analysis is warranted.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Implementation of the proposed project would be expected to result in less than significant impacts from hazards due to a design feature. The proposed project would be expected to involve a physical change in the environment. However, any construction-induced traffic would not be expected to result in increased hazards related to traffic engineering design features or incompatible uses. The proposed project site is connected by a network of well-defined and pre-existing paved roads including 120th Street to the north and Wilmington Avenue to the east. The site would continue to be accessed by these roads following construction of the proposed project. There would be no expected significant impacts from an increase in hazards due to a design feature. No further analysis is warranted.

e) Result in inadequate emergency access?

The proposed project would be expected to result in less than significant impacts with regard to inadequate emergency access. Implementation of the proposed project would not be expected to alter any existing emergency access routes nor change existing patterns of emergency access. Two fire stations are located within 2 miles from the proposed project site. Police protection services in the proposed project area are provided by the Los Angeles County Sheriff's Department's Century Station, located approximately 0.8 mile northeast from the proposed project site.

Although there would be additional traffic generated by implementation of the proposed project, and there may be an expected change of the LOS levels near points of public ingress or egress, it is not anticipated that the proposed project would result in traffic levels that significantly surpass the amount of traffic entitled in such a manner that it would result in inadequate emergency access to the proposed project site. Existing roadways were planned and designed to support the anticipated needs of the facility and it is anticipated that these roadways would be able to provide adequate emergency access to the proposed project site, and no additional access roads would need to be constructed to assist in the provision of adequate emergency access. As a medical center campus, the proposed project would be required to ensure that the project is properly designed for emergency vehicle access (e.g., driveway widths and turning radius allowances). Therefore, the proposed project would be expected to result in less than significant impacts with regard to inadequate emergency access. No further analysis is warranted.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

The proposed project would not be expected to result in impacts to transportation and traffic in relation to conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Based on analysis of the County General Plan Circulation element, implementation of the proposed project would not conflict with adopted policies or plans determined by the County. Relevant policies include the following:[6]

- **Policy 31.** Support the development of a mass transportation system that will provide a viable alternative to the automobile.
- **Policy 33.** Support a public transit system that provides accessible service, particularly to the transit dependent.
- **Policy 17.** Encourage provision of transit service at a reasonable cost to the users and the community.
- **Policy 24.** Encourage the efficient use and conservation of energy used in transportation.
- **Policy 15.** Provide opportunity for timely citizen input and guidance in the transportation decision-making process.

The proposed project would not involve construction- or operation-related traffic activities that would be expected to interfere with regular operation of the established plans or policies. Moreover, the proposed project site is connected by a network of well-defined, pre-existing, and traffic-controlled paved roads. These roads include 120th Street to the north and Wilmington Avenue to the east, traversing through and around the proposed project site area. These paved roads incorporate ample design and planning to allow for alternative transportation methods such as bicycles and buses to share access to the existing site with automobile vehicles. The existing Martin Luther King, Jr. Medical Center is accessible by public transportation services with nine bus lines currently serving the proposed project area. These bus lines are operated by Los Angeles County Metropolitan Transit Authority (LACMTA), Hahn Trolley and Shuttle Service (HTSS), and the Los Angeles Department of Transportation (LADOT). The proposed project would be consistent with the County's goals and policies to improve the efficiency of the transportation system, and to reduce transportation energy consumption and transportation-related degradation of the environment. Therefore, there would be no expected impacts to transportation and traffic related to conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. No further analysis is warranted.

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[6] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan.* Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

3.17 UTILITIES AND SERVICE SYSTEMS

This analysis is undertaken to determine if the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment project (proposed project) may have a significant impact to utilities and service systems, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Utilities and service systems at the proposed project site were evaluated with regard to the County of Los Angeles (County) General Plan Safety element,[2] Central Basin Municipal Water District,[3] the Los Angeles Regional Water Quality Control Board (LA-RWQCB),[4] and State of California RWQCB Basin Plan for Los Angeles.[5] The scope of the utilities and service systems investigations included the natural gas, telephone, electric, sewer, storm drain, and water utilities.

State CEQA Guidelines recommend the consideration of seven questions when addressing the potential for significant impact to utilities and service systems:

Would the proposed project have any of the following effects:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

The proposed project would be expected to result in less than significant impacts to utilities and service systems in relation to exceeding wastewater treatment requirements of the LA-RWQCB. It is anticipated that the proposed project would contribute to additional amounts of wastewater going through the wastewater treatment system than what currently leaves the proposed project site. However, wastewater treatment requirements due to construction and development related to Tier I and Tier II of the proposed project would not be expected to exceed the wastewater treatment requirements or standards of the RWQCB. Wastewater generated at the proposed project would be treated at the Hyperion Treatment Plant.[6] The Hyperion Treatment Plant currently supports wastewater leaving the proposed project site and would continue to do so following the development of the proposed project. The Hyperion Treatment Plant is the largest wastewater treatment plants in the City of Los Angeles. The facility provides both primary and secondary treatment for approximately 340 million gallons of wastewater per day (MGD).[7] The Hyperion Treatment Plant has an average flow capacity of 450 MGD (during wet conditions, i.e., the rainy season, the facility has a capacity of 850 MGD).[8] The Hyperion Treatment Plant currently operates

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[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. November 1980. *Los Angeles County General Plan*. Available at: http://planning.lacounty.gov/assets/upl/project/gp_web80-all.pdf

[3] Central Basin Municipal Water District. Accessed 7 October 2009. Web site. *Central Basin Municipal Water District*. Available at: http://www.centralbasin.org/

[4] State Water Resources Control Board—Los Angeles. Accessed 7 October 2009. Web site. *LARWQCB*. Available at: http://www.swrcb.ca.gov/rwqcb4/

[5] State Water Resources Control Board—Los Angeles. Accessed 7 October 2009. Web site. *LARWQCB Basin Plan*. Available at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/

[6] Carr, Nancy, Hyperion Treatment Plant, Playa del Rey, CA. October 2009. Telephone correspondence with Ms. Eimon Raoof, Sapphos Environmental, Inc., Pasadena, CA.

[7] City of Los Angeles Hyperion Sewage. Accessed 19 October 2009. Web site. *City of Los Angeles Hyperion Sewage*. Available at: http://www.lastormwater.org/siteorg/general/hypern1.htm

[8] City of Los Angeles Hyperion Sewage. Accessed 19 October 2009. Web site. *City of Los Angeles Hyperion Sewage*. Available at: http://www.lastormwater.org/siteorg/general/hypern1.htm

in conformance with the applicable standards of the LA-RWQCB. The plant serves a population of approximately 4 million people throughout the County of Los Angeles.[9] Although the proposed project would be expected to generate additional wastewater that would flow into the existing system, the proposed project would not be anticipated to add additional water quality concerns beyond those already enforced and being met by the Hyperion Treatment Plant. Further, the proposed project would connect to the existing wastewater system and would not include the development of major new sewer lines. Therefore, the proposed project would be expected to result in less than significant impacts to utilities and service systems in relation to exceeding wastewater treatment requirements of the RWQCB. No further analysis is required.

b) Require or result in the construction of new water or wastewater treatment facilities, the construction of which could cause significant environmental effects?

The proposed project would not be expected to result in impacts to utilities and service systems in relation to the requiring or resulting in the construction of substantial new water supply or wastewater treatment facilities. The proposed project is located in the Central Basin Municipal Water District service area. Annually, the Central Basin Municipal Water District provides approximately 60,000 acre-feet of imported water to a 227 square mile service area, which includes 24 cities and the unincorporated parts of the County.[10] It is anticipated that the proposed project would result in an increase in water supply and wastewater treatment demands for the proposed project site, the increases require further analysis for potentially significant impacts (see questions "d" and "e", below). While the increases in water usage and sewage generation are potentially significant on the proposed project level, it is not anticipated that the project alone would result in the need for substantial new water supply or wastewater treatment facilities. The general project area is well-served by major pipeline infrastructure for water supply and wastewater collection, though some new project connections on on-site infrastructure may be needed. The County Building and Safety's site plan review will assure that appropriate localized connections to water and wastewater systems are provided and adequately designed to approved standards. Therefore, the proposed project would not be expected to result in impacts to utilities and service systems related to requiring or producing the construction of new water or wastewater treatment facilities. No further analysis is required.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?

The proposed project could result in potentially significant impacts to utilities and service systems in relation to the construction of new storm water drainage facilities or the expansion of existing facilities, which could cause significant environmental impacts that may require the incorporation of mitigation measures. The proposed project site is served by stormwater drains that convey stormwater away from the site. Implementation of the proposed project would increase the impervious surface area on the project site, with the largest change to occur in Tier II with the Master Plan mixed-use development. Currently, impervious surfaces on the proposed project site consist of buildings and paved areas, including parking lots, which cover the soil and do not allow for stormwater to percolate into the soil. Stormwater, which drains off the impervious surface areas of the site, is conveyed by gutters and catch basins into the system of stormdrains surrounding the

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[9] City of Los Angeles Hyperion Sewage. Accessed 19 October 2009. Web site. *City of Los Angeles Hyperion Sewage*. Available at: http://www.lastormwater.org/siteorg/general/hypern1.htm

[10] Central Basin Municipal Water District. Accessed 7 October 2009. Web site. *Central Basin Municipal Water District*. Available at: http://www.centralbasin.org/

project site. With the proposed project, undeveloped portions of the site would be covered with buildings and potentially parking areas, thus increasing the amount of stormwater draining from the site. Thus, evaluation of the stormdrain needs and the capacity of the local stormdrain system is warranted, and mitigation measures and/or the analysis of alternatives may be required.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Further analysis is warranted to determine if the proposed project may result in significant impacts to utilities and service systems in relation to having sufficient water supplies available to serve the proposed project from existing entitlements and resources. Further analysis is required in order to determine whether the proposed water requirements for the proposed project would surpass the existing water use entitlements for the proposed project site.

The proposed project site is located within an unincorporated area of the County of Los Angeles, which receives its potable (drinking) water supply from two sources. Ownership of water rights allows approximately half of the water supply needs to be produced from groundwater wells located within the City of Los Angeles. The other portion of the City's potable (drinking) water supply is treated surface water purchased from the Central Basin Municipal Water District.[11] The Central Basin Municipal Water District now serves more than 2 million people (including the unincorporated parts of the County) and would potentially supply water to the proposed project area. Several factors would drive future water demands, including population growth, housing density, employment, and household income. The population of the Central Basin Municipal Water District's service area is expected to increase approximately 16 percent from 1,614,400 in 2005 to approximately 1,872,500 by 2030.[12] The proposed project could be expected to increase the water use demands at the proposed project site.

As mentioned above, given the size of the proposed project, including the Tier II master plan–related development, which would add up to 1,814,696 square feet of new development, including up to 100 units of multifamily residential, potentially significant project impacts to water supply could occur, and possibly could necessitate the need for a Waster Supply Assessment under Senate Bill (SB) 610. Recent water usage at the proposed project site must be examined and compared to proposed water demand in order to make this determination.

Water use at the existing campus while it was fully operational, has varied over time. The average water use on the campus between the years 2002 to 2006 was more than 80 million gallons (or 107 thousand hundred cubic foot (HCF) unit) of water per year.[13] Water consumption at the existing campus during these years are described below in Table 3.17-1, *Operational Water Use at the Proposed Project Site, 2002–2006*, below for each of these four operational years.

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[11] Central Basin Municipal Water District. Accessed 7 October 2009. Web site. *Central Basin Municipal Water District*. Available at: http://www.centralbasin.org/

[12] Central Basin Municipal Water District. Accessed 7 October 2009. *Water Demand*. Available at: http://www.centralbasin.org/chartWaterDemand.html

[13] One (1) HCF equals to 748 gallons of water.

TABLE 3.17-1
OPERATIONAL WATER USE AT THE PROPOSED PROJECT SITE
2002–2006

Fiscal Year	HCF (hundred cubic foot) Units	Gallons	Acre-Feet
2002-2003	104,572	78,219,856	240
2003-2004	118,426	88,582,648	271
2004-2005	104,494	78,161,512	239
2005-2006	103,681	77,553,388	238
4-year Average	**107,793**	**80,629,351**	**247**

According to the Central Basin Municipal Water District, in the year 2005, the water demand in the district was 330,557 acre-feet and the projected demand in 2010 and 2015 would be 351,591 acre-feet and 358,441 acre-feet, respectively.[14] A project is subject to SB 610 and requires the preparation of a Waster Supply Assessment if it meets one of several criteria including:

1) The project demands water use that is comparable to a 500 unit residential development (guidelines for other land uses include: a shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor area; a commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor area; a hotel or motel with more than 500 rooms; an industrial facility employing more than 1,000 persons or having more than 250,000 square feet of floor area; or a mixed use facility that combined meets these guidelines);[15] or

2) The project would increase the number of the public water system's existing service connections by 10%.[16]

The U.S. Department of Agriculture, Forest Service estimates that an average California household uses between one half acre-foot and one acre-foot of water each year.[17] This usage rate would indicate that an average 500-unit residential development would be expected to consume between 250 to 500 acre-feet per year, or an average of 375 acre-feet per year. During the most recent past four years when the hospital was fully operational, the existing campus utilized an average 247 acre-feet of water per year; however, the maximum water use at the existing campus during the four-year period observed was 271 acre-feet. It is anticipated that the maximum water consumption amounts for the campus following development would not be significantly greater than the maximum operational usage amount of 271 acre-feet (88,582,648 gallons) cited above; which represents approximately .08 percent of the 2005 water demand rates for the County and .07 percent of the 2010 and 2015 rates. A Waster Supply Assessment should be prepared if the proposed project would provide additional development requiring an increase of water use of 375

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[14] Central Basin Municipal Water District. Accessed 2 October 2009. "Water Demand." Available at: http://www.centralbasin.org/chartWaterDemand.html

[15] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Section 15155: "City or County Consultation With Water Agencies."

[16] California Status Department of Water Resources. Accessed on 2 November 2009. "SB 610 / SB 221 Guidebook FAQs." Available at: http://www.water.ca.gov/urbanwatermanagement/SB610_SB221/

[17] U.S. Department of Agriculture, Forest Service. Accessed on 3 November 2009. "Water Use Facts." Sacramento, CA. Available at: http://www.fs.fed.us/r5/publications/water_resources/html/water_use_facts.html

acre-feet per year (i.e., the amount of water required by 500 homes) beyond the recent maximum existing use demand of 271 acre-feet.

However, additional study is warranted to confirm that the proposed project falls below SB 610 thresholds, and to assure that the proposed project can be adequately served by the water supplier. Further analysis is warranted, and mitigation measures and/or the analysis of alternatives may be required.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing conditions?

Further analysis is warranted to determine if the proposed project would be expected to result in significant impacts to utilities and service systems, based on a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. The community of Willowbrook sanitary sewer system carries wastewater from the proposed project site into the sanitary sewer system where it is conveyed to the Hyperion Treatment Plant.[18] As previously discussed, the Hyperion Treatment Plant provides primary, secondary, and tertiary treatment for approximately 340 million gallons of wastewater per day.[19] The Hyperion Treatment Plant has the capacity to absorb projects that are consistent with regional growth projections established by the Southern California Association of Governments (SCAG). Although the proposed project would not be expected to increase population, the proposed project would be expected to substantially increase generation of wastewater at the proposed project site. Further analysis of the proposed project's impact on the capacity at Hyperion Treatment Plant is warranted. Therefore, impacts to utilities and service systems in relation to resulting in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments would be potentially significant. Further analysis is warranted, and mitigation measures and/or the evaluation of alternatives may be necessary.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

The proposed project would be expected to result in less than significant impacts to utilities and service systems in relation to being served by a landfill with sufficient permitted capacity to accommodate the proposed project's solid waste disposal needs. The solid waste facilities within the central Los Angeles area are listed in Table 3.16-2, *Solid Waste Facilities in the Los Angeles Area*.[20]

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[18] Sanitation Districts of Los Angeles County. Accessed 7 October 2009. Web site. "Joint Water Pollution Control Plant." Available at: http://www.lacsd.org/about/wastewater_facilities/jwpcp/default.asp

[19] City of Los Angeles Hyperion Sewage. Accessed 19 October 2009. Web site. "City of Los Angeles Hyperion Sewage." Available at: http://www.lastormwater.org/siteorg/general/hypern1.htm

[20] Sanitation Districts of Los Angeles County. Accessed 19 October 2009. Web site. "Solid Waste Information." http://www.lacsd.org/info/solid_waste/default.asp

TABLE 3.17-2
SOLID WASTE FACILITIES IN THE LOS ANGELES AREA[21,22]

Name / Operator	Address	Open to the Public?	Distance to Site
Angeles Western Paper Fibers MRF & Transfer Station / General Recycling Services	2474 Porter St. Los Angeles, CA 90021	Yes	7 miles north
Central LA Recycling Center and Transfer Station / City of Los Angeles	2201 E. Washington Blvd. Los Angeles, CA 90021	Yes	7 miles north
City Terrace Recycling Transfer Station / Robert M. Arsenian	1511 Fishburn Ave. Los Angeles, CA 90063	No	10 miles northeast
Commerce Refuse-to-Energy Facility / Sanitation Districts of Los Angeles County	5926 Sheila St. Commerce, CA 90040	Yes	7 miles northeast
Downey Area Recycling & Transfer / Sanitation Districts of Los Angeles County	9770 Washburn Rd. Downey, CA 90241	Yes	7 miles east
Downtown Diversion / Downtown Diversion, Inc.	2424 E. Olympic Blvd. Los Angeles, CA 90021	Yes	7 miles north
East Los Angeles Recycling & Transfer / East Los Angeles Transfer	1512 N. Bonnie Beach Pl. Los Angeles, CA 90063	No	10 miles northeast
Innovative Waste Control / Innovative Waste Control	4133 Bandini Blvd. Vernon, CA 90023	Yes	6 miles northeast
Mission Road Recycling & Transfer Station / Waste Management, Inc.	840 S. Mission Rd. Los Angeles, CA 90023	Yes	7 miles north
Paramount Resource Recycling Facility / Paramount Resource Recycling	7230 Petterson Ln. Paramount, CA 90723	Yes	4 miles southeast
Puente Hills Material Recovery Facility / Sanitation Districts of Los Angeles County	13130 Crossroads Pkwy S City of Industry, CA 91746	Yes	18 miles northeast
Salt Lake Transfer Station / City of South Gate	9525 Salt Lake South Gate, CA 90280	No	4 miles northeast
South Gate Transfer Station / Sanitation Districts of Los Angeles County	9530 S. Garfield Ave. South Gate, CA 90280	Yes	4 miles northeast
Waste Management South Gate Transfer Station / Waste Management, Inc.	4489 Ardine St. South Gate, CA 90280	Yes	4 miles northeast

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[21] County of Los Angeles Public Works. Accessed 7 October 2009. Web site. "Solid Waste Facilities in Los Angeles County." Available at: http://dpw.lacounty.gov/swims/general/facilities/nearestfacilitylist.asp

[22] County of Los Angeles Department of Public Works. 10 May 2007. Sanitation Districts of Los Angeles County. Accessed 7 October 2009. "Solid Waste Management In Los Angeles County - Disposal System Overview." Available at: http://ladpw.org/swims/Upload/SWM%20in%20LA%20County_7250.pdf

The proposed project would require an increase in waste disposal during the constructional and operational phases of the proposed project. Refuse collected in the community of Willowbrook, California, which includes collection at the proposed project site, may be taken to three facilities operated by the Sanitation Districts of Los Angeles County: the Downey Area Recycling & Transfer facility, Puente Hills Materials Recovery facility, or the South Gate Transfer Station facility. The Downey Area Recycling & Transfer facility is located at 9770 Washburn Road, Downey, California, roughly 7 miles east of the proposed project site. This facility has a daily maximum permitted capacity of 5,000 tons per day.[23] The Puente Hills Materials Recovery facility is located at 13130 Crossroads Parkway South, City of Industry, California, roughly 18 miles northeast of the proposed project site. This facility has a daily a maximum permitted capacity of 13,200 tons of waste per day and is scheduled to close in November 2013.[24] The South Gate Transfer Station is located at 530 South Garfield Avenue, South Gate, California, roughly 4 miles northeast of the proposed project site. The South Gate Transfer Station has a daily maximum permitted capacity of 1,000 tons of waste per day.[25] It is anticipated that waste collected at the proposed project site would be taken to one of the three stations listed above. Each station has the capacity to service the proposed project site. Therefore, the proposed project would not be expected to result in significant impacts to utilities and service systems in relation to being served by a landfill with sufficient permitted capacity to accommodate the proposed project's solid waste disposal needs. No further analysis is warranted.

g) Comply with Federal, State, and Local statutes and regulations related to solid waste?

The proposed project would be expected to result in less than significant impacts to utilities and service systems related to compliance with federal, state, and local statutes and regulations related to solid waste. The California Integrated Waste Management Act of 1989 [which consists of Assembly Bill (AB) 939 and SB 1322] requires the County of Los Angeles to attain specific waste diversion goals.[26] In addition, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate adequate areas for the storage and collection of recyclables into the existing design.[27] The proposed project would be subject to the policies discussed above. It is anticipated that the incorporation of the waste management requirements described above would ensure that the proposed project is in compliance with federal, state, and local statues and regulations to reduce the amount of solid waste. The County would be required to ensure that the proposed project implements the requirements and shall ensure that the best method of solids disposal and reduction of the solid waste stream is implemented throughout the development and operation of the proposed project. As a County hospital, the proposed project would be required to demonstrate that all solid waste would be disposed of properly at the permitted facilities for solid waste (including medical hazardous waste). Therefore, the proposed project would be expected to result in less than significant impacts to utilities and service systems in relation to compliance with federal, state, and local statutes and regulations related to solid waste. No further analysis is warranted.

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[23] Matthew, Staff, Downey Area Recycling & Transfer, Downey, CA. 19 October 2009. Telephone correspondence with Eimon Raoof, Sapphos Environmental, Inc., Santa Monica, CA.

[24] Avila, Dan, Manager, Sanitation Districts of Los Angeles County, Whittier, CA. 19 October 2009. Telephone correspondence with Eimon Raoof, Sapphos Environmental, Inc., Santa Monica, CA.

[25] Amdahl, Mike, Coordinator, Sanitation Districts of Los Angeles County, South Gate, CA.19 October 2009. Telephone correspondence with Eimon Raoof, Sapphos Environmental, Inc., Santa Monica, CA.

[26] California Environmental Protection Agency. Accessed 7 October 2009. "The History of The Environmental Protection Agency, Integrated Waste Management Board." Available at: http://www.calepa.ca.gov/About/History01/ciwmb.htm

[27] *Public Resources Code*. 1991. Assembly Bill 1327, Chapter 18, Sections 42900 through 42911.

3.18 MANDATORY FINDINGS OF SIGNIFICANCE

This analysis was undertaken to determine if the Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would be expected to have a significant impact to Mandatory Findings of Significance, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15065 of the State California Environmental Quality Act (CEQA) Guidelines.[1] Mandatory Findings of Significance for the proposed project were evaluated with regard to the information contained in this Environmental Analysis gathered during literature reviews (see Section 4.0, References, for a list of reference materials consulted).

State CEQA Guidelines recommend the consideration of three questions when addressing the potential for significant impacts to Mandatory Findings of Significance.

Would the proposed project:

a) Does the proposed project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

The proposed project would be expected to result in potentially significant impacts to Mandatory Findings of Significance in relation to the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory that may not be able to be reduced to below the level of significance through the incorporation of mitigation measures, therefore requiring the consideration of alternatives. The proposed projects intends to provide inpatient hospital functions and support spaces in conjunction with a community-based healthcare program that would be seismically compliant beyond 2030 seismic standards established by Office of Statewide Planning and Development (OSHPD). Tier II of the proposed project would entail the reuse or replacement of existing structures on the Martin Luther King, Jr. Medical Center Campus. The Martin Luther King, Jr. Medical Center Campus was developed to address the community needs for healthcare facilities following the civil disturbances in the Watts area of Los Angeles during the summer of 1965. As discussed in Section 3.5, Cultural Resources, of this Initial Study, the campus requires further study to determine if it meets the significance criteria and integrity requirements for identification as an historical resource as defined by the State CEQA Guidelines. Implementation of the proposed project has the potential to result in significant impacts to Mandatory Findings of Significance in relation to the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory, which may require the consideration of alternatives. Further analysis is warranted.

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[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

b) Does the proposed project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

The impact to Mandatory Findings of Significance related to Mandatory Findings of Significance in relation to impacts that are individually limited but cumulatively considerable from the proposed project would be expected to be reduced to below the level of significance with the incorporation of mitigation measures. The proposed project may be expected to contribute to the incremental environmental impacts when viewed in connection with the effects of past, current, or reasonably foreseeable projects. The proposed project would entail development that would be expected to result in impacts to air quality, cultural resource, greenhouse gases, hydrology and water quality, noise, public services, recreation, traffic and transportation, and utilities and service systems. Although these impacts would be largely temporary and localized, they may have the potential to result in incremental effects that when considered in connection to other projects, could result in potentially significant impacts. The County of Los Angeles (County) has proposed efforts to minimize these impacts through the use of best management practices (BMPs) and sustainable practices for the development and operation of the proposed project. However, further review of these impacts in relation to the effects of past projects, the effects of other current projects, and the effects of probable future projects, is required in order to determine whether the proposed project would contribute to this adverse impact. Therefore, the expected impacts to Mandatory Findings of Significance related to impacts that are individually limited but cumulatively considerable would be expected to be reduced to below the level of significance by the incorporation of mitigation measures. Further analysis is warranted.

c) Does the proposed project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project would be expected to result in significant impacts to Mandatory Findings of Significance in relation to having environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly that may not be able to be reduced to below the level of significance through the incorporation of mitigation measures, therefore requiring the consideration of alternatives. While the adverse impacts related to the construction of the proposed project would be temporary, the implementation of BMPs would significantly reduce these impacts. In addition, it is anticipated that the proposed project would result in less than significant operational impacts due to the fact that the proposed project is designed to create more efficient structures on the proposed project site, and would entail the implementation of sustainable elements into the developmental and operational phases of the proposed project. The proposed project could be expected to result in impacts to air quality, cultural resources, greenhouse gases, hydrology and water quality, noise, public services, recreation, traffic and transportation, and utilities and service system. These impacts would not be considered substantial to human beings as they would be limited and would be significantly reduced by the County's efforts to provide inpatient hospital functions and support spaces in conjunction with a community-based health care program that would be seismically compliant beyond 2030 seismic standards established by OSHPD. The beneficial environmental impacts discussed throughout this Initial Study (i.e., seismic upgrades for compliance to 2030 and beyond) would be expected to have positive impacts on human beings and their environment although the potentially adverse impacts, as discussed in the response to question (a) above (i.e., replacement of an historical resource) would require further analysis in order to determine whether these impacts would constitute a substantially adverse indirect impact on human beings.

Therefore, implementation of the proposed project has the potential to result in significant impacts to Mandatory Findings of Significance in relation to environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly and may require the consideration of alternatives. Further analysis is warranted.

SECTION 4.0
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SECTION 5.0
REPORT PREPARATION PERSONNEL

The following individuals contributed to the preparation of this document.

5.1 COUNTY OF LOS ANGELES

5.1.1 Chief Executive Office

Contributor:	*Title:*	*Area of Responsibility:*
Jan Takata	Senior Manager Kenneth Hahn Hall of Administration	Strategic Coordination
Sabra White	Principal Analyst Kenneth Hahn Hall of Administration	Lead Project Manager, Project Development
Dawn McDivitt	Manager Kenneth Hahn Hall of Administration	Secondary Project Contact

5.1.2 Department Of Public Works

Contributor:	*Title:*	*Area of Responsibility:*
Dan Carter	Project Manager Project Management Division I, Health Section II	Project Development
Esther Diaz	Project Manager Project Management, Health Section II	Project Development

5.1.3 County Subconsultants

Contributor:	*Title:*	*Area of Responsibility:*
Joey Kragelund	Project Principal HMC Architects	Campus Planning and Programming Report
Garry Lay	Principal Engineer, Vice President Manager of Geotechnical Department URS Corporation	Geotechnical Investigation

5.2 SAPPHOS ENVIRONMENTAL, INC.

Contributor:	*Title:*	*Area of Responsibility:*
Marie C. Campbell	Principal	Strategic / Quality Assurance Manager
Laura Kaufman	Environmental Compliance Director	Senior Project Manager
Eimon M. Raoof	Senior Environmental Compliance Coordinator	Project Manager Project Description Hydrology and Water Quality Utilities and Service Systems
André Anderson	Senior Environmental Compliance Specialist	Hazards and Hazardous Materials Mandatory Findings of Significance
Stephanie Watt	Environmental Compliance Coordinator	Aesthetics Geology and Soils Land Use and Planning Mineral Resources Population and Housing Recreation
Laura Watson	Environmental Analyst	Air Quality Public Services Noise
Tony Barranda	Senior Environmental Compliance Specialist	Traffic and Transportation
Leanna Guillermo	Environmental Compliance Intern	Agriculture and Forest Resources
Shelby Petro	Biological Resource Analyst	Biological Resources
Marlise Fratinardo	Senior Cultural Resources Coordinator	Cultural Resources
Kenneth Ferretti	Geographical Information System (GIS) Specialist	GIS Analysis and Document Production
Eugene Ng	Senior Graphics Designer	Graphics and Document Production
Ani Ayvazian	Senior Technical Editor	Editing and Document Production

5.2.1 Subconsultants

Contributor:	*Title:*	*Area of Responsibility:*
Srinath Raju	Principal Raju Associates, Inc.	Traffic and Transportation Analysis

SECTION 6.0
DISTRIBUTION LIST

6.1 PUBLIC AGENCIES

6.1.1 Federal

U.S. Fish and Wildlife Service

Dr. Roger Helm, Division Chief
Division of Environmental Quality
4401 North Fairfax Drive, Suite 820
Arlington, Virginia 22203
(703) 358-2148

6.1.2 State

California Air Resources Board

Robert Fletcher, Chief
1001 I Street
Sacramento, California 95812
(916) 322-2990

California Department of Fish and Game

South Coast Region
Ed Pert, Regional Manager
4949 Viewridge Avenue
San Diego, CA 92123
(858) 467-4201

California Department of Parks and Recreation Office of Historic Preservation*

Milford Wayne Donaldson, State Historic Preservation Officer
1416 9th Street, Room 1442
Sacramento, California 95814
(916) 653-6624

California Department of Transportation District 7*

Elmer Alvarez, IGR / CEQA Branch Chief
100 South Main Street
Los Angeles, California 90012
(213) 897-3656

California Environmental Protection Agency[*]

Jami Ferguson, Public Records Officer
1001 I Street
Sacramento, California 95814
(916) 322-2935

California Integrated Waste Management Board

Mindy Fox, Manager of the Office of Education and the Environment
1001 I Street
Sacramento, California 95812-4025
(916) 341-6000

Chris Peck, Manager of the Office of
Public Affairs
1001 I Street
Sacramento, California 95812-4025
(916) 341-6000

California Native American Heritage Commission

Dave Singleton, Program Analyst
915 Capitol Mall, Room 364
Sacramento, California 95814
(916) 653-4082

California Water Quality Control Board, Region 4[*]

Ejigu Solomon, Stormwater–
Compliance and Enforcement Manager
320 West Fourth Street, Suite 200
Los Angeles, California 90013
(213) 576-6600

Office of Planning and Research State Clearinghouse[*]

Scott Morgan, Assistant Deputy Director and Senior Planner
1400 Tenth Street
Sacramento, California 95814
(916) 322-2318 or (916) 445-0613

Office of Statewide Health Planning and Development (OSHPD)[*]

David M. Carlisle, Director
Director's Office
400 "R" Street, Suite 300
Sacramento, California 95811
(916) 326-3600

State Water Resources Control Board*

Gita Kapahi, Director
1001 I Street
Sacramento, California 95814
(916) 341-5455

6.1.3 County of Los Angeles

Chief Executive Office*

Jan Takata, Senior Manager
Chief Executive Office
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 754
Los Angeles, California 90012
(213) 974-1360

Sabra White, Project Analyst
Chief Executive Office
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 754
Los Angeles, California 90012
(213) 974-1140

Community Development Commission of the County of Los Angeles
Christine Figueroa, Development Specialist
2 Coral Circle
Monterey Park, California 91755,
(323) 890-7001

County Sanitation Districts of Los Angeles County

Ruth I. Frazen, Customer Service Specialist
Facilities Planning Department
1955 Workman Mill Road
Whittier, California 90601
(562) 699-7411

Department of Health Services*

Carol Meyer, Chief Network Officer
313 North Figueroa Street, Rm. 901
Los Angeles, California 90012
(213) 240-8101

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* Responsible agencies for this proposed project are represented by an asterisk.

_Department of Public Health_*

Jonathan E. Fielding, Director of Public Health and Health Officer
313 North Figueroa Street, Rm. 806
Los Angeles, California 90012
(213) 240-8117

_Department of Public Works_*

Dan Carter, Project Manager
Project Management Division I,
Health Section II
900 South Fremont Avenue, 5th Floor
Alhambra, California 91803
(626) 300-2343

Esther Diaz, Project Manager
Project Management, Health Section II
900 South Fremont Avenue, 5th Floor
Alhambra, California 91803
(626) 300-2348

Fire Department

Debbie Aguirre, Chief of Planning Division
Administrative Services–Planning Division
1320 North Eastern Avenue
Los Angeles, California 90063
(323) 881-2404

Los Angeles County Arts Commission

Greg Esser, Civic Art Program Director
1055 Wilshire Boulevard, Suite 800
Los Angeles, CA 90017
(213) 580-0017

_Martin Luther King, Jr. Multi-Ambulatory Care Center_*

Administration Office
Elaine Saafir or Cynthia Moore-Oliver
12021 South Wilmington Avenue
Los Angeles, CA 90059
(310) 668-5201

Metropolitan Transit Authority

Susan Chapman, Program Manager, Long Range Planning
One Gateway Plaza
Los Angeles, California 90012
(213) 922-6000

Office of the Los Angeles County Clerk

Environmental Filings
12400 Imperial Highway, Room 2001
Norwalk, California 90650
(562) 462-2057

Public Library

Ms. Alice Tang
Community Library Mangaer
Willowbrook Library
11838 South Wilmington Avenue
Los Angeles, California 90059
(323) 564-5698

Second Supervisorial District

Mark Ridley-Thomas, Supervisor, Second District
866 Kenneth Hahn
Hall of Administration
500 West Temple Street
Los Angeles, California 90012
(213) 974-2222

Sheriff's Department

Leroy D. Baca, Sheriff
4700 Ramona Boulevard
Monterey Park, California 91754
(323) 267-4800

6.1.4 Regional

Compton Unified School District

Ann Cooper, Senior Director of Special Projects
500 South Santa Fe Avenue
Compton, California 90221
(310) 632-2825

Los Angeles Unified School District Office of Environmental Health and Safety

Yi Hwa Kim, Deputy Director of Environmental Health and Safety
333 South Beaudry Avenue, 20th Floor
Los Angeles, California 90017
(213) 241-3199

Lynwood Unified School District

Sally Seko, Assistant Superintendent / Federal & State Programs
11321 Bullis Road
Lynwood, California 90262
(310) 886-1695

South Coast Air Quality Management District*

Steve Smith, Program Supervisor–
CEQA Section Planning
Rule Development & Area Sources
21865 Copley Drive
Diamond Bar, California 91765
(909) 396-2000

Southern California Association of Governments

Jacob Lieb, Manager of Assessment
818 West 7th Street, 12th Floor
Los Angeles, California 90017
(213) 236-1800

6.2 INTERESTED PARTIES

In addition to the parties listed above, the Notice of Availability (NOA) of the Initial Study and Notice of Preparation (NOP) was mailed to 209 interested parties and 1,276 property owners within a 0.25-mile radius of the proposed project.[1]

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[1] These addresses are on file at Sapphos Environmental, Inc., Pasadena, CA.

APPENDIX B
AESTHETICS TECHNICAL ANALYSIS

MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

AESTHETICS TECHNICAL ANALYSIS

PREPARED FOR:

COUNTY OF LOS ANGELES
CHIEF EXECUTIVE OFFICE
KENNETH HAHN HALL OF ADMINISTRATION
500 WEST TEMPLE STREET, ROOM 754
LOS ANGELES, CALIFORNIA 90012

PREPARED BY:

SAPPHOS ENVIRONMENTAL, INC.
430 NORTH HALSTEAD STREET
PASADENA, CALIFORNIA 91107

AUGUST 2010

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SECTION ES
EXECUTIVE SUMMARY

This Aesthetics Technical Analysis in support of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment project (proposed project) resulted in the conclusion that a less than significant impacts to aesthetic and visual resources would occur after mitigation was incorporated. This technical report addresses the 38-acre proposed project site located in the unincorporated area of the Willowbrook community within the County of Los Angeles, California.

This Aesthetics Technical Analysis was prepared to address the aesthetic issues identified in the Initial Study (IS) requiring further analysis to identify the significance levels of the proposed project pursuant to the California Environmental Quality Act (CEQA). The goal of the proposed project is to provide new campus improvements proposed to reopen a fully functional medical campus that meets community needs for quality health care. Construction of the proposed project would entail a Tier I and a Tier II development program. Tier I involves project-level development of the new Multi-service Ambulatory Care Center (MACC) and the Ancillary Building, tenant improvements in existing buildings, site improvements, and the potential relocation of the MRI Building. Tier II of the proposed project would entail the development of a campus-wide master plan. Tier II would have the potential to build out approximately 1,814,696 square feet (sf) of development on the proposed project site with mixed uses including medical office, general offices, commercial, retail, recreation, and other development in support of the campus. In addition, up to 100 residential units would be developed at a density consistent with surrounding residential area development densities.

A summary of the main conclusion of this Aesthetics Technical Analysis are as follows:

- As proposed, the project would not obstruct any prominent scenic vista or views open to the public; or result in the creation of an aesthetically offensive site from a designated scenic public view.
- There are no designated scenic vistas within the vicinity for the proposed project property; therefore, the proposed project would not result in a significant impact on a scenic vista.
- No designated scenic highways are present in the immediate project vicinity; therefore, no significant impact would occur with implementation of the proposed project.
- Both Tier I and Tier II are compatible with the existing land uses at the proposed project site and in the adjacent area, would be compatible with the visual appearance of the surrounding area after mitigation. Therefore, the proposed project would not degrade the existing visual character of quality of the site or the surrounding area.
- If the proposed Tier II buildings were placed along the edge of the western and/or eastern campus property line, a six-story building would have the potential to shadow various adjacent residences. However, the proposed project would result in less than significant impacts with mitigation incorporated.
- Implementation of mitigation measure Aesthetics-1 is recommended to ensure that the development proposed under Tier I and Tier II utilizes and incorporate materials to ensure campus is visual consistency and continuity. The proposed project must adhere to the design goals presented in the HCP report.

- Implementation of mitigation measure Aesthetics-2 is recommended to ensure that shade and shadow impacts are maintained at below the level of significance.
- The construction of the proposed project would involve the presence of additional interior lighting within the proposed facilities and their activation during non-daytime hours would create additional effects of increased lighting but remain less than significant.
- Implementation of mitigation measure Aesthetics-3 would ensure that all exterior lighting proposed by Tier I and Tier II be shielded and directed downwards to minimize the impacts on the surrounding land uses. In addition, no large expanses of reflective or otherwise glare-producing surfaces would be included within the building components or materials of Tier I and Tier II.
- Implementation of mitigation measure Aesthetics-4 is recommended to reduce potential vehicle and headlight intrusion impacts below the level of significance.

In summary, with the incorporation of the above referenced mitigation measures, the proposed project would be expected to result in less than significant impacts to aesthetic resources during construction and operation.

SECTION 1.0
INTRODUCTION

1.1 PURPOSE AND SCOPE

This Aesthetics Technical Analysis was undertaken by Sapphos Environmental, Inc. in support of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project). The Aesthetics Technical Analysis was prepared to characterize the visual resources that could be affected by construction and operation of the proposed project with respect to potential impacts related to aesthetics, including scenic vistas and resources, scenic highways, visual quality, shade and shadow and light and glare. This analysis was undertaken to determine if the proposed project may have a significant impact to aesthetics that would require the consideration of mitigation measures or alternatives in accordance with Section 15063 of the California Environmental Quality Act Guidelines (State CEQA Guidelines).[1]

The proposed project would be subject to discretionary approvals by the County of Los Angeles (County) acting in its capacity as lead agency under CEQA. The County would need to determine the potential for the proposed project to result in significant impacts, consider mitigation measures and alternatives capable of avoiding significant impacts, and take the environmental impacts of the proposed action into consideration as part of their decision-making process. This Aesthetics Technical Analysis provides substantial evidence upon which the required evaluation of feasibility, environmental analysis, and findings of facts in relation to visual resources can be made. This study identifies and evaluates key visual resources in the project area and determines the degree of visual impacts that could occur from the proposed project on the existing landscape and built environment. The study evaluates potential aesthetics impacts associated with the proposed project on key viewpoints based upon a photographic representation, proposes mitigation measures for significant impacts to visual resources, and documents the findings of the levels of significance after implementation of mitigation measures, as applicable.

1.2 PROJECT LOCATION

The proposed project site consists of the existing 38-acre Martin Luther King, Jr. Medical Center Campus, at 12021 Wilmington Avenue in the unincorporated area of Willowbrook, County of Los Angeles (County), California (Figure 1.2-1, *Regional Vicinity Map*). The project site is located approximately three miles north of State Route 91 (SR-91; Artesia Freeway), approximately three miles northeast of Interstate 710 (I-710; Long Beach Freeway), approximately two miles east of I-110 (Harbor Freeway), less than one mile south of East Imperial Highway, and less than one mile south of I-105 (Glen Anderson Freeway). The proposed project can be accessed from East 120th Street or from Wilmington Avenue (Figure 1.2-2, *Project Location Map*).

The proposed project site appears on the U.S. Geological Survey (USGS) 7.5-minute series South Gate topographic quadrangle (Figure 1.2-3, *Topographic Map*).[2] Elevations at the proposed project site range from 86 feet above mean sea level (MSL) to 88 feet above MSL. The topography of the site can be generally characterized as flat.

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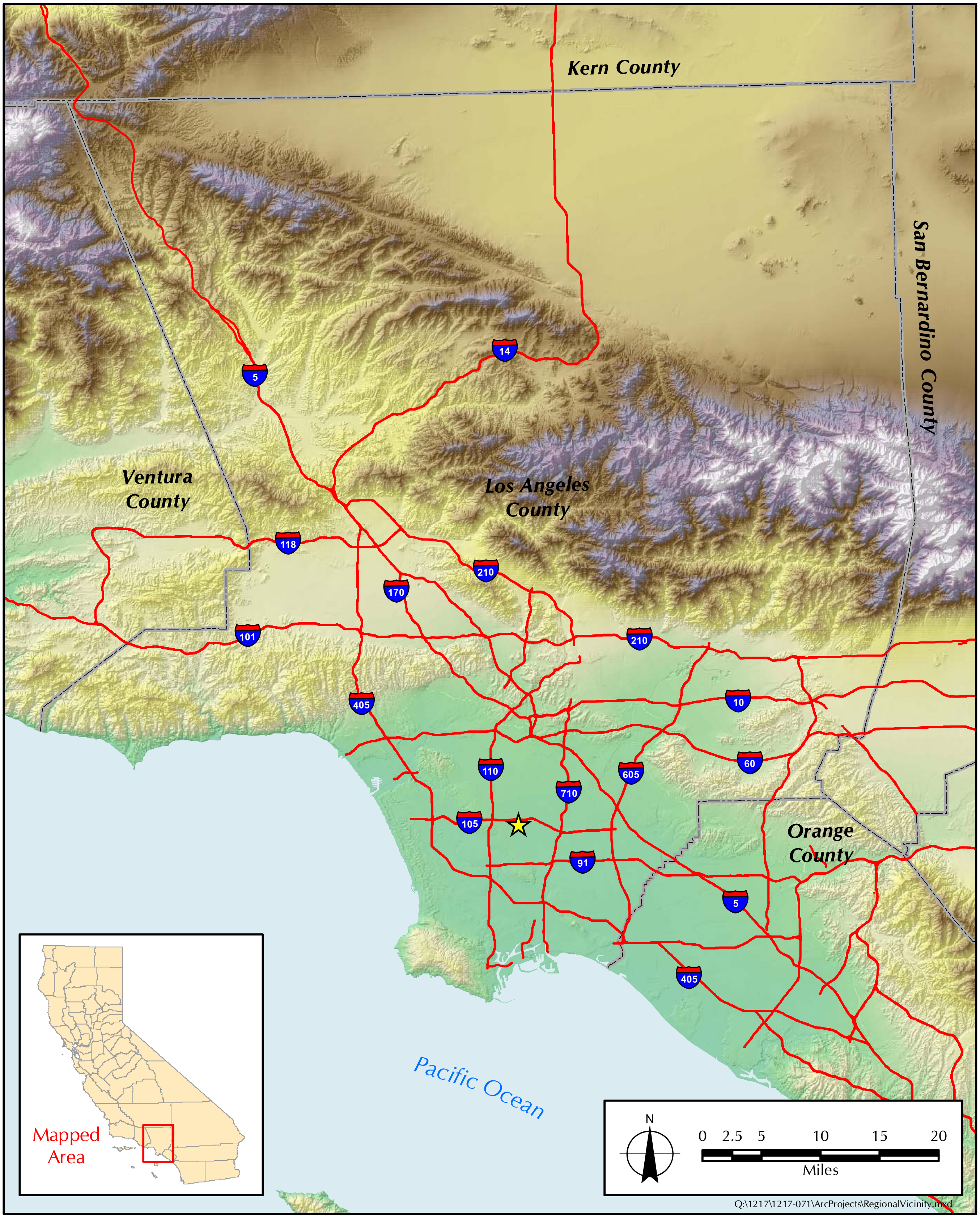
[1] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.



☆ Proposed Project Location

FIGURE 1.2-1

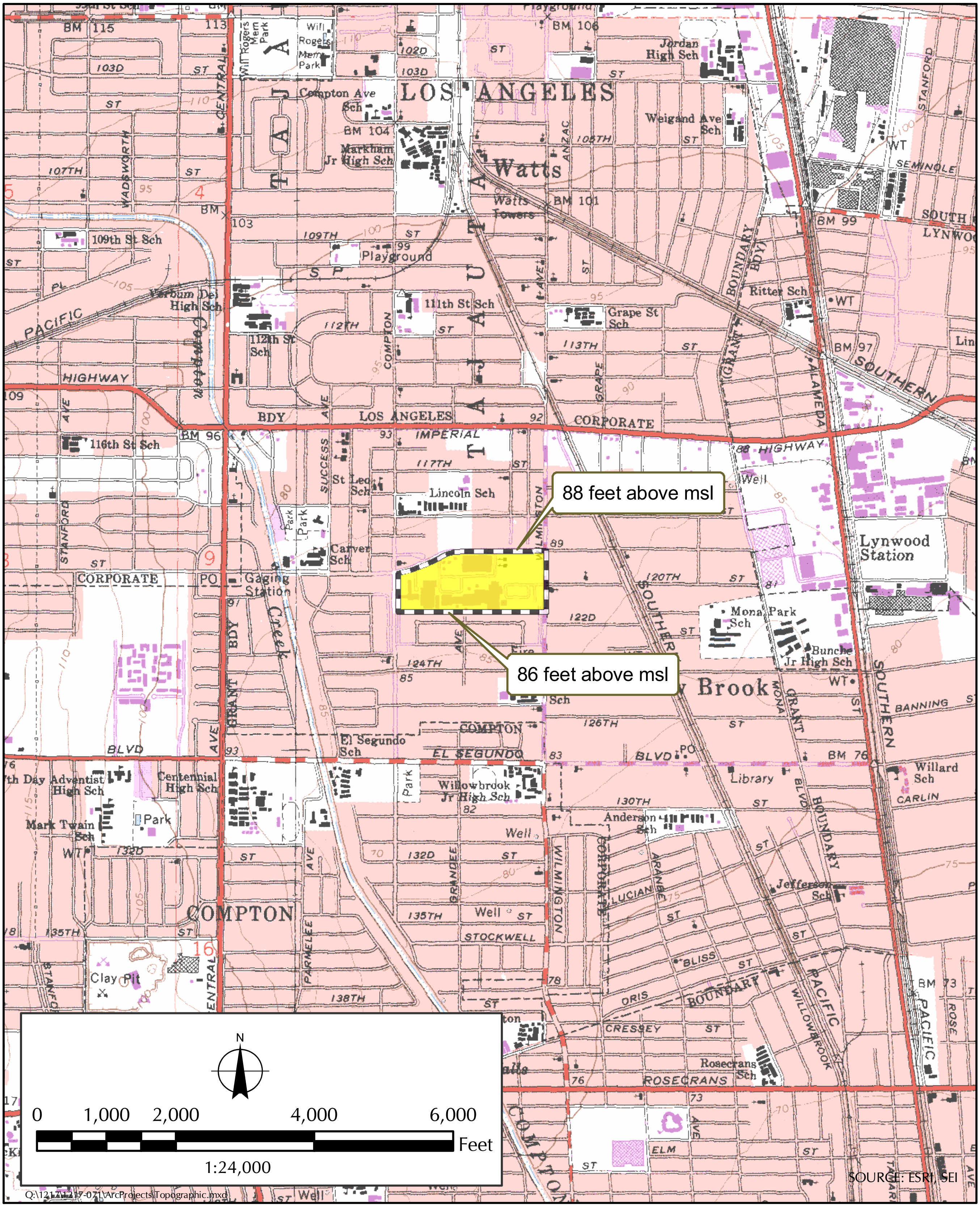
Regional Vicinity Map

SOURCE: ESRI, SEI

Q:\1217\1217-071\ArcProjects\ProjectLoc.mxd

FIGURE 1.2-2

Project Location Map



88 feet above msl

86 feet above msl

SOURCE: ESRI, SEI

Q:\1217\1217-071\ArcProjects\Topographic.mxd

🟨 Proposed Project Boundary

FIGURE 1.2-3

Topographic Map

1.3 PROJECT DESCRIPTION

The proposed project entails two tiers: Tier I involves project-level development of the new Multi-service Ambulatory Care Center (MACC) and the Ancillary Building, tenant improvements in existing buildings, site improvements, and the potential relocation of the MRI Building. Tier II of the proposed project would entail the development of a campus-wide master plan. Tier II would have the potential to build out approximately 1,814,696 square feet (sf) of new development on the proposed project site with mixed uses including medical office, general offices, commercial, retail, recreation, and other development in support of the campus. In addition, up to 100 residential units would be developed at a density consistent with surrounding residential area development densities. Tier II components would also entail the reuse or replacement of the existing 495,335 square foot MACC building.[3]

The proposed project would require land modifications to accommodate construction, operation, and maintenance of up to 100 residential units, new commercial and retail space, and additional campus supporting buildings and facilities. The proposed facility is intended to serve the Martin Luther King, Jr. Medical Center Campus, the Willowbrook community and the County of Los Angeles (County). The proposed project would provide medical, commercial, retail, office space, and other facilities in support of the campus.

1.4 GENERAL PROJECT GOALS

The goal of the proposed project is to provide new campus improvements proposed to reopen a fully functional medical campus that meets community needs for quality health care. The County seeks to establish the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development. The campus provides an opportunity to develop up to 1,814,696 square feet for a mix of uses, including space for medical offices, commercial, retail, residential, recreation, and general offices, in addition to any other development that will improve the community-based health program facility. Pursuant to this goal, the proposed project would be designed and constructed in accordance with all federal, state, regional, and Los Angeles County regulations, including building codes, the National Pollution Discharge Elimination System,[4] and the County General Plan.[5] Consistent with the standards provided, the proposed project would also implement sustainable elements throughout its design, operation, and maintenance: development of the new MACC and the Ancillary Building are currently registered with the U.S. Green Building Council under Leadership in Energy and Environmental Design for New Construction (LEED-NC).[6] The County will seek LEED Silver certification for the MACC and the Ancillary buildings,[7] and implement the "Green Guide for Healthcare Construction" (GGHC), a program developed by the federal government designed to

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[3] The Tier II components are conceptual at this time and therefore will be discussed only in a general level examining the potential development envelope proposed.

[4] U.S. Environmental Protection Agency. 2009. *National Pollution Discharge Elimination System*. Available at: http://cfpub.epa.gov/npdes/

[5] County of Los Angeles Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

[6] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[7] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

help hospitals navigate through the LEED program. Moreover, the proposed project would use best management practices (BMPs) and technologies aimed to limit the use of natural resources as well as the operating cost over the life of the building, such as those guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[8]

1.5 AUDIENCE AND USE

This analysis is intended to provide the County with a comprehensive study of the potential impacts to aesthetics that could be created by project implementation. Other target audience groups of the Aesthetics Technical Analysis include various regulatory trustees, i.e., the City of Los Angeles, the Department of Public Works, as well as the general public. This technical analysis is incorporated into the proposed project Environmental Impact Report (EIR). The purpose of the EIR is to disclose potential environmental impacts of the proposed project to allow for informed public participation and informed decision-making in the project approval process.

1.6 SCOPE

The Aesthetics Technical Analysis provides a description of the regulatory framework used to guide the analysis, existing conditions of the proposed project site, and the visual impact analysis. A detailed narrative of the existing conditions at the proposed project site in relation to scenic vistas, nearby scenic highways, visual quality of the site, light and glare, and shade and shadow in support of the Aesthetics Section of the EIR. As such, this study is a quantitative and qualitative investigation of the potential impacts based on existing conditions and the design of the project's buildings' scale, general shade and shadow, light and glare, and landscaping on sensitive receptors present in the vicinity of the project site. Impacts are determined as significantly adverse based upon thresholds of significance defined in conjunction with Section 15063 of the State CEQA Guidelines.[9]

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[8] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

[9] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

SECTION 2.0
REGULATORY FRAMEWORK

This regulatory framework identifies the federal, state, and local statutes, ordinances, and or policies that govern light, glare, viewsheds, and the scenic character that will be considered by the County of Los Angeles (County) during the decision-making process for projects that have the potential to have impacts related to aesthetic resources, including scenic vistas and resources, scenic highways, visual quality, shade and shadow, and light and glare.

2.1 FEDERAL

2.1.1 Section 4(f) of the U.S. Department of Transportation Act of 1966

The U.S. Department of Transportation Act of 1966, Section 4(f), "Protection of Publicly Owned Park, Recreation Area, Wildlife or Waterfowl Refuge, or Land from Historic Sites," was established to provide certain protections to publicly owned parks, recreation areas, wildlife and waterfowl refuges, and land from historic sites of national, state, or local significance. Section 4(f) requires that the federal agency must show that there are no feasible or prudent alternatives to the use of these areas.[10]

The Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) would not result in the conversion of existing publicly owned park areas. The County zoning designation for all project parcels (APNs 6140-028-902, 6140-028-900, 6140-028-907, and 6140-028-903) is Neighborhood Commercial (C-2; Neighborhood Business Zone). This zoning designation is established to identify community-related commercial uses and permits the following uses: drugstores, medical clinics (including laboratories), professional or business office space, parking lots and buildings, and hospital equipment and supply rentals.[11] The Martin Luther King, Jr. Medical Center Campus began operations in 1972 following the 1965 Watts Civil Unrest/Riots as a response to the community health care needs.[12] The proposed project would meet the community needs for quality health care and is not intended to alter the public use or historic relevance of the site. Therefore, no further analysis regarding project compliance with the U.S. Department of Transportation Act would be required.

2.1.2 National Trails System Act

The National Trails System Act seeks to preserve scenic and natural qualities along trails, and recognizes the rights of private landowners and provides that "full consideration shall be given to minimizing the adverse effects upon the adjacent landowner or user and his operation" in the development and use of a trail.[13] The National Trails System Act assigns management responsibility

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[10] U.S. Department of Transportation. 1966. *U.S. Department of Transportation Act*, Section 4(f). Available at: http://www.cr.nps.gov/local-law/FHPL_DOTAct.pdf

[11] County of Los Angeles Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

[12] County of Los Angeles. Accessed 9 October 2009. *Los Angeles County Health Services, MLK-MACC*. Available at: *http://www.ladhs.org/wps/portal/KingHomepage*

[13] U.S. Department of Interior, National Parks Service. Amended 2004. National Trails System Act. Available at: http://www.nps.gov/nts/legislation.html

for trails to various federal resource agencies, depending on which agency holds jurisdiction over the land on which the trail is located in a given area.

The Juan Bautista de Anza National Historic Trail was created under the 1968 National Trails System Act to provide for outdoor recreation opportunities and the conservation of significant scenic, historic, natural, or cultural qualities. At its closest point, the Juan Bautista de Anza National Historic Trail is located approximately 9.2 miles to the north of the property.

2.2 STATE

2.2.1 California Scenic Highway Program

California's Scenic Highway Program preserves and protects scenic highway corridors from changes that would diminish their aesthetic value. The California Department of Transportation (Caltrans) designates scenic highway corridors and establishes those highways that are eligible for the program. The program was created in 1963 with the enactment of the State Scenic Highways Law.[14] The street and highway code includes a list of those highways that are either eligible for designation or are designated. There are no officially designated State scenic highways or eligible State scenic highways within the vicinity of the proposed project site.

The nearest recognized highway to the proposed project California State Route 110 (SR 110), which is located west of the proposed project site boundary. The Caltrans Scenic Highway System has identified a portion of SR 110 as a "Historic Parkway" (sometime referred to as a Scenic Byway), which is distinct from an official scenic designation.[15] Assembly Bill (AB 27) designated the SR 110 as a California Historic Parkway, a new category of road within the Scenic Highway system. This stimulated efforts to pursue preservation and rehabilitation of the historic roadway.[16] A Historic Parkway designation was given to a portion of SR 110; this designation marked an important transitional moment in the history of American freeway engineering and transportation. SR 110 is the first freeway—a grade-separated, limited-access, high-speed divided road—in the western United States. SR 110 is identified as a Historic Parkway between milepost 25.7 and milepost 31.9 in Los Angeles.[17] The scenic designation begins near Glenarm Street in the Pasadena area, to US 101 in Los Angeles.[18] The designated portion of SR 110 route passes through Chinatown and Elysian Park, and the Cypress Park neighborhood in Downtown Los Angeles, which is located approximately 14-mile proximity away from the proposed project site.

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[14] *California Codes*. Streets and Highways Code, Section 260–284.

[15] California Department of Transportation. 1 May 2006. The California Scenic Highway System: A List of Eligible (E) and Officially Designated (OD) Routes (by Route). Available at: http://www.dot.ca.gov/hq/LandArch/scenic_highways/scenic_hwy.htm

[16] California Department of Transportation, Fact Sheet, the Historic Arroyo Seco Parkway. Updated 17 April 2008, accessed 21 May 2010. Available at: Http://Www.Dot.Ca.Gov/Dist07/Sync/Cpimages/File/Historic%20Arroyo%20Seco.Pdf

[17] California Department of Transportation. California Scenic Highway Mapping System: Route 110 Photo Album.

[18] California Department of Transportation, Byway –State Route 110, accessed at http://www.dot.ca.gov/dist07/sync/cpimages/file/updated%20fact%20sheet.pdf on May 21, 2010.

2.3 REGIONAL

2.3.1 Los Angeles County General Plan

The County General Plan (General Plan) provides a framework for coordinating short- and medium-range actions designed to meet public needs, address critical public issues and guide development and growth within the County. It sets forth guidelines for how the County should allocate its resources related to overall land use direction and development in the County. Moreover, the County General Plan serves as a document that provides decision-makers with a policy framework to guide specific, incremental decisions in support of achieving the Plan's stated goals and objectives, and to ensure the effective use of public resources.

The County General Plan land use designation for the proposed project is Public and Semipublic Facilities (P). As described in the County General Plan, the Public and Semipublic land use designation provides for activities by public and quasipublic entities and allows for the establishment of facilities, infrastructure, and their related operations in these areas that are public or semipublic in nature, including hospitals.

Two specific elements, the Conservation and Open Space element and the Scenic Highway element, provide policies related to scenic views and vistas, and were therefore considered for this analysis.

2.3.1.1 Conservation and Open Space Element

The Conservation and Open Space element sets forth the goals, policies, and directions the County will take in guiding the long-range conservation of natural resources, management of open space, and natural and energy-related resources. Open space refers to both public and private lands and waters that are preserved for long-term open dedication and recreational uses. Existing open spaces in the County include national forests, state, county, city parks and nature preserves. Open space can also include recreational uses such as golf courses, beaches, and other private open space lands. Compliance with the Conservation and Open Space element goal and policies contributes towards avoiding atheistic impacts and or reducing visual impacts. The following goal and policy from the Conservation and Open Space element are relevant to the proposed project.

> **Goal.** To preserve and protect sites of historical, archeological, scenic, and scientific value.
>
> **Policy 16.** Protect the visual quality of scenic areas including ridgelines and scenic view from public roads, trails, and key vantage points.

2.3.1.2 County General Plan Scenic Highway Element

The Scenic Highway element provides goals, policies, and action items related to the establishment and protection of scenic highways in the County by identifying and evaluating a system of existing roads that traverse areas of scenic beauty and interest. The element's policies support the County General Plan policy of protection of environmental, social, and economic values associated with aesthetic scenic corridor resources and expansion of the opportunity for the enjoyment of these resources. Actions affecting the quality of roadside scenic resources should be based on the intent of the Scenic Highway Element's goals.[19] As the proposed project site is not within a scenic corridor, the intent of the goals and policies is relevant only to the extent that it provides guidance in avoiding and reducing aesthetic impacts.

2.3.2 Los Angeles County Zoning Ordinance[20]

The Zoning Ordinance (Title 22 of the Municipal Code), in conformance with the General Plan, regulates land use development within the County. The Ordinance also indicates Zoning Districts for parcels of land within the County. Within each Zoning District, the Zoning Ordinance specifies the permitted and prohibited uses, as well as the development standards including setbacks, height, parking, and design standards, among others.

As previously noted, the County zoning designation for all parcels within the proposed project (APNs 6140-028-902, 6140-028-900, 6140-028-907, and 6140-028-903) is Neighborhood Commercial (C-2; Neighborhood Business Zone) (Figure 2.3.2-1, *Zoning Designations*). This zoning designation is established to identify community-related commercial uses and permits the following uses: drugstores, medical clinics (including laboratories), professional or business office space, parking lots and buildings, and hospital equipment and supply rentals.[21]

The County has established development standards for the Neighborhood Business Zone:

> No more than 90 percent of the net area can be occupied by buildings, with a minimum of 10 percent of the net area landscaped with a lawn, shrubbery, flowers, and/or trees, which shall be continuously maintained in good condition. Incidental walkways, if needed, may be developed in the landscaped area; that there be parking facilities as required by Part 11 of Chapter 22.52; and that a building or structure shall not exceed a height of 35 feet above grade, excluding signs which are permitted by Part 10 of Chapter 22.52 (such as chimneys, and rooftop antennas).[22]

The zoning classification for C-2 does not have a set-back requirement.[23] Tier I is a replacement development with ancillary uses. Tier II is an expansion of the medical campus facilities. The County would seek to ensure compatibility of the proposed project with the existing campus and its surroundings but reserves the right to exempt elements of the proposed project from the zoning designation. Therefore, the proposed development would not conflict with the permitted uses of this zoning designation, and no General Plan amendment or zone change would be required. However, specific project elements such as the residential development may be subject to additional approvals, which include but are not limited to approvals such as a conditional use

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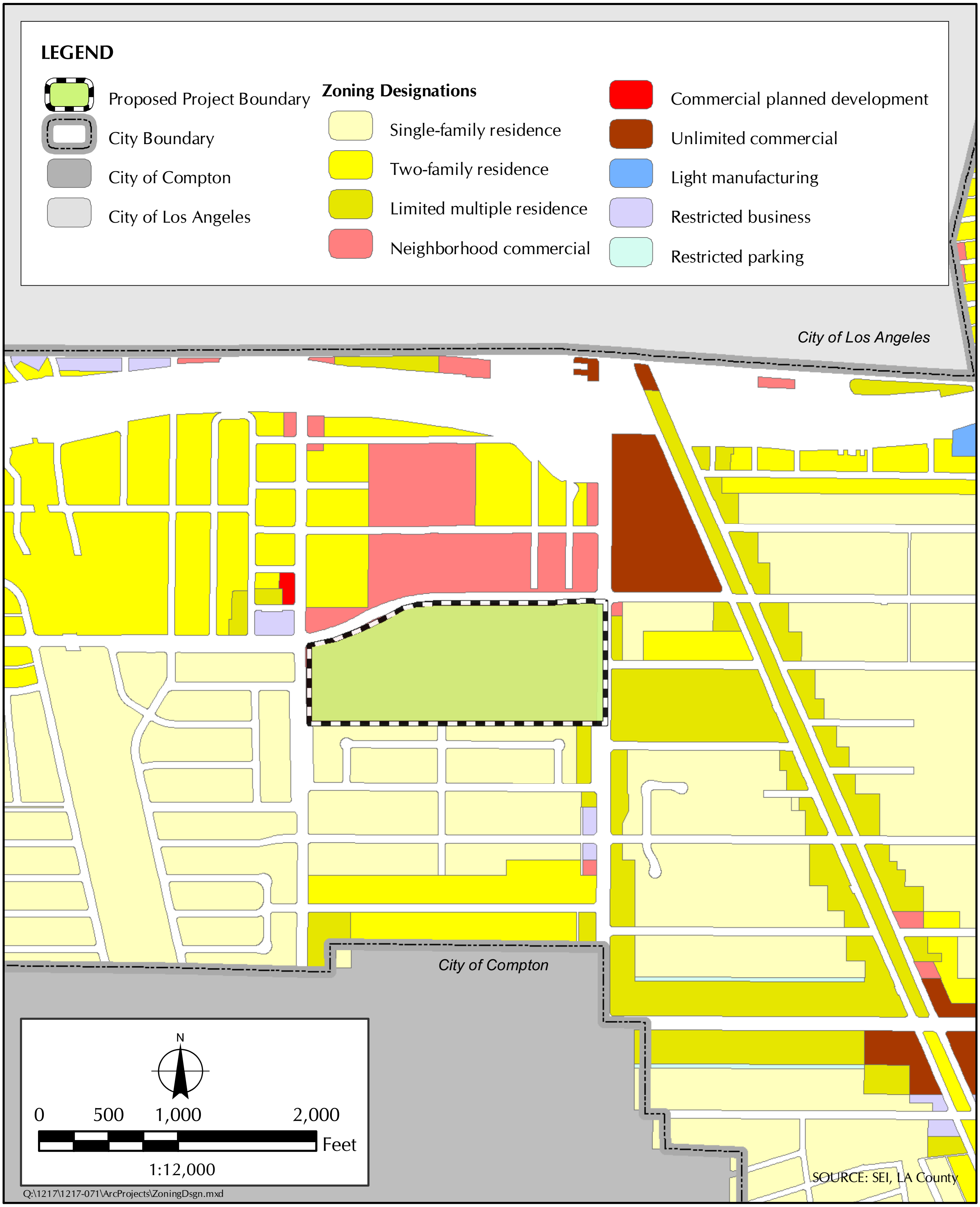
[19] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA

[20] County of Los Angeles. *Los Angeles County Code, Title 22, Planning and Zoning*. Available at: http://search.municode.com/html/16274/_DATA/TITLE22/index.html

[21] County of Los Angeles Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

[22] County of Los Angeles, Department of Regional Planning, *Zoning Ordinance Summary*—Commercial Zones. Accessed 4 May 2010. Available at: http://planning.lacounty.gov/luz/summary/category/commercial_zones/

[23] County of Los Angeles, Department of Regional Planning, *Zoning Ordinance Summary*—Commercial Zones. Accessed 4 May 2010. Available at: http://planning.lacounty.gov/luz/summary/category/commercial_zones/



SOURCE: SEI, LA County

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FIGURE 2.3.2-1

Zoning Designations

permit and would be required to meet the conditions of the permit.[24] It is anticipated that the County would obtain the required approvals and permits during the site-specific planning and individual project approval phase of the proposed project and would be required to meet the specified conditions.

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[24] County of Los Angeles. *Los Angeles County Code, Title 22, Planning and Zoning*. Available at: http://search.municode.com/html/16274/_DATA/TITLE22/index.html

SECTION 3.0
IMPACT ANALYSIS

This section of the Aesthetics Technical Analysis provides information regarding the existing visual characteristics of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) site and surrounding area. Relevant regulatory framework is used to determine the consistency of the proposed project with any federal, state, regional, and local laws governing the regulations of aesthetic resources, including scenic vistas and resources, scenic highways, visual quality, shade and shadow and light and glare. This report is intended to address the level of significance of the proposed project impacts to aesthetics. Recommended mitigation measures have been provided for any aesthetics impacts identified to be potentially significant.

3.1 IMPACT SETTING

3.1.1 Scenic Vistas and Resources

The County of Los Angeles General Plan, the Conservation and Open Space Element and the Recreation Element were evaluated with regard to scenic resources and the components proposed by the project.[25,26] Typically, a scenic vista is defined as a view of an area that is visually or aesthetically pleasing. Aesthetic components of a scenic vista include (1) scenic quality, (2) sensitivity level, and (3) view access. One example of a scenic vista would be the area encompassing a lake or a park-land water amenity, and the view-shed extending from the lake to the highest visible point surrounding the lake. An urban setting can offer scenic vistas as well, due to the value provided by architectural style, landscaping, and or the historical significance of a development. The skyline of downtown Los Angeles is an example of an urban setting that offers a vivid landscape in contrast with the surrounding areas. However, because the downtown Los Angeles skyline is located approximately 9 miles from the proposed project site, the skyline is not considered readily visible from the proposed project site or surrounding area under existing conditions, and the proposed project site is therefore not considered to have a high level of sensitivity for scenic vista impacts.

The Juan Bautista de Anza National Trail, a historic route that stretches 1,210 miles from Nogales, Arizona to San Francisco, California is located to the north of the project area. The distance between the Juan Bautista de Anza National Historic Trail and the proposed project is approximately 9.2 miles. The project site represents only a minimal and distant portion of the potential viewshed from the trail. Therefore, the proposed project site is not considered to have a high level of sensitivity with regard to scenic vistas from the trail. There are no other scenic resources, including but not limited to significant trees or unique rock outcrops located within the project vicinity.

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[25] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan, Conservation and Open Space Element.* Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[26] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

3.1.2 Scenic Highways

The proposed project site is located approximately 2 miles east of State Route 110 (SR-110). The California Department of Transportation (Caltrans) Scenic Highway System has identified segments of the SR-110 as a "Historic Parkway," which is distinct from an official scenic designation.[27] A Historic Parkway designation was given to a portion of SR 110 given the highway's unique and historic engineering. SR 110 was the first freeway—a grade-separated, limited-access, high-speed divided road—in the western United States. SR 110 is identified as a Historic Parkway between milepost 25.7 and milepost 31.9 in Los Angeles.[28] The designation begins near Glenarm Street in the Pasadena area, to US 101 in Downtown Los Angeles for approximately 8.2 miles.[29] The designated portion of SR 110 route passes through Chinatown and Elysian Park, and the Cypress Park neighborhood in Downtown Los Angels, approximately 14 miles away from the proposed project site, it is not likely that the project site would be discernable. The proposed project would add additional buildings to the existing urban development is prevalent in the region between SR 110 and the edge of the proposed project site, which includes residential, commercial, public facilities, and some industrial buildings (as determined by site assessments and regional maps).

3.1.3 Visual Quality

The proposed site for the Martin Luther King, Jr. Medical Center Campus Redevelopment Project is located on the existing 38-acre Martin Luther King, Jr. Medical Center Campus, and therefore is developed with medical and medical support structures including: outpatient and administrative support buildings, ancillary structures, and parking structures. Landscaping within the proposed project boundary consists of trees, shrubs, and general nonnative vegetation for landscaping line areas surrounding the buildings. Lawn and other open space areas are also located throughout the property.

Visual sensitivity can be described as viewer awareness of visual changes in the environment and is based on viewers' activities from public areas near a particular site. To define the visual quality of the proposed project site, important views that include the proposed project site have been identified as key viewpoints (KVP).[30] To portray the aesthetic character of the proposed project site, photographs were taken from several KVPs. These KVPs are typically public viewing areas and include a variety of locations at the medical campus and in the vicinity of the proposed project campus. The KVPs include foreground views (0 to 500 meters), middle-ground views (500 to 2,000 meters), and background views (greater than 2,000 meters) from several locations. Figure 3.1.3-1, *Photograph Location Map: Key Viewpoints*, is a location map showing the location

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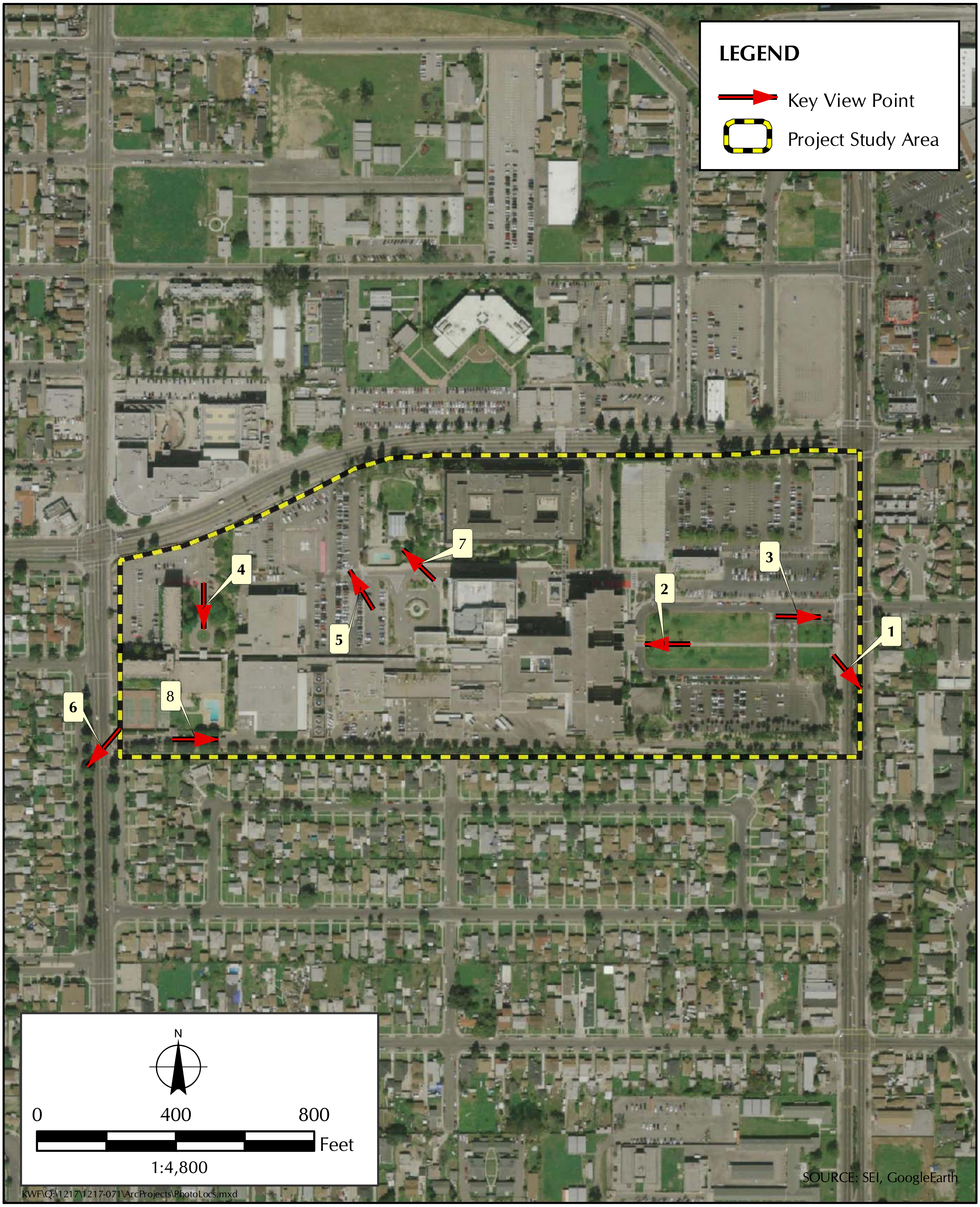
[27] California Department of Transportation. 1 May 2006. The California Scenic Highway System: A List of Eligible (E) and Officially Designated (OD) Routes (by Route). Available at: http://www.dot.ca.gov/hq/LandArch/scenic/schwy1.html

[28] California Department of Transportation. California Scenic Highway Mapping System: Route 110 Photo Album.

[29] California Department of Transportation. Byway –State Route 110. Accessed 21 May 2010. Available at: http://www.dot.ca.gov/dist07/sync/cpimages/file/updated%20fact%20sheet.pdf

[30] Distance Zones: When discussing the view of a landscape from a specific point, this report divides the landscape into key viewpoints (KVP). KVPs provide an overview of the visual resources of the project site from the various existing vantage points located throughout the campus. Accordingly, distances from a KVP are divided into three distance zones:

- Foreground: 0–500 meters from the viewer.
- Middle ground: 500–2,000 meters from the viewer; at this distance, large landscape features—such as individual large trees, boulders, and small rock outcrops—are visible.
- Background: greater than 2,000 meters from the viewer; at this distance, patterns and colors within the landscape are visible.



SOURCE: SEI, GoogleEarth

FIGURE 3.1.3-1

Photograph Location Map: Key View Points (KVP) of the KVPs. Each KVP is discussed below with a narrative description of the view. Figure 3.1.3-2, *KVP 1 through KVP 8*, illustrates the views from the KVPs.

- **KVP 1** View of the main entrance of the existing Multi-service Ambulatory Care Center (MACC), a five-story building. View from the east looking west at existing structure (Figure 3.1.3-2A).

- **KVP 2** View from the eastern side of the medical campus looking southeast towards Wilmington Avenue (Figure 3.1.3-2A). Views in the foreground include the sidewalk within the project site along with a grassy lawn area. The middle-ground displays cars parked along Wilmington Avenue and the background illustrates a few residential units and palm trees.

- **KVP 3** View from eastern side of the medical campus looking east at the existing residential development across Wilmington Avenue (Figure 3.1.3-2B). The foreground displays a portion of the campus' open space lawn area and pathways. The residential structures located on Wilmington Avenue block the views from buildings in the background. The residential structures are approximately two stories in height.

- **KVP 4** View from the northern area of the medical campus looking south toward the existing Interns and Physicians Building (Figure 3.1.3-2B).

- **KVP 5** View from the northwest looking southeast towards the Pediatric Acute Care building (Figure 3.1.3-2C). The foreground includes landscaping, a fence, and ancillary building; the middle-ground area provides a view of the parking lot and the background of the photo displays the Interns and Physicians building.

- **KVP 6** View from the southwest edge of the medical campus looking west at the residential development along Compton Avenue (Figure 3.1.3-2C). This photo displays Compton Avenue and the roadway medium in the foreground, with single-family residences lining the roadway in the middle ground. Views of the background are obstructed by the homes.

- **KVP 7** View looking northwest at the Inpatient Tower on the medical campus (Figure 3.1.3-2D).

- **KVP 8** View from the alleyway at the southern boundary of the campus. View from the southwest looking southeast (Figure 3.1.3-2D). This photo displays the adjacent alley and the residential fences of homes adjacent to the alleyway.

3.1.4 Shade and Shadow

New development can create new shadows that shade private and public outdoor space. Shadow-sensitive receptors would be considered residences (particularly yards), solar collectors, recreational facilities and parks, schools and or outdoor restaurants. Shadow is dependent on the height, size and shape (or massing) of the building from which shadow is cast and the angle of the sun. The angle of the sun varies with respect to the rotation of the earth and the earth's elliptical orbit. The longest shadows are cast during winter months and the shortest shadows are cast during

KVP 1: View of main entrance of the MACC five-story building.
View from the east looking west at existing structure

KVP 2: View from the eastern side of the medical campus
looking southeast towards Wilmington Avenue.

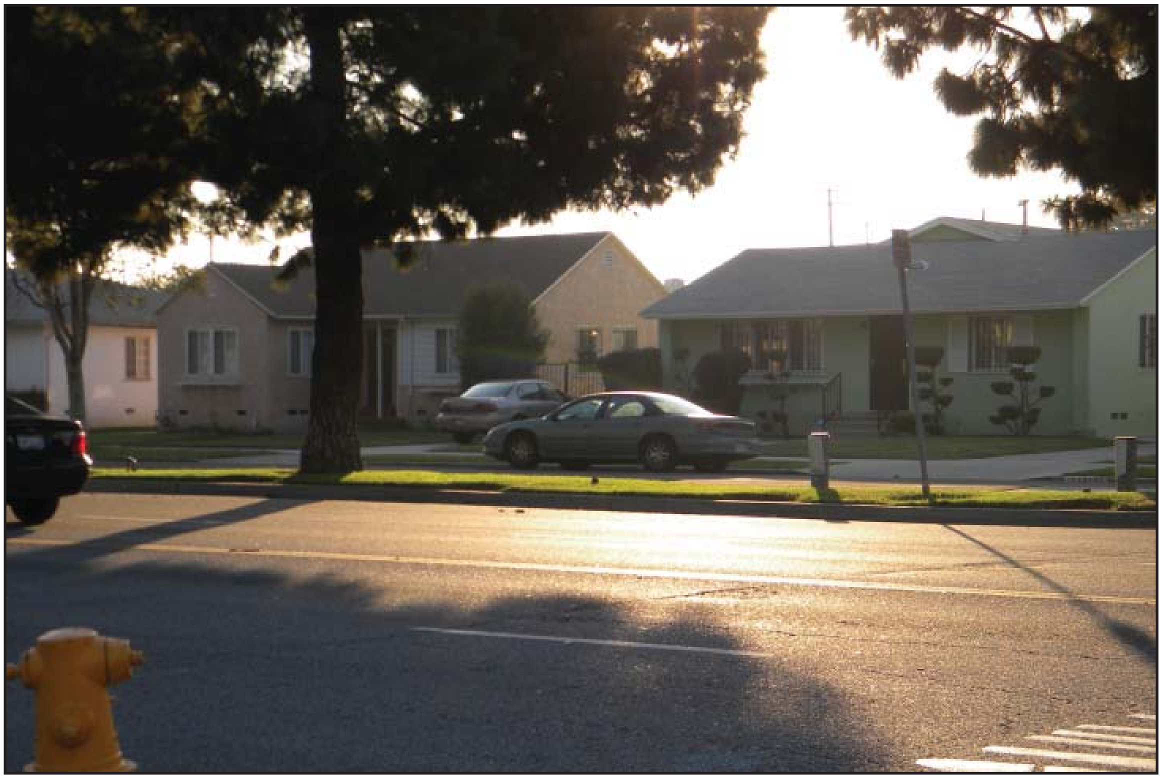
FIGURE 3.1.3-2
KVP 1 and KVP 2

KVP 3: View from eastern side of the medical campus
looking east at the existing residential development across Wilmington Avenue

KVP 4: View from the northern area of the medical campus
looking south toward the existing interns and Physicians building

FIGURE 3.1.3-2
KVP 3 and KVP 4

KVP 5: View from the northwest looking southeast towards the Pediatric Acute Care building



KVP 6: View from the southwest edge of the medical campus
looking west at the residential development along Compton Avenue

FIGURE 3.1.3-2
KVP 5 and KVP 6

KVP 7: View looking northwest from near the Inpatient Tower on the medical campus

KVP 8: View from the alleyway at the southern boundary of the campus.
View from the southwest looking southeast

FIGURE 3.1.3-2
KVP 7 and KVP 8

the summer months. The shortest day of the year (i.e., the shortest day of the year and the longest night) is the winter solstice, which occurs in late December.

3.1.5 Sources of Light and Glare

Perceived glare is the unwanted and potentially objectionable sensation as observed by a person as they look directly into the light source (e.g., the sun, its reflection, automobile headlights, or other light fixtures). Reflective surfaces on existing buildings, car windshields, etc. can expose people and property to varying levels of glare. A significant light impact would typically occur if a proposed project would cause a substantial increase in ambient illumination levels beyond the property line, visible glare from either fixtures or illuminated surfaces, or if it were to cause new lighting to spill-over onto light-sensitive land uses such as residences, schools, parks, or public open space. The primary sources of light on the proposed project site include light emanating from building interiors that passes through windows and light from exterior sources (i.e., street lighting, building illumination, security lighting, automobile headlights, and landscape lighting). This technical analysis addressed only project-related lighting. Street lighting, required for safety, would not be affected by the proposed project.

3.2 SIGNIFICANCE THRESHOLDS

The potential for the proposed project to result in impacts related to aesthetics was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. The proposed project would be considered to have a significant impact to aesthetics when there is the potential for any of the following four thresholds to occur:

- Results in a substantial adverse effect on a scenic vista
- Substantially damages scenic resources, including but not limited to, trees, rock outcrops, and historic buildings within a state scenic highway
- Substantially degrades the existing visual character or quality of the site and its surroundings
- Creates a new source of light or glare that would adversely affect daytime or nighttime views in the area

3.3 ANALYSIS AND RESULTS

3.3.1 Scenic Vistas

An aesthetic resource consists of the landforms, vegetation, water features, and cultural modifications that impart an overall visual impression of an area's landscape. Scenic areas typically include open space, landscaped corridors, and viewsheds.[31] The property is located approximately 9.2 miles south of Juan Bautista de Anza National Historic Trail. The distance between the Juan Bautista de Anza National Historic Trail and the proposed project is large enough that the proposed project site is not visible from this Historic Trail. Moreover, urban development—including residential, commercial, and industrial buildings—is widespread within the 9.2 miles between the proposed project's northern boundary and where the Juan Bautista de Anza National

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[31] A view corridor is typically defined as the line of sight of an observer from a public viewpoint, looking toward an object of significance to the community (e.g., ridgeline, river, historic building) or as the route that directs the viewers attention. A viewshed is typically defined as the area within view from a defined observation point.

Historic Trail commences. Therefore, the proposed project would have no adverse impact to a designated scenic trail; substantially degrade the visual character of the area, or negatively impact views from the designated trial.

Under CEQA, an impact on views is considered significant if a view of a public scenic vista, scenic resource, or public object of aesthetic significance, is substantially impeded or obstructed from a public vantage point. Typically, views enjoyed from a particular private vantage point are not protected. The Court of Appeal held in *Topanga Beach Renters Assn. v. Department of General Services* (1976) 58 Cal.App.3d 188, 195, "[t]he issue is not whether [the Project] will adversely affect particular persons, but whether [the Project] will adversely affect the environment of persons in general." Views would remain along the perimeter of the project site, as well as between buildings, on sidewalks and adjacent roadways.

The area surrounding the project site is an urbanized mix of existing development, including commercial, office spaces, public facilities, and residential land use. Residential development provides low to moderate density housing opportunities, including single-family homes along the west, south, and east sides of the medical campus boundary. Multifamily residential developments are also located along the eastern boundary of the project site, located on the opposite side of Wilmington Avenue. Zoning designations surrounding the proposed project site include Single-family Residential (R-1) to the south and west, Limited Multiple Residences (R-3) to the east, and Two-family Residence (R-2), Commercial (C-2; specifically, Neighborhood Commercial) to the north. Other zoning designations within the vicinity of the proposed project site include Commercial Planned Development, Unlimited Commercial, Light Manufacturing, Restricted Business, and Restricted Parking.

The County zoning designation for the project site is C-2, which identifies community-related commercial uses including drugstores, medical clinics (including laboratories), and parking lots and buildings.[32] Typically, buildings within this zoning are limited to 35 feet in height; however, although the County would seek to ensure compatibility of the proposed project with the existing campus and its surroundings it reserves the right to exempt elements of the proposed project from the zoning designation. Building heights at the existing project site range between 13 feet to 78 feet tall. Despite the scale of several buildings on the existing project site, the distance between the proposed project site and the skyline is large enough for the public to access views both within and outside the proposed project boundary. The areas where the public would be able to view the proposed project includes nearby residences, sidewalks and adjacent roadways. As previously noted, the visual character of the area consists of various urban developments. Properties in the surrounding area have varying fence styles, and other appurtenances, such as mail boxes, building trim, and hardscaping (e.g., driveways).

3.3.1.1 Tier I

The proposed project would result in an addition to the urbanization in the surrounding area than currently exists, such as the construction of more medical buildings, commercial, office, and

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[32] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html and County of Los Angeles Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

residential uses than those that are present at the proposed project site. Once constructed,[33] the proposed project would add to the diverse urban style of the area, and would maintain the character of the area with regard to open space, vegetation and landscaping. Tier I would incorporate new buildings and landscaping at the existing campus, such as landscaping at the entry of the new MACC and its surrounding area. A service yard with technical (tech) dock positions that connect mobile radiology equipment would also be provided. There are no designated scenic vistas within the vicinity for the proposed project property; therefore, Tier I of the proposed project would result in less than significant impacts.

3.3.1.2 Tier II

The proposed development within the Tier II component would seek to maintain the 10 percent of open space sitewide (i.e., areas without structures) as required by County zoning, in order to maintain some of the current character of the site as an open and landscaped campus.

Visual quality describes the intrinsic aesthetic appeal of a landscape or scene due to a combination of physical characteristics (such as a landform, body of water and vegetation) and cultural modifications (physical change to a landscape caused by human activity). Visual character is influenced by many different landscape attributes including color contrasts, landform prominence, repetition of geometric forms, and uniqueness of textures among other characteristics. The proposed project site is presently developed as a medical campus with existing supporting uses. The proposed project site does not contain any scenic resources such as trees, rock outcroppings, and unique or landmark features. As proposed, the project would not obstruct any prominent scenic vista or views open to the public; or result in the creation of an aesthetically offensive site from a designated scenic public view.

The proposed project site and the surrounding area, as observed by its existing conditions, do not meet the criteria of scenic vista characterization as described above. The proposed project site is located in an area developed with public facilities, commercial uses, and residential structures. There are no designated scenic vistas within the vicinity for the proposed project property; therefore, Tier II of the proposed project would not result in a significant impact on a scenic vista.

3.3.2 Scenic Highways

As indicated above, the proposed project site is located approximately 2 miles east of the I-110 freeway. Urban development is prevalent in the region between I-110 and the edge of the proposed project site, which includes residential, commercial, public facilities, and some industrial buildings as determined by site assessments and regional maps. The density of the existing development as well as the distance of the I-110 from the proposed project site, is large enough to obstruct the viewshed from I-110 in viewing the project site. Additionally, the proposed project is not located on or within the viewshed of the scenic segment of the I-110, or any other scenic highway corridor, nor is the project located at an elevation that would significantly degrade the view of the surrounding area. No designated scenic highways are present in the immediate project vicinity and no scenic highway viewsheds would be affected by the proposed project.

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[33] Tier II project components are in the preliminary stages and may require additional environmental analysis on a project-by-project basis, pending their final engineering and design.

3.3.2.1 Tier I

For the reasons noted above, Tier I of the proposed project would not be expected to result in significant impacts to visual resources related to damaging a scenic resource within a state scenic highway.

3.3.2.2 Tier II

For the reasons noted above, Tier II of the proposed project would not be expected to result in significant impacts to visual resources related to damaging a scenic resource within a state scenic highway.

3.3.3 Visual Quality

This Aesthetics Technical Analysis is designed to evaluate the visual impacts of the proposed project on potential viewers of the proposed project from public viewpoints. As illustrated in Figure 3.1.3-2, the proposed project area is primarily visible from existing sidewalk, adjacent streets, and from the residential and commercial land uses located in the immediate area. The assessment of visual quality for a development project is an assessment of the aesthetics in relation to its surroundings. Determinants of visual quality include land uses, density or intensity of land use, extent of open space and landscaping, building height and mass, architecture, and pedestrian usage or "walkability" of a neighborhood, among others.

Land uses surrounding the proposed project area include Public and Semipublic Facilities and Major Commercial (C) to the north, Medium-density Residential [12 to 22 dwelling units (du)/acre] to the east, Low-density Residential (1 to 6 du/acre) to the south, and Low-density Residential (1 to 6 du/acre) and Low/Medium-density Residential to the west. Other land uses within the vicinity of the project site include High-density Residential, Major Commercial, Major Industrial, Open Space, and Transportation Corridor. The Public and Semipublic Facilities as well as Major Commercial land uses include office and commercial structures with observed height of up to three-stories tall. Residential land uses are located to the east, south, and west of the proposed project site and include homes with an observed height of up to three-stories tall. There are single-family residences to the west, south and east, and multifamily structures located to the east of the project site. In addition, there are homes located to the south of the project site adjacent to the alleyway. These residences are separated by a brick retaining wall and tress that line the south side of the alleyway. The visual characterization of the surrounding area is typical of a residential development. many of the residential structures has have stucco finish in natural hues such as beige, brown and or grey. Surrounding streets have sidewalks, and development in the area incorporates building setbacks and landscaping. Commercial areas have large surface-level parking areas.

The proposed project site is characterized by large medical buildings, surrounding by multiple areas of open space, which have been developed with grass lawns and paved parking lots. The medical campus is designed with large landscaped areas, which include the substantial sized lawn to the east of the MACC, gardens, courtyards, and circulation routes for pedestrians and vehicles. Several pedestrian walkways enable medical personnel and students to travel expeditiously around the campus. The MACC, for example, is connected to the Claude Hudson Auditorium via a low covered walkway that extends from the MACC's east facade, which provides a physical link between the medical (MACC) and assembly (Auditorium) uses. Existing gardens and courtyards, particularly those associated with the Augusts F. Hawkins Comprehensive Mental Health Center and the Interns and Physicians Building, provided recreational facilities for medical students. There are 21 buildings at the project site. The design and use of materials for construction of these existing structures along with the landscaped areas of the campus dominate the overall urban visual image of the project's immediate surrounding area.

3.3.3.1 Tier I

As described in Section 1.3 Project Description of this technical analysis, the proposed project entails two tiers. Tier I involves project-level development of the new MACC and other site improvements. Development of the new MACC and the Ancillary Building are currently registered with the U.S. Green Building Council under Leadership in Energy and Environmental Design for New Construction (LEED-NC).[34] The County will seek LEED Silver certification for the MACC and the Ancillary buildings.[35] The site work would also consist of a new parking terrace, new parking lots, re-striping of existing lots, site improvements, and new landscaping at the entry of the new (or refurbished and reused) MACC and its surrounding area. Tier I is consistent with the existing land uses at the site and in the adjacent area, and would be compatible with the visual appearance of the surrounding area.

3.3.3.2 Tier II

Tier II of the proposed project would include the Emergency Room Expansion, Storage Building, and Cooling Towers, and the mixed-use development among other project components. The development envelope of Tier II allows for additional medical office space, general offices, commercial and retail space, residential units and other facility improvements. The proposed project will be generally compatible with the visual appearance of the existing community although the campus will maintain a different style given the facilities past and continued medical uses. It is anticipated that the design of the proposed project will incorporate a complimentary style for all proposed structures. Architectural continuity within the campus will be achieved through consistency in the quality of design, workmanship, and materials utilized. The building orientation and envelope system are planned to maximize daylight into the interior space, optimize exterior envelope energy performance and maximize view to the natural elements of the outdoors.[36] However, as many of the Tier II project elements and design features are unknown, this impact is considered potentially significant.

Tier II of the proposed project would allow for a development envelope that would provide the health services necessary to respond to and address the needs of the community. All campus development would be subject to the design goals and guidelines of a Master Plan for the campus, which will ensure the development on the campus is consistent and compatible with the of the proposed project with the existing campus and its surroundings; in addition, the proposed development would be subject to general design criteria, specified in the proposed project's mitigation measures. Tier II of the proposed project is not anticipated to "degrade the existing visual character of quality of the site and its surroundings," as stated in the CEQA criterion,

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[34] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[35] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[36] Martin Luther King, Jr. Medical Campus Center. 18 September 2009. Campus Planning and Programming Report, Executive Summary.

however, the impact is considered potentially significant given many of the unknown design elements and mitigation measures have been provided to ensure that impacts are reduced to less than significant.

3.3.4 Shade and Shadow

The analysis examined shade-sensitive uses including residential uses, schools, parks, open space, and public outdoor facilities. Existing shadow was not considered significant given that the existing buildings are located in the central and southern portions of the medical campus and do not generate adverse shadow impacts. Commercial and retail uses are not considered shade-sensitive. Shadow representations (see Figure 3.3.4-1, *Potential Shade and Shadow Impacts: Worst-Case Scenario*; and Figure 3.3.4-2, *Possible Placement of Buildings Causing No Shade Shadow Impacts*) were generated through the use of shadow calculation software for the proposed project.[37]

3.3.4.1 Tier I

Tier I of the proposed project, which consist of the development of a four-story 132,000-square-foot building and a 24,700–square-foot two-story building would have no adverse impacts related to shade and shadow. Impacts would be less than significant.

3.3.4.2 Tier II

Tier II was examined on a programmatic level and the analysis was based upon the height of tallest existing building (which is a six-story building) on the proposed site. This height was then used as the height of a building that could to placed continuously along the west and east perimeter of the campus property.

Figure 3.3.4-1 illustrates the worst-case shade and shadow scenario for Tier II: development of a six-story building placed continuously along the edge of the existing campus property boundary. Figure 3.3.4-1 presents a maximum building height of six-stories[38] (or 78 feet tall) and also assumes that there would not be any setbacks from the property boundary and roadways. At a minimum the development components in Tier II would have an approximately 14′ setback from the property boundary, which is consistent with the set backs for the existing buildings on the property.[39] As depicted in the figures, the areas that have the potential to be shaded by the worst-case shade and shadow scenario include residences to the west and to the east of the proposed project site. No shadow impacts would occur along the southern boundary of the property given the placement of the proposed project site relative to the sun's rising and setting patterns.

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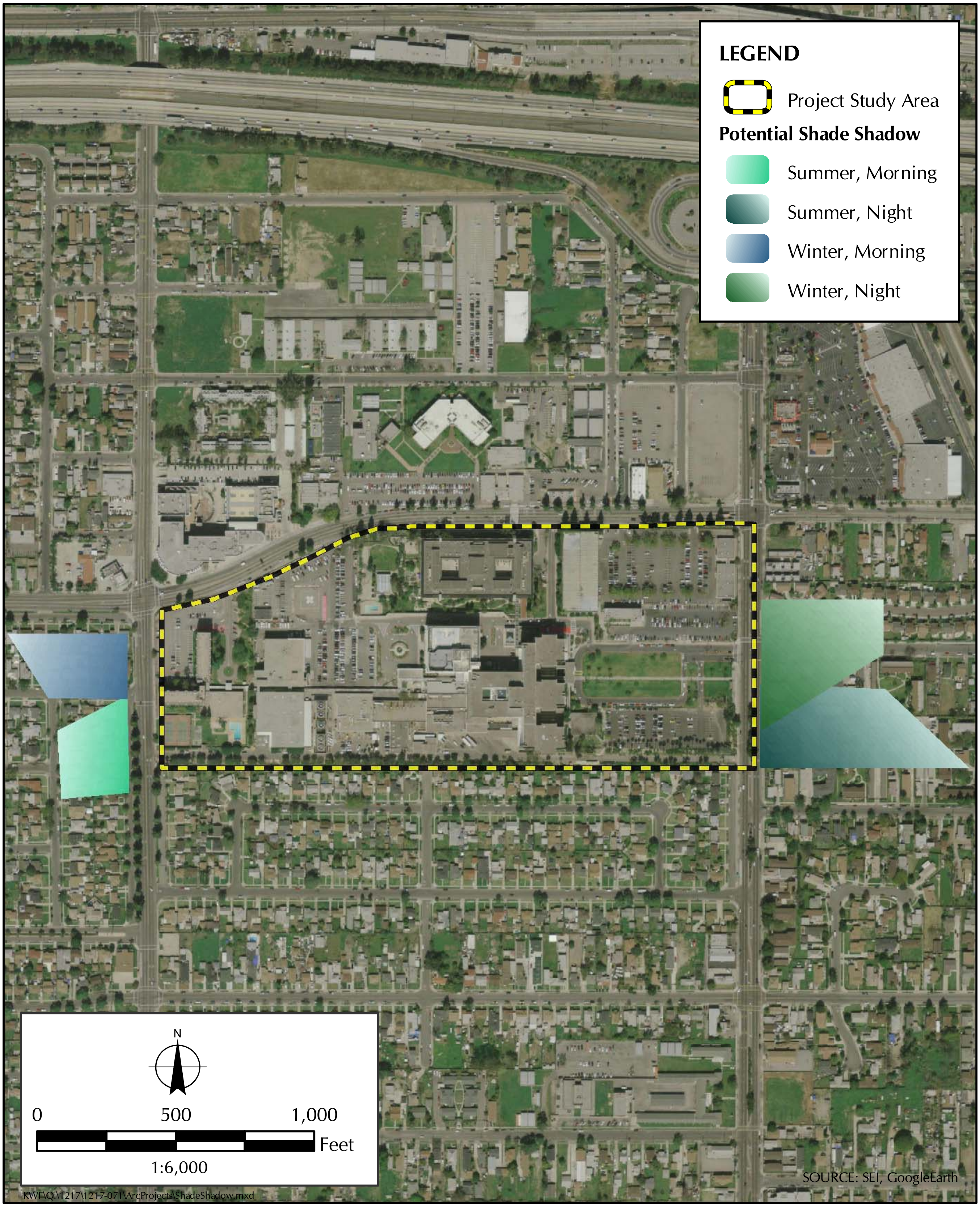
[37] Google's Sketch-Up 7.1 was utilized for preparation of the analysis diagrams. The hypothetical buildings were placed imported into Google Earth using the sunrise/sunset light module in Google Earth.

[38] This analysis used the height of the tallest existing building on the medical campus as a basis for the shadow estimate. Tier II is in the preliminary stages of design; however, the average anticipated building height is not expected to exceed three stories.

[39] The existing set backs include the pediatric modular building/ oasis clinic located approximately 14.8 feet from the property line along Wilmington Avenue, Interns & Physician's Building at approximately 20.0 feet from property line along Compton Avenue, the Hawkin's Building located at approximately 30.7 feet from property line along 120th Street, the Cooling Tower located at 44.8 feet from property line along south property line.



SOURCE: SEI, GoogleEarth

FIGURE 3.3.4-1

Potential Shade Shadow Impact Areas: Worse Case Scenario

SOURCE: SEI, GlobeXplorer

FIGURE 3.3.4-2

Possible Placement of Building Causing No Shade Shadow Impact

For the western campus property line, given the project site's longitude and latitude, the time frame with the longest shadows would occur in the winter from 6:23 a.m. to 7:18 a.m. and in the summer from approximately 5:42 a.m. to 6:29 a.m. If the above-described 6 story (worst-case height) Tier II building were placed along the edge of the western campus property line, it would have the potential to shadow approximately 17 homes along Compton Avenue during the winter morning hours and approximately 12 homes during the summer morning period. Shade impacts on these adjacent land uses would increase and or decrease progressively as the earth rotates; however, the duration of the shadow could last up to a maximum of one and a half (1.5) hours for the homes closest to the proposed project site.

For the eastern campus property line, given the project site's longitude and latitude, the time frame with the longest shadows would occur in the winter from 3:53 p.m. to 4:48 p.m. and in the summer from approximately 6:48 p.m. to 8:08 p.m. If the above-described 6 story (worst-case height) Tier II building were placed along the edge of the eastern proposed project boundary, it would have the potential to shade approximately 20 single-family residential homes along Wilmington Avenue during the winter night period and approximately 20 single-family residential homes and approximately five multifamily buildings during the summer night period. The duration of the shadow could last up to one and a half (1.5) hours for the homes closest to the proposed project site. Continuous and prolonged shade and shadow on adjacent residents could represent a potentially significant impact. However, the shading of adjacent properties by the proposed buildings would only occur for a short duration during the day/night and only for a small portion of the year, the impact to the adjacent residents is anticipated to be less than significant. However, mitigation measures have been provided to ensure that impacts remain less than significant.

As illustrated Figure 3.3.4-2, reasonable building setbacks have been incorporated into the shade and shadow projections at the project site. As displayed in Figure 3.3.4-2, with implementation of building setbacks, potential shadows would fall within the project site avoiding impacts on adjacent residences, roads and other land uses. These setbacks significant reduce shade impacts to these adjacent uses. The likelihood of shadow spillover is low given the medical facilities existing building layout (buildings that would remain on site), access to proposed buildings (allowed under Tier II), emergency medical access and general transportation and facility parking needs. With incorporation of mitigation measures, Tier II impacts would be less than significant.

3.3.5 Light and Glare

As stated above, there are three primary sources of light on the proposed project site: light emanating from building interiors that passes through windows; light from the headlights of parked and or traveling vehicles and light from exterior sources. The construction of the proposed project would involve the presence of additional interior lighting within the proposed facilities and their activation during non-daytime hours would create additional effects of increased lighting. The residential component of the project would create a minor source of light due to the residents' interior lights; however, the residential lighting proposed would be similar to the amount of light generated by the single-family and multifamily residences located adjacent to the project site, along the west, south and east side. No adverse impacts are anticipated from interior light sources.

There are currently no significant sources of glare at the project site (e.g., mirrored buildings, building materials, etc.). As proposed, the project would not contain large expanses of reflective or mirrored building surfaces or glare producing light fixtures; however, mitigation measures have been provided to ensure that impacts remain less than significant. .As stated in the Martin Luther

King Jr. Medical Campus Center, Campus Planning and Programming Report,[40] the architecture of the proposed building would be designed "to be sustainable, soothing, and uplifting. It should capture the spirit of the contemporary architecture at the site. The building orientation and envelope system are planned to maximize daylight into the interior space, optimize exterior envelope energy performance and maximize view to the natural elements of the outdoors."

3.3.5.1 Tier I

Tier I involves project-level development of the new MACC and other site improvements. Pedestrian scale street lamps, which will be coordinated with the landscape elements, would be located adjacent to the buildings and near the parking areas to provide safety and allow for appropriate nighttime visibility. Tier I of the proposed project would incorporate low level downward facing lights that would be used to illuminate the entrance of buildings, stairs and where pathways occur between buildings, and adjacent to designated parking areas. Lighting placement and selection will be carefully considered to reduce the chance of glare and light spillover to adjacent land uses. The proposed project's landscape lighting is intended to provide a softened nighttime appearance for the medical campus site. These lights would be expected to contribute to minimal increases and alterations in the location of light and glare at the campus during operation of the Tier I proposed project. Tier I impacts would be less than significant with mitigation incorporated. Therefore, the light and glare effects of the proposed project's construction and operation is not anticipated to result in a significant impact to the surrounding developments; however, mitigation measures have been provided to ensure that impacts related to Tier I of the proposed project remain less than significant. Therefore, the light and glare effects of the proposed project's construction and operation would not be anticipated to result in a significant impact to the surrounding developments; however, mitigation measures have been provided to ensure that impacts related to Tier I of the proposed project remain less than significant.

3.3.5.2 Tier II

The components of the Tier II development would involve pedestrian, security and parking lighting within and around the perimeter of project site. These lights are intended to enhance the visual character of the buildings and provide necessary pedestrian safety lighting for patients, workers and visitors using the sidewalks throughout the project site. These lights would be expected to contribute to increases in light and glare at the campus during operation of the Tier II proposed project.

Tier II of the proposed project would incorporate low level downward facing lights that would be used to illuminate the entrance of buildings, stairs and where pathways occur between buildings, and adjacent to designated parking areas. Lighting placement and selection will be carefully considered to reduce the chance of glare and light spillover to adjacent land uses. The proposed project's landscape lighting is intended to provide a softened nighttime appearance for the medical campus site. Therefore, the light and glare effects of the proposed project's construction and operation is not anticipated to result in a significant impact to the surrounding developments; however, mitigation measures have been provided to ensure that impacts related to Tier II of the proposed project remain less than significant.

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[40] Martin Luther King, Jr. Medical Campus Center. 18 September 2009. Campus Planning and Programming Report, Executive Summary.

SECTION 4.0
RECOMMENDATIONS AND MITIGATION MEASURES

4.1 VISUAL QUALITY

4.1.1 Tier II

4.1.1.1 Measure Aesthetics-2

The County of Los Angeles shall review all plans for the Tier II development. Contractors shall conform with all design features described in the Campus Planning and Programming Report, which is intended to serve as a guide for development at the project site to ensure visual consistency and continuity at the project site and within the surrounding area.

4.1.1.2 Level of Significance after Mitigation

Implementation of mitigation measure Aesthetics-2 would be expected to ensure consistency within the medical campus and with the surrounding area. As supported by project design guidelines listed in mitigation measure Aesthetics-1, the materials used to construct Tier II of proposed project would be consistent with existing visual quality conditions at the proposed project site and within the surrounding area, and would reduce potential impacts to visual character to below the level of significance.

4.2 SHADE AND SHADOW

4.2.1 Tier II

4.2.1.1 Mitigation Measure Aesthetics-3

All development shall be limited to three stories in height if the proposed structure is located along the western or eastern edge of the property. The existing setback includes the pediatric modular building/ oasis clinic located approximately 14 feet from the property line along the eastern boundary at Wilmington Avenue, the Interns & Physician's Building at approximately 20 feet from the property line along the western boundary at Compton Avenue, the Hawkin's Building located at approximately 30 feet from the property line along the northern boundary at 120th Street, the Cooling Tower located at 44 feet from the property line along the south. Alternatively, if a structure exceeds three stories in height along the perimeter of the property (western or eastern perimeter only), at a minimum, the building shall be required to stay within the approximately 20-foot and for 14-foot existing campus respective western and eastern boundary setbacks to reduce shade and shadow impacts to adjacent land uses along Compton Avenue and Wilmington Avenue.

4.2.1.2 Level of Significance after Mitigation

Implementation of mitigation measure Aesthetics-3 would be expected to prevent vehicle highlights from causing significant levels of light intrusion. Therefore, implementation of mitigation measure Aesthetics-2 would be expected to reduce impacts related to a new source of light and glare to below the level of significance.

4.3 LIGHT AND GLARE

4.3.1 Tier I

4.3.1.1 Mitigation Measure Aesthetics-1

All exterior lighting proposed for building and on-site security lighting shall be shielded and directed downward to minimize the impacts on the surrounding land uses. No large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) would be included within the building components or materials.

4.3.1.2 Level of Significance after Mitigation

The recommended mitigation measure Aesthetics-1 would be able to reduce project-specific impacts related to light and glare to below the level of significance.

4.3.2 Tier II

4.3.2.1 Mitigation Measure Aesthetics-1

All exterior lighting proposed for building and on-site security lighting shall be shielded and directed downward to minimize the impacts on the surrounding land uses. No large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) would be included within the building components or materials.

4.3.2.2 Mitigation Measure Aesthetics-4

Where parking lots or structures are adjacent to residential areas or near other sensitive light receptors along the southern portion of the campus, Compton Avenue, and Wilmington Avenue, retaining walls and or landscaping of sufficient height shall be incorporated into the design of the proposed project to shield vehicle headlights (which typically sit at a minimum of 3 feet in height above ground). These project features shall be included in the landscape plans and final project design plans (to avoid and reduce potential light and glare obstructions that could impact residential areas).

4.3.3 Level of Significance after Mitigation

Implementation of mitigation measures Aesthetics-1 would be expected to prevent security lighting and building lighting from causing significant levels of light spillover or light trespass. Implementation of mitigation measures Aesthetics-4 would be expected to prevent vehicle highlights from causing significant levels of light intrusion. Therefore, implementation of mitigation measures Aesthetics-4 would be expected to reduce impacts related to a new source of light and glare to below the level of significance.

APPENDIX C
AIR QUALITY AND GREENHOUSE GAS EMISSIONS TECHNICAL IMPACT REPORT

MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

AIR QUALITY AND GREENHOUSE GAS EMISSIONS TECHNICAL IMPACT REPORT

PREPARED FOR:

COUNTY OF LOS ANGELES
KENNETH HAHN HALL OF ADMINISTRATION
500 WEST TEMPLE STREET
LOS ANGELES, CALIFORNIA 90802

PREPARED BY:

SAPPHOS ENVIRONMENTAL, INC.
430 NORTH HALSTEAD STREET
PASADENA, CALIFORNIA 91107

AUGUST 2010

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SECTION ES
EXECUTIVE SUMMARY

This Air Quality Technical Impact Report in support of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) resulted in the conclusion that potentially significant impacts to air quality would occur as a result of construction and operation of the proposed project. This technical report addresses a 38-acre study area bound on the north by East 120th Street, on the east by Wilmington Avenue, on the south by a narrow alley which separates the proposed project site from the residential neighborhood which is largely located north of East 122nd Street, and on the west by Compton Avenue of Los Angeles, in the unincorporated community of Willowbrook, in the County of Los Angeles (County), California. The proposed project site appears on the U.S. Geological Survey (USGS) 7.5-minute series South Gate topographic quadrangle.[1] The proposed project area is located within the South Coast Air Quality Management District (SCAQMD) portion of the South Coast Air Basin.

This report was prepared to address air quality issues identified in the initial study as requiring further analysis to define significance levels of air quality impacts pursuant to CEQA. The proposed project entails two tiers. Tier I would involve development of a new Multi-Service Ambulatory Care Center (MACC) and the Ancillary Building. Tier I would also include tenant improvements to the following existing buildings: North Support Building, South Support Building, Interns and Physicians Building, and the Plant Management Building; site improvements; and potential relocation of the MRI building. Tier II of the proposed project would entail the reuse or replacement of the existing MACC Building (which will be vacant following construction of the new MACC Building in Tier I) and demolition of the following: Emergency Room; Storage Building; and Cooling Towers. Tier II construction would entail additional master-planned mixed-use development, which may include the potential for medical offices, general offices, commercial and retail space, residential units, recreational areas, and other development that is appurtenant to and compatible with the primary land use, in support of the campus. Construction of Tier I is anticipated to start in 2011 and finish in 2014. Construction of Tier II is anticipated to start in 2010 and finish by 2020.

The main conclusions of this report include the following:

ES.1 TIER I

- Project construction would generate short-term emissions of criteria pollutants. Particulates would be generated from demolition and site grading, volatile organic compounds (VOCs) would be generated from paving and coating activities, and exhaust emissions would be generated from construction equipment and vehicular trips to and from the proposed project site. The daily emissions of all criteria pollutants associated with the project's construction activities for Tier I are anticipated to be below the SCAQMD daily construction emission thresholds of significance and, as such, would be expected to result in a less than significant impact to air quality during construction.

  Operation of the proposed project would result in emissions of criteria pollutants due to electricity use and vehicular trips to and from the proposed project site. The daily

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[1] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

emissions of all criteria pollutants associated with the project's operational activities for Tier I are anticipated to be less than existing conditions; and therefore would not be expected to result in a significant impact to air quality during operation.

- Carbon monoxide (CO) concentrations generated by vehicle trips from construction workers and vehicle trips during operation of Tier I of the proposed project at sensitive receptors in the vicinity of the proposed project area would be expected to be below the level of significance.

- Tier I construction-related emissions of CO, PM_{10}, and $PM_{2.5}$ would be below the level of significance at nearest sensitive receptors, but emissions of NO_x would have the potential to be above the level of significance at nearest sensitive receptors.

- Toxic air contaminant (TAC) emissions associated with the proposed project's construction and operation of Tier I at sensitive receptors would be expected to be below the level of significance.

- Odor impacts associated with Tier I of the proposed project would be expected to be below the level of significance.

- Tier I of the proposed project would be consistent with SCAQMD's 2007 Air Quality Management Plan.

- Tier I of the proposed project's construction phase would be expected to result in substantial increases in greenhouse gas (GHG) emissions if a quantitative threshold of 900 metric tons of CO_{2e} is used to determine significance. Tier I of the proposed project's operational phase would be expected to result in a decrease in greenhouse gas (GHG) emissions compared to existing conditions, and Tier I's cumulative impact on global climate change would be expected to be below the level of significance.

- Implementation of air quality mitigation measures Air-1 through Air-8 would reduce fugitive dust emissions associated with Tier I construction activities, which would cause daily PM2.5 and PM_{10} emissions to remain at below the SCAQMD thresholds of significance.

- Implementation of mitigation measure Air-9 would ensure that criteria pollutant emissions associated with the use of construction equipment would be reduced to the maximum extent feasible. Therefore, criteria pollutant emissions during construction of Tier I would remain at below the level of significance.

- Mitigation measures Air-1 through Air-9 would also ensure that cumulative air quality impacts during construction would remain at below the level of significance and that construction-related impacts to sensitive receptors would be reduced to below the level of significance.

- Mitigation measure GHG-1 would ensure GHG emissions associated with operation of the proposed project are reduced to the maximum extent feasible and would remain at below the level of significance.

In conclusion, with the incorporation of mitigation measures, Tier I the proposed project would not be expected to produce significant impacts with respect to construction or operational emissions. Tier I may be expected to contribute significantly to GHG emissions during construction, if a quantitative threshold of 900 metric tons of CO_{2e} is used to determine significance.

ES.2 TIER II

- Project construction would generate short-term emissions of criteria pollutants. Particulates would be generated from demolition and site grading, volatile organic compounds (VOCs) would be generated from paving and coating activities, and exhaust emissions would be generated from construction equipment and vehicular trips to and from the proposed project site. The daily emissions of NO_x and VOCs associated with the project's construction activities for Tier II are anticipated to be above the SCAQMD daily construction emission thresholds of significance, and, as such, would be expected to result in a significant impact to air quality during construction.

- Operation of the proposed project would result in emissions of criteria pollutants due to electricity use and vehicular trips to and from the proposed project site. The daily emissions of CO, VOCs, NO_X, and PM_{10} associated with the project's operational activities for Tier II are anticipated to be above the SCAQMD daily operational emission thresholds of significance, and, as such, would be expected to result in a significant impact to air quality during operation.

- Carbon monoxide (CO) concentrations generated by vehicle trips from construction workers and vehicle trips during operation of Tier II of the proposed project at sensitive receptors in the vicinity of the proposed project area would be expected to be below the level of significance.

- Tier II construction-related emissions of NO_x, $PM_{2.5}$, and PM_{10} at nearest sensitive receptors would be expected to be above the level of significance.

- Toxic air contaminant (TAC) emissions associated with the proposed project's construction and operation of Tier II at sensitive receptors would be expected to be below the level of significance.

- Odor impacts associated with Tier II of the proposed project would be expected to be below the level of significance.

- Tier II of the proposed project would be consistent with SCAQMD's 2007 Air Quality Management Plan.

- Tier II of the proposed project's construction and operational phases may be expected to result in substantial increases in greenhouse gas (GHG) emissions, and Tier II's cumulative impact on global climate change may be expected to be above the level of significance.

- Implementation of air quality mitigation measures Air-1 through Air-8 would reduce fugitive dust emissions associated with Tier II construction activities, which would cause daily PM2.5 and PM_{10} emissions to remain at below the SCAQMD thresholds of significance.

- Implementation of mitigation measure Air-9 would ensure that criteria pollutant emissions associated with the use of construction equipment would be reduced to the maximum extent feasible. However, VOCs and NO_x emissions during construction of Tier II would still result in temporary significant and unavoidable impacts.

- Mitigation measures Air-1 through Air-9 would also ensure that air quality impacts upon sensitive receptors during construction would be reduced to the maximum extent feasible. However, implementation of Tier II of the proposed project would still have the potential to result in significant impacts to sensitive receptors related to emissions of NO_x, $PM_{2.5}$, and $PM_{10.}$

- Mitigation measures Air-1 through Air-9 would also ensure that cumulative air quality impacts during construction would be reduced to the maximum extent feasible. However, implementation of Tier II of the proposed project would still be expected to result in cumulative construction-related impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects.

In conclusion, with the incorporation of mitigation measures, Tier II of the proposed project would be expected to produce significant impacts with respect to construction emissions of NO_x, VOCs, and GHGs; operational emissions of NO_x, VOCs, CO, PM_{10}, and GHGs; and emissions of NO_x, $PM_{2.5}$, and PM_{10} at sensitive receptors. Tier II of the proposed project may also be expected to contribute significantly to cumulative global GHG emission impacts.

SECTION 1.0
INTRODUCTION

1.1 PURPOSE AND SCOPE

The Air Quality Technical Impact Report was undertaken by Sapphos Environmental, Inc. for the County of Los Angeles in support of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project). The aims of this study are: to evaluate potential air quality and greenhouse gas emission impacts associated with the proposed project; to propose mitigation measures for any significant air quality and/or greenhouse gas emission impacts caused by implementation of the proposed project; and to document the findings of significance and non-significance. The Air Quality Technical Impact Report focuses on all phases (i.e., construction, operation, and maintenance) of the proposed project as well as the proposed project's potential cumulative impacts and impacts on global climate change.

1.2 PROJECT LOCATION

The proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) site is located on the existing 38-acre Martin Luther King, Jr. Medical Center Campus, at 12021 Wilmington Avenue in the unincorporated area of Willowbrook, County of Los Angeles (County), California. The proposed project site is located approximately 3 miles north of State Route 91 (SR-91; Artesia Freeway), approximately 3 miles northeast of Interstate 710 (I-710; Long Beach Freeway), approximately 2 miles east of I-110 (Harbor Freeway), less than 1 mile south of East Imperial Highway, and less than 1 mile south of I-105 (Glen Anderson Freeway). The proposed project site can be accessed from East 120th Street or from Wilmington Avenue. The proposed project site is bounded on the north by East 120th Street, on the east by Wilmington Avenue, on the south by a narrow alley which separates the proposed project site from the residential neighborhood which is largely located north of East 122nd Street, and on the west by Compton Avenue of Los Angeles. The proposed project site is less than 1 mile north of the City of Compton and less than 1 mile west of the City of Lynwood. The proposed project site is also less than 1 mile south of the City of Los Angeles.

The proposed project site appears on the U.S. Geological Survey (USGS) 7.5-minute series South Gate topographic quadrangle.[2] Elevations at the proposed project site range from 86 feet above mean sea level (MSL) to 88 feet above MSL. The topography of the site can be generally characterized as flat.

1.3 PROJECT DESCRIPTION

The proposed project entails two tiers. Tier I would involve development of a new Multi-Service Ambulatory Care Center (MACC) and the Ancillary Building. Tier I would also include tenant improvements to the following existing buildings: North Support Building, South Support Building, and the Plant Management Building; site improvements; and potential relocation of the MRI building.

Development of the new MACC and the Ancillary Building are currently registered with the U.S. Green Building Council under Leadership in Energy and Environmental Design for New Construction (LEED-NC).[3] The County will seek LEED Silver certification for the MACC and the Ancillary buildings.[4]

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[2] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[3] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus - Campus Planning and Programming Report*. Los Angeles, CA.

The LEED program recognizes and promotes a project's success in five areas: (1) sustainable sites, (2) water efficiency, (3) energy and atmosphere efficiencies, (4) materials and resources, and (5) indoor environmental quality. In addition, the federal government has a program titled "Green Guide for Healthcare Construction" (GGHC), which is designed to help hospitals navigate through the LEED program. The proposed project would incorporate energy efficient and sustainable strategies throughout the construction, development, and operation of the proposed project.

Tier II of the proposed project would entail the reuse or replacement of the existing MACC Building (which will be vacant following construction of the new MACC Building in Tier I) and reuse or replacement of the following: Emergency Room; Storage Building; and Cooling Towers. Tier II construction would entail additional master-planned mixed-use development, which may include the potential for medical offices, general offices, commercial and retail space, residential units, recreational areas, and other development that is appurtenant to and compatible with the primary land use, in support of the campus.

To establish a proposed program of development level for the mixed-use portion of Tier II, the currently undeveloped areas of the campus (undeveloped in this case includes parking lots and structures but not buildings) were calculated and adjustments were made for buildings to be reused/replaced and developed, to obtain a surface area from which to calculate allowable build-out. A maximum build-out of this remaining area was calculated using maximum build-out criteria from the Los Angeles County Zoning Code restrictions applicable to the site. Initially, this maximum build-out number was in excess of 2 million square feet and included zoning code allowances of a maximum of three stories in building height and 10 percent open space (i.e., areas without structures). To determine a more accurate level of development for Tier II, the following assumptions were added: (1) open space sitewide would remain 10 percent to maintain some of the current character of the site as an open and landscaped campus; (2) the site area to be set aside for the potential development of an up to 100-unit residential component, parking structures or parking lots, and walkways would be 40 percent of the entire site; and (3) although a maximum of three stories would be allowed for new buildings, an average height of 2.5 stories was assumed. Tier I of the proposed project will result in a decrease of the existing square feet, as the functions of several existing buildings would be removed. With these assumptions added in, the maximum programmed development for Tier II could consist of up to 1,814,696 square feet. Given the net reduction in building floor area in Tier I, the net new development after completion of Tier I plus Tier II is 1,476,010 square feet of floor area.

1.4 CONSTRUCTION SCENARIO

1.4.1 Tier I Construction Scenario

Tier I of the proposed project—which consists of the construction of the new MACC and the Ancillary Building tenant improvements, site improvements, and potential relocation of the MRI Building—would require approximately 37 months to complete (March 2011 to April 2014). Construction at the proposed project site is anticipated to be in accordance with all federal, state, regional, and County regulations, including the National Pollution Discharge Elimination System[5] and the County General Plan.[6]

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[4] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus - Campus Planning and Programming Report*. Los Angeles, CA.

[5] U.S. Environmental Protection Agency. 2009. *National Pollution Discharge Elimination System*. Available at: http://cfpub.epa.gov/npdes/

[6] County of Los Angeles Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan*.

It is anticipated that construction related to Tier I for the proposed project may require the type of equipment listed below in Table 1.4.1-1, *Anticipated Construction Equipment*. The information contained in Table 1.4.1-1 will be used in the assessment of potential construction impacts to air quality and greenhouse gas emissions for Tier I of the proposed project.

TABLE 1.4.1-1
ANTICIPATED CONSTRUCTION EQUIPMENT

Approximate Quantity	Type of Equipment or Vehicle	Approximate Duration of On-site Construction Activity (in months)
2	Man lift	3
4	Pickup truck	8
2	Hand compactor	5
2	Crane	3
1	Concrete mixer	4
1	Backhoe	3
40–60	Crew members	8
50	Crew vehicles (maximum)	8
1	Pile Driver	6
1	Large Bulldozer	3
2	Dozer	3
1	Front-end loader	1
1	Water truck	2
1	Grader	1
5	Dump truck	6
16	Concrete mix truck	9
1	Roller	1
3	Fork lift / grade all	3

Site preparation and construction of the proposed project would be in accordance with all federal, state, and County building codes. Daily construction activities would be subject to County noise regulations. All construction-related activities would be scheduled in compliance with the County Noise Ordinance, which prohibits construction activities and operation of construction equipment between the hours of 8:00 p.m. and 7:00 a.m., Monday through Friday, or at any time on Sunday or holidays. Work conducted on Saturdays would commence at 7:00 a.m. and cease no later than 5:00 p.m. Noise levels exceeding 65 dBA (decibels, A-weighted sound levels) for single-family residences and 70 dBA for multifamily residences during construction hours are prohibited.

The construction contractor would ensure that source-reduction techniques and the development of recycling programs during construction and operation of the proposed project are considered and implemented whenever possible.[7] In addition, employee vehicles, construction equipment and vehicles, and storage and materials used throughout the proposed project site would be located in a designated staging area in an effort to minimize impacts to the site, pedestrians, and medical center employee or visitor traffic.

Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

[7] Los Angeles County Code. Title 12, "Environmental Protection," Chapter 20.87.08.060, "Approval of Recycling and Reuse Plan." Available at: http://ordlink.com/codes/lacounty/index.htm

It is anticipated that there would be grading activities associated with the development of Tier I of the proposed project. It is anticipated that the approximately 30,000 cubic yards of material will be exported from the site during construction of the proposed project. It is further anticipated that excavation may exceed 20 feet but would not be expected to be greater than 60 feet deep. It is anticipated that a geotechnical engineer would be available for observation and testing of the earthwork-related tasks to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered would be evaluated by the proposed project engineering geologist and the soil engineer.[8] The existing access roads to and the streets surrounding the proposed project site will be used to transport import, export, and other construction related materials to and from the proposed project site.

The construction contractor would be required to incorporate best management practices (BMPs) consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[9] Should the construction period continue into the rainy season, supplemental erosion measures would need to be implemented, including, but not limited to, the following:

- Mulching
- Geotextiles and mats
- Earth dikes
- Temporary drains and gullies
- Silt fence
- Straw-bale barriers
- Sandbag barrier
- Brush or rock filter
- Sediment trap

The anticipated construction period would begin in March 2011 and conclude in April 2014. BMPs to control surface runoff and soil erosion would be required for construction taking place during rainy periods.

Construction equipment would be turned off when not in use. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times. It is currently anticipated that up to 150 construction workers would be on site at any given time during the construction of the proposed project.

Construction-related ingress and egress to the proposed project site would occur primarily off East 120th Street to the north or Wilmington Avenue to the east.

1.4.2 Tier II Construction Scenario

The Tier II of the proposed project consists of a campus-wide master plan and up to 1,814,696 square feet of development on the proposed project site. The potential construction scenario for Tier II may be envisioned as a multiphase process to be completed concurrently with Tier I. The longest scenario

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[8] URS. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

[9] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

is to develop Tier II within a 10-year timeframe, between 2010 and 2020. This analysis approach of the construction scenario has been developed based on an aggressive scenario (which allows the proposed project site to be developed to the maximum extent possible) to allow the consideration of a reasonable worst-case scenario in the even that the County chooses to complete up to 1,814,696 square feet of development.

The type and quantity of equipment that would potentially be used in construction of Tier II would vary for each component. However, for the purposes of this analysis, it is anticipated that development of Tier II would require up to eight phases that would utilize equipment that is comparable to the equipment described in Table 1.4.1-1 for each phase.

Site preparation and construction of the proposed project would be in accordance with all federal, state, and County building codes.

As with Tier I of the proposed project, the construction contractor would ensure that source-reduction techniques and the development of recycling programs during construction and operation of the proposed project are considered and implemented whenever possible.[10] The construction contractor would be required to incorporate BMPs consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[11]

BMPs to control surface runoff and soil erosion would be required for construction taking place during rainy periods.

Any construction equipment used during the potential development of Tier II would be turned off when not in use. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times. It is currently anticipated that up to 150 construction workers would be on-site at any given time during the construction of the proposed project.

Construction-related ingress and egress to the proposed project site would occur primarily off East 120th Street to the north or Wilmington Avenue to the east.

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[10] Los Angeles County Code. Title 12, “Environmental Protection,” Chapter 20.87.08.060, “Approval of Recycling and Reuse Plan.” Available at: http://ordlink.com/codes/lacounty/index.htm

[11] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

SECTION 2.0
AIR QUALITY AND GREENHOUSE GAS EMISSIONS ANALYSIS

The air quality analysis provided in this section evaluates the air quality impact level of significance associated with the construction, operation, and maintenance activities of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment project (proposed project). The analysis contained herein focuses on criteria pollutants designated by the Federal Clean Air Act as well as greenhouse gas emissions. Relevant regulatory framework is used to determine the consistency of the proposed project with federal and state laws governing the regulations of air quality and the level of significance of the proposed project impacts to air quality. Mitigation measures are subsequently provided for any impacts identified to be potentially significant. The information used in this analysis is based on a review of relevant literature and technical reports (see Section 3.0, *References*, for a list of reference materials consulted). The conclusion reached in this analysis is supported by relevant air quality data and modeling results.

2.1 POLLUTANTS AND EFFECTS

Criteria air pollutants are defined as pollutants that are hazardous for human health and are regulated by federal and state ambient air quality standards or criteria for outdoor concentrations. The federal and state standards have been set at levels above which concentrations would be harmful to human health. These standards are designed to protect the most sensitive persons from illness or discomfort. Criteria pollutants of concern include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). A detailed description of the characteristics and effects of criteria pollutants and GHGs are provided in the following sections.

2.1.1 Air Pollutants and Effects

Carbon Monoxide (CO)

CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircrafts, and trains. In urban areas, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, including wind speed, topography, and atmospheric stability. CO produced by motor vehicle exhaust can be locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, such as situations at dusk in urban areas between November and February.[12] The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. CO has a higher binding affinity to hemoglobin than oxygen (O_2), so it can replace O_2 in the blood and cause a reduction in the ability of blood to transport O_2 to vital organs. Low CO concentrations can cause fatigue in healthy people and chest pain in people with heart disease. At moderate concentrations, angina, impaired vision, and reduced brain function may result. At high concentrations, CO can cause impaired vision and coordination, headaches, dizziness, confusion, and nausea. At very high concentrations, CO exposure can be fatal.

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[12] Inversion is an atmospheric condition in which a layer of warm air traps cooler air near the surface of the earth, preventing the normal rising of surface air.

Ozone (O_3)

O_3 is a colorless gas that is formed in the atmosphere when reactive organic gases (ROGs), which include volatile organic compounds (VOCs) and nitrogen oxides (NO_x), react in the atmosphere in the presence of ultraviolet sunlight. The primary sources of VOCs and NO_x are automobile exhaust emissions and industrial emissions. Ideal conditions for O_3 formation occur during summer and early fall on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 is one of the main components of photochemical smog in urban areas. Health effects associated with exposure to O_3 include increased respiratory and cardiovascular disease; increased symptoms of respiratory illness such as cough, phlegm, and wheeze; decreased lung function; increase in bronchodilator usage; and increased daily mortalities.

Nitrogen Dioxide (NO_2)

NO_2 is a brownish-red, highly reactive gas that plays a major role in the formation of ground-level O_3 and acid rain. NO_2 is produced in the atmosphere from the reaction of atmospheric oxygen (O_2) with nitric oxide (NO). NO_x collectively refers to both NO and NO_2. The main sources of NO_2 include fuel combustion in industry and motor vehicles. High concentrations of NO_2 can cause breathing difficulties and can result in a brownish-red cast to the atmosphere with reduced visibility. NO_2 is toxic to various animals as well as to humans, because it has the ability to react with water to form nitric acid in the eye, lung, mucus membranes, and skin. Epidemiological studies have shown associations between NO_2 concentrations and chronic pulmonary fibrosis and daily mortalities from respiratory and cardiovascular causes. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 parts per million (ppm).

Sulfur Dioxide (SO_2)

SO_2 is a colorless and pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Generally, the highest levels of SO_2 are found near large industrial complexes where coal and oil are used in power plants and industries. In recent years, SO_2 concentrations have been reduced due to the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 causes its irritant effects by stimulating nerves in the lining of the nose and throat and the lung's airways. This causes a reflex cough, irritation, and a feeling of chest tightness, which may lead to narrowing of the airways. Acute respiratory symptoms and diminished ventilator function in children can be caused by SO_2 emissions, which can also damage plants and erode metals.

Particulate Matter (PM)

Particulate matter consists of very small liquid and solid particles suspended in air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can be formed when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. Fine particulate matter, or $PM_{2.5}$, refers to particles that are 2.5 microns or less in diameter, roughly 1/28th the diameter of a human hair. PM_{10} refers to particles that are 10 microns or less in diameter, about 1/7th the thickness of a human hair. Sources of primary $PM_{2.5}$ emissions include from fuel combustion from motor vehicles, power generation, industrial facilities, residential fireplaces, and wood stoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_2, NO_x, and VOCs. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning activities; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-sized particles. When inhaled, small particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. A strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks has been demonstrated;[13] particulate matter inhalations could also significantly reduce lung function growth in children.[14] Components of particulate matter can include substances such as lead, sulfates, and nitrates, which can cause lung damage directly. These substances can be absorbed into the blood stream and cause damage elsewhere in the body. Moreover, these substances can transport absorbed gases such as chlorides or ammonium into the lungs and cause injury. PM_{10} tends to collect in the upper portion of the respiratory system; whereas, $PM_{2.5}$ can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle and produce haze in the atmosphere that reduces regional visibility.

Lead (Pb)

Pb in the atmosphere occurs as particulate matter. Main sources of Pb emissions include leaded gasoline, battery manufacture, paint, ink, ceramics, ammunition, and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. After the phase-out of leaded gasoline between 1978 and 1987, secondary lead smelters, battery recycling, and manufacturing facilities became lead-emission sources of greater concern. Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with lead exposure include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Infants and young children are particularly sensitive to even very low levels of Pb, and such exposure could result in decrements in neurobehavioral performance including intelligent quotient performance, psychomotor performance, reaction time, and growth.

2.1.2 Greenhouse Gases and Effects

On April 2, 2007, the Supreme Court in *Massachusetts, et al. v. Environmental Protection Agency, et al.* (549 U.S. 1438; 127 S. Ct. 1438) ruled that the Clean Air Act gives the U.S. Environmental Protection Agency (USEPA) the authority to regulate emissions of GHGs, thereby legitimizing GHGs as air pollutants under the Clean Air Act.

The six GHGs regulated by the Kyoto Protocol and AB 32 include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_20), sulphur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). These gases trap the energy from the sun and help maintain the temperature of the Earth's surface, creating a process known as the greenhouse effect. The sun emits solar radiation and provides energy to the Earth. Six percent of the solar radiation emitted by the sun is reflected back by the atmosphere surrounding the Earth, 20 percent of the solar radiation is scattered and reflected by clouds, 19 percent of the solar radiation is absorbed by the atmosphere and clouds, 4 percent of the solar radiation is reflected back to the atmosphere by the Earth's surface, and 51 percent of the solar energy is absorbed by the Earth. GHGs such as CO_2 and CH_4 are naturally present in the atmosphere. The presence of these gases prevents outgoing infrared radiation from escaping the Earth's surface and lower atmosphere, allowing incoming solar radiation to be absorbed by living organisms on Earth. Without these GHGs, the earth would be too cold to be habitable; however, an excess of GHGs in the atmosphere can raise

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[13] California Air Resources Board. November 2007. *Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution, November 2007*. Available at: http://www.arb.ca.gov/research/health/fs/pm_ozone-fs.pdf

[14] California Air Resources Board. November 2007. *Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution, November 2007*. Available at: http://www.arb.ca.gov/research/health/fs/pm_ozone-fs.pdf

the Earth's temperature and cause global climate change, resulting in environmental consequences related to snowpack losses, flood hazards, sea-level rises, and fire hazards.

Global climate change results from a combination of three factors: 1) natural factors such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun; 2) natural processes within the Earth's climate system, such as changes in ocean circulation; and 3) anthropogenic activities, such as fossil fuel combustion, deforestation, reforestation, urbanization, and desertification, that change the composition of atmospheric gases. In its 2007 climate change synthesis report to policymakers, the Intergovernmental Panel on Climate Change (IPCC) concluded that "global GHG emissions due to human activities have grown since pre-industrial times, with an increase of 70 percent between 1970 and 2004."[15] Therefore, significant attention is being given to the anthropogenic causes of the increased GHG emissions level. In the review of regulatory publications from CAPCOA,[16] CARB,[17] the California Attorney General,[18] and OPR,[19] there is a consensus on the closely associated relationship between fossil fuel combustion, in conjunction with other human activities, and GHG emissions. In California, GHG emissions are largely contributed by the transportation sector, which was responsible for 35 percent and 38 percent of statewide 1990 and 2004 GHG emissions, respectively; followed by the electricity generation sector, which was responsible for 25 percent of statewide emissions in both 1990 and 2004; the industrial sector, which was responsible for 24 percent and 20 percent of statewide 1990 and 2004 GHG emissions; and the commercial sector, which was responsible for 3 percent of statewide emissions in both 1990 and 2004 (Figure 2.1.2-1, *California 1990 GHG Emissions*; and Figure 2.1.2-2, *California 2004 GHG Emissions*).[20]

The characteristics and effects of three GHGs and a group of fluorinated GHGs, including SF_6, HFCs, and PFCs, are described to set the context for the analysis.

Carbon Dioxide (CO_2)

CO_2 is a colorless, odorless, and nonflammable gas that is the most abundant GHG in the Earth's atmosphere after water vapor. CO_2 enters the atmosphere through natural process such as respiration and forest fires, and through human activities such as the burning of fossil fuels (oils, natural gas, and coal) and solid waste, deforestation, and industrial processes. CO_2 absorbs terrestrial infrared radiation that would otherwise escape to space, and therefore plays an important role in warming the atmosphere. CO_2 has a long atmospheric lifetime of up to 200 years, and is therefore a more important GHG than water vapor, which has a residence time in the atmosphere of only a few days. CO_2 provides the reference point for the global warming potential (GWP) of other gases; thus, the GWP of CO_2 is equal to 1.

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[15] Intergovernmental Panel on Climate Change. Approved 12–17 November 2007. *Climate Change 2007: Synthesis Report, Summary for Policymakers*, p. 5. Valencia, Spain. Available at: http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf

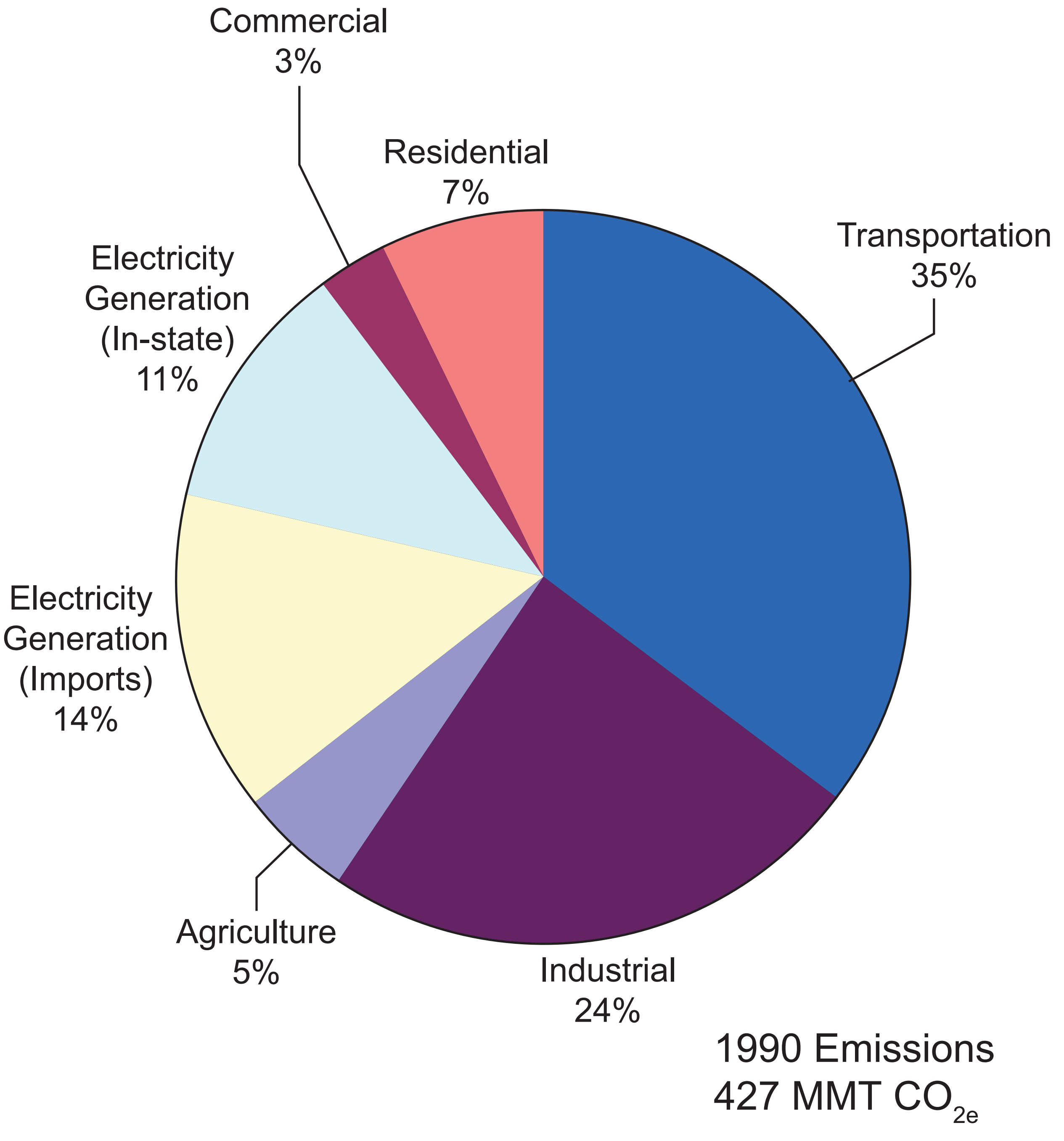
[16] California Air Pollution Control Officers Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. Sacramento, CA.

[17] California Air Resources Board. 24 October 2008. *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. Available at: http://www.opr.ca.gov/ceqa/pdfs/Prelim_Draft_Staff_Proposal_10-24-08.pdf

[18] California Department of Justice, Office of the Attorney General. Updated 9 December 2008. *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

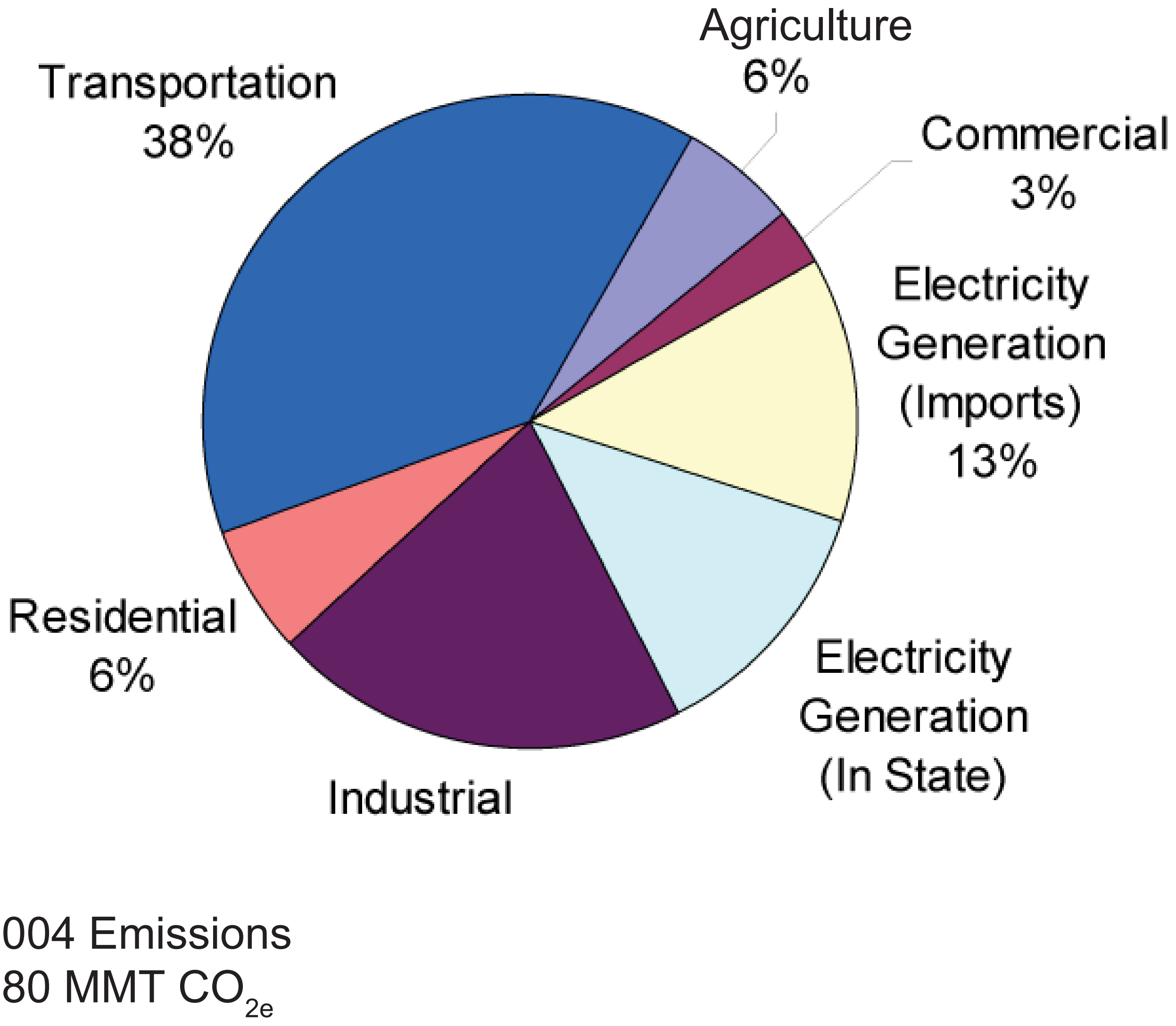
[19] California Governor's Office of Planning and Research. 19 June 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Technical Advisory. Sacramento, CA.

[20] California Air Resources Board. 16 November 2007. *California 1990 Greenhouse Gas Emissions Level and 2020 Limit*. Sacramento, CA.



SOURCE: California Air Resources Board. 2007. "California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit."
Available at: http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm

FIGURE 2.1.2-1
California 1990 GHG Emissions



SOURCE: California Air Resources Board. 2007. "California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit." Available at: http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm

FIGURE 2.1.2-2
California 2004 GHG Emissions

Methane (CH_4)

CH_4 is a principal component of natural gas and consists of a single carbon atom bonded to four hydrogen atoms. It is formed and released to the atmosphere by biological processes from livestock and other agricultural practices and by the decay of organic waste in anaerobic environments such as municipal solid waste landfills. CH_4 is also emitted during the production and transport of coal, natural gas, and oil. CH_4 is about 21 times more powerful at warming the atmosphere than CO_2 (a GWP of 21). Its chemical lifetime in the atmosphere is approximately 12 years. The relatively short atmospheric lifetime of CH_4, coupled with its potency as a GHG, makes it a candidate for mitigating global warming over the near-term. CH_4 can be removed from the atmosphere by a variety of processes such as the oxidation reaction with hydroxyl radicals (OH), microbial uptake in soils, and reaction with chlorine (Cl) atoms in the marine boundary layer.

Nitrous Oxide (N_2O)

N_2O is a clear and colorless gas with a slightly sweet odor. N_2O has a long atmospheric lifetime (approximately 120 years) and heat trapping effects about 310 times more powerful than carbon dioxide on a per molecule basis (a GWP of 310). N_2O is produced by both natural and human-related sources. The primary anthropogenic sources of N_2O are agricultural soil management such as soil cultivation practices, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, and production of adipic and nitric acids. The natural process of producing N_2O ranges from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.

Fluorinated Gases

HFCs, PFCs, and SF_6 are synthetic, powerful GHGs that are emitted from a variety of industrial processes, including aluminum production, semiconductor manufacturing, electric power transmission, magnesium production and processing, and the production of HCFC-22. Fluorinated gases are being used as substitutes for ozone-depleting chlorofluorocarbons (CFCs). Fluorinated gases are typically emitted in small quantities; however, they have high global warming potentials of between 140 and 23,900.[21]

2.2 REGULATORY FRAMEWORK

This regulatory framework identifies the federal, state, regional, and local laws that govern the regulation of air quality and must be considered by the County regarding decisions on projects that involve construction, operation, or maintenance activities that would result in air pollutant or GHG emissions.

Responsibility for attaining and maintaining ambient air quality standards in California is divided between CARB and regional air pollution control or air quality management districts. Areas of control for the regional districts are set by CARB, which divides the state into air basins. These air basins are based largely on topography that limits air flow access, or by county boundaries. The proposed project area is located in the unincorporated area of Willowbrook, California, within the SCAQMD portion of the South Coast Air Basin.

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[21] California Climate Action Registry. January 2009. *California Climate Action Registry General Reporting Protocol, Version 3.1.* Los Angeles, CA.

While the regulatory framework is discussed in detail below, it is important to note that the OPR has been tasked with developing CEQA guidelines with regard to GHG emissions. OPR has indicated that many significant questions must be answered before a consistent, effective, and workable process for completing climate change analyses can be created for use in CEQA documents. No federal or State agency (e.g. USEPA, CARB, or SCAQMD) responsible for managing air quality emissions has promulgated a global warming significance threshold that may be used in reviewing newly proposed projects. On a local level, the County has not adopted a climate change significance threshold. Neither the CEQA Statutes nor the CEQA Guidelines establish thresholds of significance or particular methodologies for performing an impact analysis. The determination of significance is left to the judgment and discretion of the lead agency.

2.2.1 Federal

Federal Clean Air Act

The Federal Clean Air Act (Federal CAA) requires that federally supported activities must conform to the State Implementation Plan (SIP), whose purpose is that of attaining and maintaining the National Ambient Air Quality Standards (NAAQS). Section 176 (c) of the Clean Air Act as amended in 1990, established the criteria and procedures by which the Federal Highway Administration (FHWA) (Title 23 USC), the Federal Transit Administrations (FTA),[22] and metropolitan planning organizations (MPOs) determine the conformity of federally funded or approved highway and transit plans, programs, and projects to SIPs. The provisions of 40 CFR Parts 51 and 93[23] apply in all non-attainment and maintenance areas for transportation-related criteria pollutants for which the area is designated non-attainment or has a maintenance plan.

The U.S. EPA sets NAAQS. Existing national standards are shown in Table 2.2.1-1, *Ambient Air Quality Standards,* together with state standards. Primary standards are designed to protect public health, including sensitive individuals such as the children and the elderly, whereas secondary standards are designed to protect public welfare, such as visibility and crop or material damage. The Clean Air Act requires the EPA to routinely review and update the NAAQS in accordance with the latest available scientific evidence. For example, the EPA revoked the annual PM_{10} standard in 2006 due to a lack of evidence linking health problems to long-term exposure to PM_{10} emissions. The 1-hour standard for O_3 was revoked in 2005 in favor of a new 8-hour standard that is intended to be more protective of public health.

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[22] U.S. Environmental Protection Agency. 26 September 1996. "Approval and Promulgation of Implementation Plans and Redesignation of Puget Sound, Washington for Air Quality Planning Purposes: Ozone." In *Federal Register*, Volume 61, No. 188. Available at: http://yosemite.epa.gov/r10/airpage.nsf/283d45bd5bb068e68825650f0064cdc2/e1f3db8b006eff1a88256dcf007885c6/$FILE/61%20FR%2050438%20Seattle%20Tacoma%20Ozone%20MP.pdf

[23] U.S. Environmental Protection Agency. 15 August 1997. Transportation Conformity Rule Amendments: Flexibility and Streamlining. Available at: http://www.epa.gov/EPA-AIR/1997/August/Day-15/a20968.htm

TABLE 2.2.1-1
AMBIENT AIR QUALITY STANDARDS

Air Pollutant	National		State Standard
	Primary	**Secondary**	
Ozone (O_3)[1]	0.08 ppm, 8-hr avg. (1997) 0.075 ppm, 8-hr avg. (2008)	0.08 ppm, 8-hr avg. (1997) 0.075 ppm, 8-hr avg. (2008)	0.09 ppm, 1-hr avg. 0.07 ppm, 8-hr avg.
Carbon Monoxide (CO)	9 ppm, 8-hr avg. 35 ppm, 1-hr avg.	None	9 ppm, 8-hr avg. 20 ppm, 1-hr avg.
Nitrogen Dioxide (NO_2)	0.053 ppm, annual avg.	0.053 ppm, annual avg.	0.03 ppm, annual avg. 0.18 ppm, 1-hr avg.
Sulfur Dioxide (SO_2)	0.03 ppm, annual avg. 0.14 ppm, 24-hr avg.	0.5 ppm, 3-hr avg.	0.25 ppm, 1-hr 0.04 ppm, 24-hr avg.
Suspended Particulate Matter (PM_{10})	150 $\mu g/m^3$, 24-hr avg.	150 $\mu g/m^3$, 24-hr avg.	50 $\mu g/m^3$, 24-hr avg. 20 $\mu g/m^3$, annual avg.
Fine Particulate Matter ($PM_{2.5}$)	35 $\mu g/m^3$, 24-hr avg. 15 $\mu g/m^3$, annual avg.	35 $\mu g/m^3$, 24-hr avg. 15 $\mu g/m^3$, annual avg.	12 $\mu g/m^3$, annual avg.
Sulfates (SO_4)	—	—	25 $\mu g/m^3$, 24-hr avg.
Lead (Pb)	1.5 $\mu g/m^3$, calendar quarter 0.15 $\mu g/m^3$, rolling 3-month avg.	1.5 $\mu g/m^3$, calendar quarter 0.15 $\mu g/m^3$, rolling 3-month avg.	1.5 $\mu g/m^3$, 30-day avg.
Hydrogen Sulfide (H_2S)	—	—	0.03 ppm, 1-hr avg.
Vinyl Chloride	—	—	0.01 ppm, 24-hr avg.
Visibility-Reducing Particles	—	—	Extinction coefficient of 0.23 per kilometer — visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. (8-hr avg.)

SOURCES:

1. U.S. Environmental Protection Agency. Updated 14 July 2009. *National Ambient Air Quality Standards (NAAQS).* Available at: http://www.epa.gov/air/criteria.html
2. California Air Resources Board. Reviewed 24 November 2009. *California Ambient Air Quality Standards (CAAQS).* Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm

NOTES:

1. The 1997 standard of 0.08 ppm will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition to the 2008 ozone standard of 0.075 ppm.
2. ppm = parts per million by volume
3. avg. = average
4. μg/m3 = micrograms per cubic meter

The 1990 Amendments to the CAA divide the nation into five categories of planning regions, depending on the severity of their pollution and set new timetables for attaining the NAAQS. The categories range from "marginal" to "extreme." Attainment deadlines are from 3 to 20 years, depending on the category. The Basin as a whole is an extreme non-attainment area for ozone. The County is currently designated as a Severe-17 non-attainment area for O_3, a non-attainment area for

$PM_{2.5}$, and a Serious non-attainment area for PM_{10},[24] but the Basin has achieved the federal 1-hour and 8-hour carbon monoxide (CO) air quality standards since 1990 and 2002, respectively, and the County has met the federal air quality standards for nitrogen dioxide (NO_2) since 1992.[25] Although the Basin as a whole is designated as a non-attainment area for PM_{10}, federal PM_{10} standards in the County are currently being met at all monitoring stations.[26]

Areas designated as Severe-17 for non-attainment of the federal 8-hour O_3 standard, such as the County, are required to reach attainment levels within 17 years after designation. Areas designated as "serious" for non-attainment of the federal PM_{10} air quality standard have a maximum of 10 years to reduce PM_{10} emissions to attainment levels. All non-attainment areas for $PM_{2.5}$ have 3 years after designation to meet the $PM_{2.5}$ standards. The Basin has until 2021 to achieve the 8-hour O_3 standards and 2010 to achieve the $PM_{2.5}$ air quality standards.[27] Section 182(e)(5) of the Federal CAA allows the EPA administrator to approve provisions of an attainment strategy in an "extreme" area that anticipates development of new control techniques or improvement of existing control technologies if the state has submitted enforceable commitments to develop and adopt contingency measures to be implemented if the anticipated technologies do not achieve planned reductions.

Non-attainment areas that are classified as "serious" or "worse" are required to revise their air quality management plans to include specific emission reduction strategies to meet interim milestones in implementing emission controls and improving air quality. The EPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the CAA. If a state fails to correct these planning deficiencies within two years of federal notification, the EPA is required to develop a federal implementation plan (FIP) for the identified non-attainment area or areas.

2.2.2 State

California Clean Air Act

The California CAA of 1988 requires all air-pollution control districts in the state to work to achieve and maintain state ambient air quality standards for O_3, CO, and NO_2 by the earliest practicable date and to develop plans and regulations specifying how they will meet this goal. There are no planning requirements for the state PM_{10} standard. The CARB, which became part of the Cal/EPA in 1991, is responsible for meeting state requirements of the Federal CAA, administrating the California CAA, and establishing the CAAQS. The California CAA, amended in 1992, requires all air districts in the state to endeavor to achieve and maintain the CAAQS. The CAAQS are generally stricter than national standards for the same pollutants, but there is no penalty for non-attainment. California has also established state standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles, for which there are no national standards (Table 2.2.1-1).

On April 2, 2007, the Supreme Court ruled in *Massachusetts, et al. v. Environmental Protection Agency, et al.* (549 U.S. 1438; 127 S. Ct. 1438) that the CAA gives the USEPA the authority to regulate

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[24] U.S. Environmental Protection Agency. 15 August 2008. *The Green Book Nonattainment Areas for Criteria Pollutants*. Available at: http://www.epa.gov/oar/oaqps/greenbk/

[25] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

[26] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

[27] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

emissions of GHGs, including CO_2, CH_4, N_2O, and fluorinated gases, such as HFCs, PFCs, and SF_6,[28] thereby legitimizing GHGs as air pollutants under the CAA.

Off-Road Emission Standards

Off-road diesel vehicles in California, including construction equipment, are regulated by CARB under increasingly stringent sets of standards called Tiers. Tier 1 standards began in 1996, and Tiers 2 and 3 were adopted in 2000. Tier 2 and 3 standards were fully phased in by 2006 and 2008 respectively. In 2004, CARB adopted the Tier 4 emission standards designed to decrease PM and NO_x emissions from newly manufactured vehicle engines.

CARB also approved a regulation in 2007 to control emissions from existing vehicles that are currently in use. This regulation became effective on June 15, 2008, and includes an anti-idling limit of five minutes for all off-road vehicles with a horsepower of 25 or greater. In addition, this regulation establishes emission rate targets that decline over time to accelerate a conversion to newer cleaner engines and require exhaust retrofits to meet these targets.

Executive Order S-3-05

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. Recognizing that California is particularly vulnerable to the impacts of climate change, Executive Order S-3-05 establishes statewide climate change emission reduction targets to reduce $CO_{2equivalent}$ (CO_{2e}) to the 2000 level (473 million metric tons) by 2010, to the 1990 level (427 million metric tons of CO_{2e}) by 2020, and to 80 percent below the 1990 level (85 million metric tons of CO_{2e}) by 2050 (Table 2.2.2-1, *California Business-as-Usual Greenhouse Gas Emissions and Targets*).[29,30] The executive order directs the Cal/EPA secretary to coordinate and oversee efforts from multiple agencies (i.e., secretary of the Business, Transportation and Housing Agency; secretary of the Department of Food and Agriculture; Secretary of the Resources Agency; chairperson of the Air Resources Board; chairperson of the Energy Commission; and president of the Public Utilities Commission) to reduce GHG emissions to achieve the target levels. In addition, the Cal/EPA secretary is responsible for submitting biannual reports to the governor and state legislature that outline 1) progress made toward reaching the emission targets, 2) impacts of global warming on California's resources, and 3) measures and adaptation plans to mitigate these impacts. To further ensure the accomplishment of the targets, the Secretary of Cal/EPA created a Climate Action Team made up of representatives from the agencies listed above to implement global warming emission reduction programs and report on the progress made toward meeting the statewide GHG targets established in this executive order. In 2006, the first report was released and identified that "the climate change emission reduction targets [could] be met without adversely affecting the California economy," and "when all [the] strategies are implemented, those underway and those needed to meet the Governor's targets, the economy will benefit."[31]

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[28] U.S. Supreme Court. 2 April 2007. *Massachusetts, et al., v. Environmental Protection Agency, et al.* 549 U.S. 1438; 127 S. Ct. 1438. Washington, DC.

[29] California Governor. 2005. Executive Order S-3-05. Sacramento, CA.

[30] California Climate Action Team. 3 April 2006. *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. Sacramento, CA.

[31] California Climate Action Team. 12 January 2006. *Final Draft of Chapter 8 on Economic Assessment of the Draft Climate Action Team Report to the Governor and Legislature*. Sacramento, CA.

TABLE 2.2.2-1
CALIFORNIA BUSINESS-AS-USUAL GREENHOUSE GAS EMISSIONS AND TARGETS

California Business-as-Usual Greenhouse Gas Emissions and Targets (Million Metric Tons of $CO_{2Equivalent}$)					
Year	**1990**	**2000**	**2010**	**2020**	**2050**
Business-as-usual emissions	427	473	532	596	762[1]
Target emissions	—	—	473	427	85

NOTE:

1. The CARB has not yet projected 2050 emissions under a business-as-usual scenario; therefore, 2050 business-as-usual emissions were calculated assuming a linear increase of emissions from 1990 to 2050.

Assembly Bill 32: Global Warming Solutions Act of 2006

In September 2006, Governor Arnold Schwarzenegger signed into law the Global Warming Solutions Act, or AB 32, which requires a statewide commitment and effort to reduce GHG emissions to 1990 levels by 2020 (25 percent below business-as-usual).[32] This intended reduction in GHG emissions will be accomplished with an enforceable statewide cap on GHG emissions, which will be phased in 2012. To effectively implement the cap, AB 32 requires CARB to develop appropriate regulations and establish a mandatory reporting system to track and monitor global warming emissions levels from stationary sources.

This bill is the first statewide policy in the United States to mitigate GHG emissions and to include penalties for non-compliance. Consistent with goals and targets set by other actions taking place at the regional and international levels, AB 32 sets precedence in inventorying and reducing GHG emissions.

In passing AB 32, the State legislature acknowledged that global warming and related effects of climate change are a significant environmental issue, particularly the anthropogenic causes that are believed to be largely attributable to increased concentration of GHGs in the atmosphere. The proposed ordinances would primarily impact the commercial sector, as it intends to ban retail establishments from distributing plastic carryout bags. Any potential decrease or increase in GHG emissions that could be attributed to the proposed ordinances would have the potential to impact statewide GHG emissions; therefore, potential incremental contributions to GHG emissions are analyzed in this EIR.

Executive Order S-20-06

On October 17, 2006, Governor Arnold Schwarzenegger signed Executive Order S-20-06, which calls for continued efforts and coordination among state agencies on the implementation of GHG emission reduction policies, AB 32, and Health and Safety Code (Division 25.5) through the design and development of a market-based compliance program.[33] In addition, Executive Order S-20-06 requires the development of GHG reporting and reduction protocols and a multi-state registry through joint efforts among CARB, Cal/EPA, and the California Climate Action Registry (CCAR). Executive Order S-20-06 directs the Secretary for Environmental Protection to coordinate with the Climate Action Team to develop a plan to create incentives for market-based mechanisms that have the potential of reducing GHG emissions.[34]

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[32] California Air Resources Board. Assembly Bill 32, California Climate Solutions Act of 2006. Sacramento, CA. Available at: http://www.arb.ca.gov/cc/docs/ab32text.pdf

[33] California Governor. 2006. Executive Order S-20-06. Sacramento, CA.

[34] California Governor. 2006. Executive Order S-20-06. Sacramento, CA.

California Senate Bill 97

Approved by Governor Arnold Schwarzenegger on August 24, 2007, Senate Bill (SB) 97 is designed to work in conjunction with the State CEQA Guidelines and AB 32. Pursuant to the State CEQA Guidelines, the OPR is required to prepare for and develop proposed guidelines for implementation of CEQA by public agencies. Pursuant to AB 32, the CARB is required to monitor and regulate emission sources of GHGs that cause global warming to reduce GHG emissions. SB 97 states, "SB 97 requires OPR, by July 1, 2009, to prepare, develop, and transmit to the [CARB] guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption."[35] As directed by SB 97, the Natural Resources Agency adopted amendments to the CEQA Guidelines for GHG emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The amendments became effective on March 18, 2010.

In addition, OPR and CARB are required to periodically update the guidelines to incorporate new information or criteria established by CARB pursuant to AB 32. SB 97 applies to any environmental documents, including an EIR, a Negative Declaration, a Mitigated Negative Declaration, or other documents required by CEQA that have not been certified or adopted by the CEQA lead agency by the date of the adoption of the regulations.

State of California Office of the Attorney General Guidance Letter on California Environmental Quality Act, Addressing Global Warming Impacts at the Local Agency Level

On May 21, 2008, the California Office of the Attorney General provided guidance to public agencies on how to address global warming impacts in CEQA documents. In the publication entitled *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*, the Office of Attorney General directs public agencies to take a leadership role in integrating sustainability into public projects by providing 52 project-level mitigation measures for consideration in the development of projects.[36] In addition, the Office of Attorney General has negotiated four settlement agreements under CEQA, all of which require the project proponents to consider sustainable design for projects and feasible mitigation measures and alternatives to substantially lessen global warming related effects.

State of California Office of Planning and Research Technical Advisory

On June 19, 2008, OPR provided guidance on how to address climate change in CEQA documents. In the technical advisory, *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*, OPR issues technical guidance on how to perform GHG analyses in the interim before further state guidelines become available.[37]

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[35] California Governor's Office of Planning and Research. 24 August 2007. Senate Bill No. 97, Chapter 185. Available at: http://www.opr.ca.gov/ceqa/pdfs/SB_97_bill_20070824_chaptered.pdf

[36] California Department of Justice Office of the Attorney General. 21 May 2008. *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

[37] California Governor's Office of Planning and Research. 19 June 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Technical Advisory. Sacramento, CA.

California Climate Action Registry

Established in 2001, the CCAR is a private non-profit organization originally formed by the State of California. The CCAR serves as a voluntary GHG registry and has taken a leadership role on climate change by developing credible, accurate, and consistent GHG reporting standards and tools for businesses, government agencies, and non-profit organizations to measure, monitor, and reduce GHG emissions. For instance, the CCAR General Reporting Protocol, version 3.1, dated January 2009, provides the principles, approach, methodology, and procedures required for voluntary GHG emissions reporting by businesses, government agencies, and non-profit organizations. In 2007, the County became a member of the CCAR and has committed its efforts to monitor, report, and reduce GHG emissions pursuant to its participation in the CCAR.

2.2.3 Regional

South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD), which monitors air quality within the proposed project area, has jurisdiction over an area of approximately 10,743 square miles and a population of over 16 million. The 1977 Lewis Air Quality Management Act created SCAQMD to coordinate air quality planning efforts throughout Southern California. This Act merged four (4) county air pollution agencies into one regional district to improve air quality in Southern California. SCAQMD is responsible for monitoring air quality as well as planning, implementing, and enforcing programs designed to attain and maintain Federal and State Ambient Air Quality Standards in the district. In addition, SCAQMD is responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or related stationary sources do not create net emission increases.

SCAQMD Rule 402, Nuisance, states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of Rule 402 do not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

It is mandatory for all construction projects in the South Coast Air Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Amended on June 3, 2005, the Fugitive Dust Rule 403 requires actions to prevent, reduce, or mitigate fugitive dust emissions of particulate matter in the ambient air as a result of any anthropogenic activities that are capable of generating fugitive dusts.

On a regional level, SCAQMD and the Southern California Association of Governments (SCAG) have responsibility under state law to prepare the Air Quality Management Plan (AQMP), which contains measures to meet state and federal requirements. When approved by CARB and the U.S. EPA, the AQMP becomes part of the SIP.

The most recent update to the SCAQMD Air Quality Management Plan (AQMP) was prepared for air quality improvements to meet both state and federal CAA planning requirements for all areas under AQMP jurisdiction. This update was adopted by CARB for inclusion in the SIP on September 27, 2007. The AQMP sets forth strategies for attaining the federal PM_{10} and $PM_{2.5}$ air quality standards and the federal 8-hour O_3 air quality standard, as well as meeting state standards at the earliest practicable date. With the incorporation of new scientific data, emission inventories, ambient measurements, control strategies, and air quality modeling, the 2007 AQMP focuses on O_3 and $PM_{2.5}$ attainments.

On September 5, 2008, the SCAQMD Governing Board approved the SCAQMD Climate Change Policy, which directs SCAQMD to assist the state, cities, local governments, businesses, and residents in areas related to reducing emissions that contribute to global warming.[38]

Pursuant to the policy, the SCAQMD will achieve the following:

a. Establish climate change programs
b. Implement SCAQMD command-and-control and market-based rules
c. Review and comment on future legislation related to climate change and GHGs
d. Prioritize projects that reduce both criteria and toxic pollutants and GHG emissions
e. Provide guidance on analyzing GHG emissions and identify mitigation measures to CEQA projects
f. Provide revisions to *SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*[39] consistent with the state guidance to include information on GHG strategies as a resource for local governments
g. Update the SCAQMD's GHG inventory in conjunction with each AQMP and assist local governments in developing GHG inventories
h. Reduce SCAQMD climate change impacts
i. Inform the public on various aspects of climate change, including understanding impacts, technology advancement, public education, and other emerging aspects of climate change science

Therefore, SCAQMD Climate Change Policy aims to decrease SCAQMD's carbon footprint, assist businesses and local governments with implementation of climate change measures, and provide information regarding climate change to the public.

2.2.4 Local

County of Los Angeles General Plan

The proposed project site is located within and owned by the County; therefore, development in the area is governed by the policies, procedures, and standards set forth in the County General Plan. The proposed project is considered as a capital facility for the County; therefore, pursuant to the OPR's guidelines for a general plan related to capital facilities, the proposed project must be consistent with the County General Plan.[40] In addition, the County is required to review the capital improvement programs to ensure their consistency with the General Plan.[41] The proposed project would be expected to be consistent with the County General Plan governing air quality and would not be expected to result in a change to the population growth assumption used by the SCAG for attainment

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[38] South Coast Air Quality Management District. 5 September 2008. *SCAQMD Climate Change Policy*. Diamond Bar, CA. Available at: http://www.aqmd.gov/hb/2008/September/080940a.htm

[39] South Coast Air Quality Management District. 6 May 2005. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*. Diamond Bar, CA.

[40] California Governor's Office of Planning and Research. October 2003. *General Plan Guidelines*. Available at: http://www.opr.ca.gov/planning/publications/General_Plan_Guidelines_2003.pdf

[41] California Governor's Office of Planning and Research. October 2003. *General Plan Guidelines*. Available at: http://www.opr.ca.gov/planning/publications/General_Plan_Guidelines_2003.pdf

planning. The County General Plan has developed goals and policies for improving air quality in the County. Many policies are transportation-based because of the direct link between air quality and the circulation element. The objectives and policies relevant to the proposed project and capable of contributing toward avoiding and reducing the generation of air pollutants include the following:[42]

- **Objective:** To support local efforts to improve air quality.
- **Policy:** Actively support strict air quality regulations for mobile and stationary sources, and continued research to improve air quality. Promote vanpooling, carpooling, and improved public transportation.

- **Objective:** To conserve energy resources and develop alternative energy sources.
- **Policy:** Support the conservation of energy and encourage the development and utilization of new energy sources including geothermal, thermal waste, solar, wind, and ocean-related sources.

County of Los Angeles Energy and Environmental Policy

The County Board of Supervisors adopted a Countywide energy and environmental policy (Policy No. 3.045), which became effective on December 19, 2006.[43] The goal of this policy is to provide guidelines for development, implementation, and enhancement of energy conservation and environmental programs within the County. The policy established an Energy and Environmental Team to coordinate the efforts of various County departments, established a program to integrate sustainable technologies into its Capital Project Program, established an energy consumption reduction goal of 20 percent by the year 2015 in County facilities, and became a member of the CCAR to assist the County in establishing goals for reducing GHG emissions. In addition, the policy included four program areas to promote green design and operation of County facilities and reduce the County's environmental footprint. Goals and initiatives for each program area are included as follows:

Energy and Water Efficiency

- Implementing and monitoring energy and water conservation practices
- Implementing energy and water efficiency projects
- Enhancing employee energy and water conservation awareness through education and promotions

Environmental Stewardship

- Investigating requirements and preferences for environmentally friendly packaging, greater emphasis on recycled products, and minimum energy efficiency standards for appliances
- Placing an emphasis on recycling and landfill volume reduction within County buildings
- Investigating the use of environmentally friendly products
- Supporting environmental initiatives through the investigation of existing resource utilization

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[42] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[43] County of Los Angeles Board of Supervisors Policy Manual. 19 December 2006. *Policy No. 3.045, Energy and Environmental Policy*. Available at: http://countypolicy.co.la.ca.us/

Public Outreach and Education

- Implementing a program that provides County residents with energy-related information, including energy and water conservation practices, utility rates and rate changes, rotating power outage information, emergency power outage information, and energy efficiency incentives
- Seeking collaboration with local governments, public agencies, and County affiliates to strengthen regional, centralized energy and environmental management resources and identify and develop opportunities for information and cost sharing in energy management and environmental activities

Sustainable Design

- Enhancing building sustainability through the integration of green, sustainable principles into the planning, design, and construction of County capital projects, which complement the functional objectives of the project, extend the life cycle / useful life of buildings and sites, optimize energy and water use efficiency, improve indoor environmental quality and provide healthy work environments, reduce ongoing building maintenance requirements, and encourage use and reuse of environmentally friendly materials and resources
- Establishing a management approach that instills and reinforces the integration of sustainable design principles into the core competency skill set of the County's planner, architects, engineers, and project managers
- Establishing practical performance measures to determine the level of sustainability achieved relative to the objectives targeted for the individual project and overall capital program

2.3 EXISTING CONDITIONS

2.3.1 South Coast Air Basin

The proposed project area is located in the South Coast Air Basin, which is composed of a 6,745-square-mile area encompassing all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The analysis of existing conditions related to air quality includes a summary of pollutant levels prior to implementation of each component of the proposed project. All of the proposed project components are located within the Basin; therefore, all air quality data and analysis are presented as an aggregate of the entire proposed project area.

The Basin is the subregion of SCAQMD and is in an area of high air pollution potentials due to its climate and topography. The climate of the proposed project area (i.e., the Basin) is characterized by warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This mild climatological pattern is interrupted infrequently by extremely hot summers, winter storms, or Santa Ana winds. The Basin is a coastal plain bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and the San Diego County line to the south. During the dry season, the Eastern Pacific High-Pressure Area (a semi-permanent feature of the general hemispheric circulation pattern) dominates the weather over much of Southern California, resulting in a mild climate tempered by cool sea breezes with light average wind speed. High mountains surround the rest of the Basin's perimeter, contributing to the variation of rainfall, temperature, and winds in the Basin.

2.3.2 Temperature Inversions

The Basin frequently experiences temperature inversions, a condition characterized by an increase in temperature with an increase in altitude. In a normal atmosphere, temperature decreases with altitude. In a temperature inversion condition, as the pollution rises, it reaches an area where the ambient temperature exceeds the temperature of the pollution, thereby limiting vertical dispersion of air pollutants and causing the pollution to sink back to the surface, trapping it close to the ground. During the summer, the interaction between the ocean surface and the low layer of the atmosphere creates a marine layer. With an upper layer of warm air mass over the cool marine layer, air pollutants are prevented from dispersing upward. Additional air quality problems in the Basin can be attributed to the bright sunshine, which causes a reaction between hydrocarbons and oxides of nitrogen to form ozone. Peak ozone concentrations in the Basin over the past two decades have occurred at the base of the mountains around Azusa and Glendora in the County and at the crestline in the mountain area above the City of San Bernardino. Both the peak ozone concentrations and the number of days the standards were exceeded decreased everywhere in the Basin throughout the 1990s. During the fall and winter, the greatest pollution problems are CO and NO_x emissions, which are trapped and concentrated by the inversion layer. CO concentrations are generally worse in the morning and late evening (around 10:00 p.m.). In the morning, CO levels are relatively high due to cold temperatures and the large number of cars traveling. High CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the Basin are associated with heavy traffic. However, CO concentrations have also dropped significantly throughout the Basin as a result of strict new emission controls and reformulated gasoline sold in winter months. NO_2 levels are also generally higher during fall and winter days.

2.3.3 Climatic Conditions

The annual average temperature, as recorded at the Los Angeles Civic Center (8.6 miles north of the proposed project site at 34° 03′ N, 118° 14′ W), is 65 degrees Fahrenheit (°F) with an average winter (December, January, and February) temperature of approximately 58°F and an average summer (June, July, and August) temperature of approximately 72°F (Appendix A, *Wind and Climate Data*). The average maximum recorded temperatures are 81°F during the summer and 67°F during the winter (Appendix A).[44] The annual average of total precipitation in the proposed project area is approximately 15 inches, which occurs mostly during the winter and relatively infrequently during the summer. Precipitation averages approximately 9.0 inches during the winter, approximately 3.7 inches during the spring (March, April, and May), approximately 2.0 inch during the fall (September, October, and November), and approximately 0.1 inch during the summer (Appendix A).[45] The average wind speed within the proposed project area and its vicinity, as recorded in 1981 at the Lynwood Wind Monitoring Station (1.7 miles east northeast of the proposed project site at 11220 Long Beach Boulevard in the City of Lynwood), is approximately 4.1 miles per hour (MPH), which blows predominantly from the southwest direction (Appendix A).[46] Calm winds occur approximately 17 percent of the time (Appendix A).[47] Winds in the Basin are generally light, tempered by afternoon

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[44] Western Regional Climate Center. Updated 12 November 2009. "Western U.S. Climate Historical Summaries." Web site. Available at: http://www.wrcc.dri.edu/Climsum.html

[45] Western Regional Climate Center. Updated 12 November 2009. "Western U.S. Climate Historical Summaries." Web site. Available at: http://www.wrcc.dri.edu/Climsum.html

[46] South Coast Air Quality Management District. Updated 21 May 2009. AQMD Meteorological Data for Dispersion Model Application. Available at: http://www.aqmd.gov/smog/metdata/MeteorologicalData.html

[47] South Coast Air Quality Management District. Updated 21 May 2009. AQMD Meteorological Data for Dispersion Model Application. Available at: http://www.aqmd.gov/smog/metdata/MeteorologicalData.html

sea breezes. Severe weather is uncommon in the Basin, but strong easterly winds known as the Santa Ana winds can reach 25 to 35 MPH below the passes and canyons. During the spring and summer months, air pollution is carried out of the region through mountain passes in wind currents or is lifted by the warm vertical currents produced by the heating of the mountain slopes. From the late summer through the winter months, because of the average lower wind speeds and temperatures in the proposed project area and its vicinity, air contaminants do not readily disburse, thus trapping air pollution in the area.

2.3.4 Emission Sources

The approximately 38-acre proposed project area currently contains buildings, structures, and other built features. Air and greenhouse gas emissions are generated daily from the hospital facilities by landscape maintenance equipment, campus operations including but not limited to space and water heating, and vehicle trips to and from the proposed project site. The average daily emissions generated by the existing uses at the proposed project sight were estimated using URBEMIS 2007 (Table 2.3.4-1, *Estimated Existing Daily Operational Emissions*; and Appendix B, *URBEMIS Output for the Proposed Project*), assuming that there is currently 1.2 million square feet of operational hospital space at the proposed project site. The current operational emissions of criteria pollutants at the proposed project site do exceed the SCAQMD operational thresholds of significance for VOCs, NO$_x$, CO, and PM$_{10}$ due to the large number of vehicle trips (17,443 in total) generated by the hospital campus.[48] These emission estimates are an overestimate due to the fact that the current campus is not fully utilized. For example, the MACC and the Interns and Physicians Building are not fully operational. However, the calculated emissions provide an estimate of the worst-case scenario, should the current buildings become fully operational prior to completion of the proposed project.

TABLE 2.3.4-1
ESTIMATED EXISTING DAILY OPERATIONAL EMISSIONS

Emission Sources	**Air Pollutants (Pounds/Day)**						
	VOCs	**NO$_x$**	**CO**	**SO$_x$**	**PM$_{2.5}$**	**PM$_{10}$**	**CO$_2$**
Mobile Sources	127	164	1,472	2	47	240	143,940
Area Sources	8	8	9	0	<1	<1	9,949
Total Emissions	**135**	**172**	**1,480**	**1**	**47**	**240**	**153,892**
SCAQMD Threshold	**55**	**55**	**550**	**150**	**55**	**150**	**N/A**
Exceedance of Significance?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**	**N/A**

2.3.5 Existing Air Quality

Existing air quality within the unincorporated area of Willowbrook and its vicinity is characterized by a mix of local emission sources that include stationary activities, such as space and water heating, landscape maintenance, consumer products, and mobile sources, which includes primarily automobile and truck traffic. Motor vehicles are the primary source of pollutants within the proposed project vicinity, because they have the potential to generate localized levels of CO, termed as CO "hotspots." Section 9.4 of SCAQMD's *CEQA Air Quality Handbook* identifies CO as a localized problem requiring additional analysis when a proposed project is likely to expose sensitive receptors to CO hotspots.[49]

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[48] Raju Associates, Inc. July 2010. *Traffic Study for the Martin Luther King Jr. Medical Center Campus Redevelopment Project*. Pasadena, CA.

[49] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

2.3.6 Source Receptor Area

The SCAQMD has divided the Basin into source receptor areas (SRAs), based on similar meteorological and topographical features. The proposed project site is located in SCAQMD's Southeast Los Angeles County SRA 12, which is served by the Lynwood Monitoring Station, which is located 1.7 miles east northeast of the proposed project site at 11220 Long Beach Boulevard in the City of Lynwood. Criteria pollutants monitored at the Lynwood Monitoring Station include O3, CO, PM2.5, and NO2. This station does not monitor PM10 or SO2. The nearest, most representative monitoring station that gathers PM10 and SO2 data is located approximately 9.6 miles north of the proposed project site in the Central Los Angeles County Subregion (No. 1) at 1630 North Main Street, Los Angeles. The ambient air quality data in the proposed project vicinity as recorded at the Lynwood and Los Angeles-North Main Street Monitoring Stations from 2006 to 2008 and the applicable state standards are shown in Table 2.3.6-1, *Summary of 2006–2008 Ambient Air Quality Data in the Project Vicinity*. Background CO concentration in the proposed project area is established because CO concentrations are typically used as an indicator of the conformity with CAAQS, and estimated changes in CO concentrations generally reflect operational air quality impacts associated with the project. The highest reading of the CO concentrations over the past three years is defined by SCAQMD as the background level. A review of data from the Lynwood Monitoring Station from the 2006 to 2008 period indicates that the maximum 1- and 8-hour background concentrations are approximately 8 and 6.4 parts per million (ppm), respectively. The existing 1- and 8-hour background concentrations do not exceed the State CO standards of 20 ppm and 9.0 ppm, respectively.

TABLE 2.3.6-1
SUMMARY OF 2006–2008 AMBIENT AIR QUALITY DATA IN THE PROJECT VICINITY

Pollutants	Pollutant Concentration & Standards	Number of Days above State Standard		
		2006	2007	2008
Ozone	Maximum 1-hr Concentration (ppm)	0.09	0.10	0.08
	Days > 0.09 ppm (State 1-hr standard)	0	1	0
	Maximum 8-hr Concentration (ppm)	0.07	0.08	0.06
	Days > 0.07 ppm (State 8-hr standard)	0	2	0
Carbon Monoxide	Maximum 1-hr Concentration (ppm)	8	8	6
	Days > 20 ppm (State 1-hour standard)	0	0	0
	Maximum 8-hr Concentration (ppm)	6.4	5.1	4.3
	Days > 9.0 ppm (State 8-hr standard)	0	0	0
Nitrogen Dioxide	Maximum 1-hr Concentration (ppm)	0.14	0.10	0.12
	Days > 0.18 ppm (State 1-hr standard_	0	0	0
PM$_{10}$	Maximum 24-hr Concentration (μg/m^3)	59	78	66
	Days > 50 μg/m^3 (State 24-hr standard)	3	5	2
PM$_{2.5}$	Maximum 24-hr Concentration (μg/m^3)	55.0	49.0	44.2
	Exceed State Standard (12 μg/m^3 Annual Arithmetic Mean)?	Yes	Yes	Yes
Sulfur Dioxide	Maximum 24-hr Concentration (ppm)	0.006	0.003	0.002
	Days > 0.25 ppm (State 24-hr standard)	0	0	0

SOURCE: South Coast Air Quality Management District. Accessed 4 December 2009. *Historical Data by Year*. Available at: http://www.aqmd.gov/smog/historicaldata.htm

2.3.7 Greenhouse Gas Emissions

To establish a reference point for future GHG emissions, CO_{2e} emissions are projected based on an unregulated business-as-usual GHG emissions scenario that does not take into account the reductions in GHG emissions required by Executive Order S-3-05 or AB 32. CARB has stated that California contributed 427 million metric tons of GHG emissions in CO_{2e} in 1990, and under a business-as-usual development scenario, would contribute approximately 596 million metric tons of CO_{2e} emissions in 2020, presenting a linear upward trend in California's total GHG emissions levels (Figure 2.3.7-1, *California Business-as-Usual Emissions and Targets*).

To characterize the GHG emissions business-as-usual conditions for the County, information on County population was collected from SCAG. It has been projected that the County would increase its population from approximately 10.6 million in 2010 to approximately 12.0 million in 2030.[50] Using the current CO_{2e} emissions factor of 14 metric tons per capita,[51] the County would be expected to be responsible for approximately 149 million metric tons of CO_{2e} emissions in 2010 under a business-as-usual emissions scenario, and each year, more GHGs would be expected to be emitted by the County than the previous year due to the increase in population (Table 2.3.7-1, *Characterization of Business-as-Usual and Target GHG Emissions for the County*). Using the target emissions necessary for compliance with AB 32 reduction goals,[52] the County would be responsible for approximately 141 million metric tons of CO_{2e} emissions in 2010 and 70 million metric tons of CO_{2e} emissions in 2030 (Table 2.3-3). The 2014 and 2020 data presented in Table 2.3-3 was used for the GHG analysis for the proposed project, because construction of Tier I is anticipated to be completed by 2014 and construction of Tier II is anticipated to be completed by 2020.

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[50] Southern California Association of Governments. 2 June 2008. E-mail to William Meade, Sapphos Environmental, Inc. Pasadena, CA.

[51] California Air Resources Board. December 2008. *Climate Change Scoping Plan: A Framework for Change*. Available at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

[52] California Air Resources Board. December 2008. *Climate Change Scoping Plan: A Framework for Change*, p. 118 Available at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

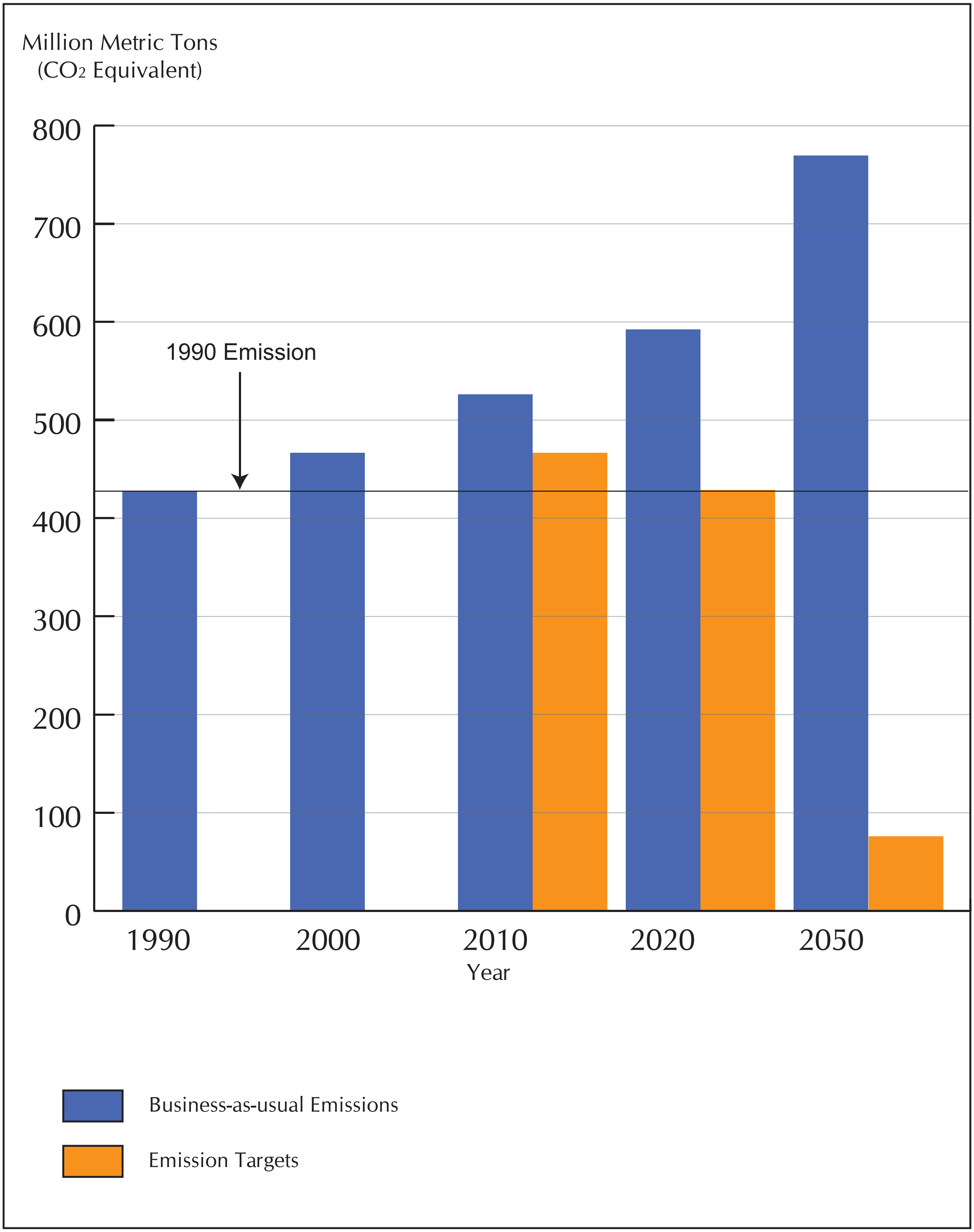


FIGURE 2.3.7-1
California Business-as-usual Emissions and Targets

TABLE 2.3.7-1
CHARACTERIZATION OF BUSINESS-AS-USUAL AND TARGET GHG EMISSIONS FOR THE COUNTY

	Year					
	2010	**2014**	**2015**	**2020**	**2025**	**2030**
Population	10,615,700	10,900,885	10,971,589	11,329,802	11,678,528	12,015,892
CARB business-as-usual emission factor (metric tons of CO_{2e}/SP)	14	14	14	14	14	14
Total business-as-usual County GHG emissions (million metric tons of CO_{2e})	**149**	**153**	**154**	**159**	**163**	**168**
CARB target emission factors (metric tons of CO_{2e}/SP)	13.3	11.8	11.4	9.6	7.7	5.8
Total target County GHG emissions (million metric tons of CO_{2e})	**141**	**129**	**126**	**108**	**90**	**70**

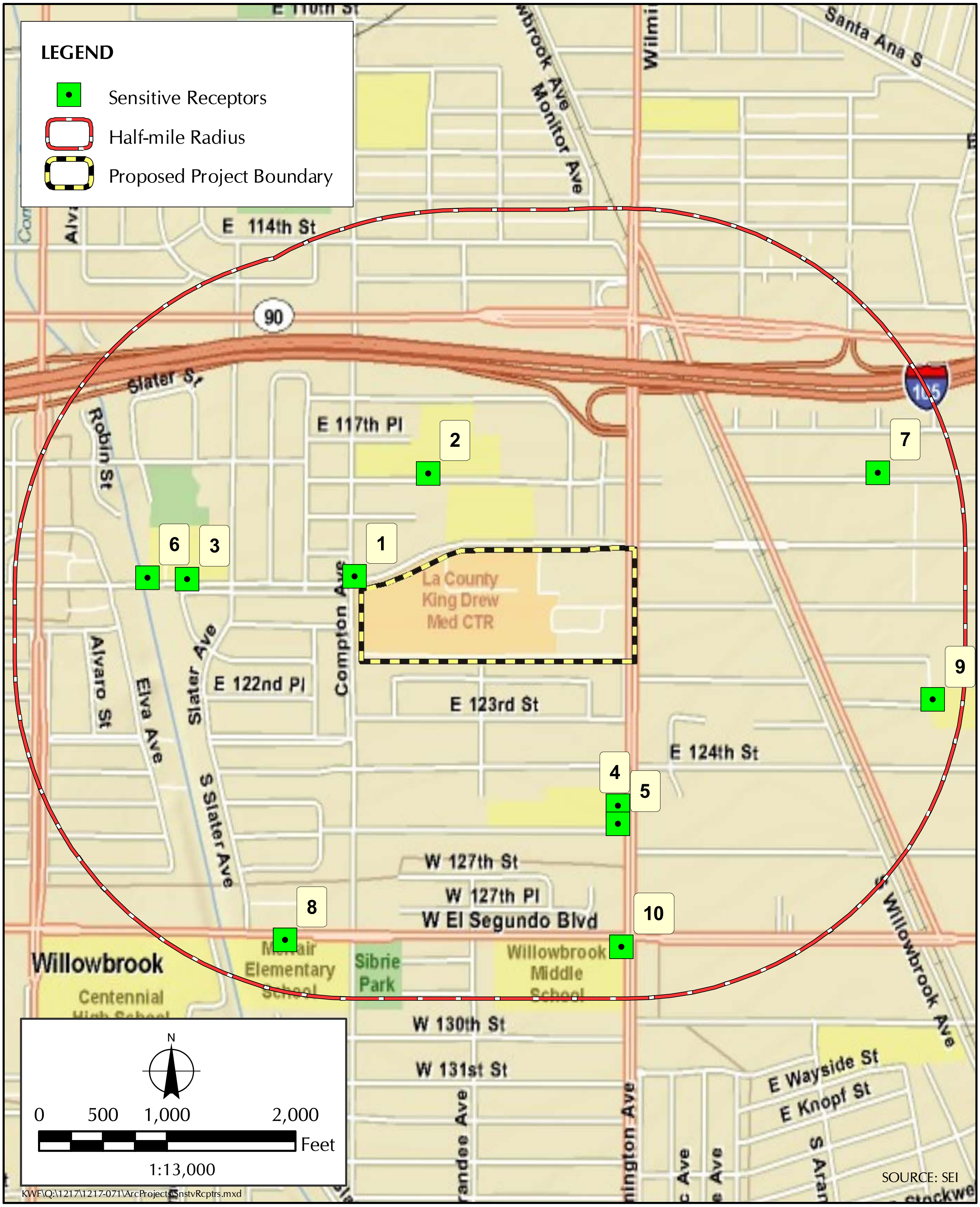
SOURCES:

1. Javier Minjares, Southern California Association of Governments. 2 June 2008. E-mail to William Meade, Sapphos Environmental, Inc. Pasadena, CA.
2. California Air Resources Board. 2008. *Summary of Population, Employment, and GHG Emissions Projections Data*. Sacramento, CA.

2.3.8 Sensitive Receptors

Some people, such as individuals with respiratory illnesses or impaired lung function because of other illnesses, the elderly over 65 years of age, and children under 14, are particularly sensitive to certain pollutants. Facilities and structures where these sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses identified to be sensitive receptors by SCAQMD in the CEQA Handbook include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive receptors may be at risk of being affected by air emissions released from the construction and operation of the proposed project. The greatest potential for exposure of sensitive receptors to air contaminants would occur during the temporary construction phase, when potentially contaminated soil would be uncovered and equipment would be used for site grading, materials delivery, and building construction.

The proposed project would be located in the unincorporated area of Willowbrook, near existing residences and commercial facilities. Exposure to potential emissions would vary substantially from day to day, depending on the amount of work being conducted, the weather conditions, the location of receptors, and the length of time that receptors would be exposed to air emissions. The construction phase emissions estimated in this analysis are based on conservative estimates and worst-case conditions, with maximum levels of construction activity occurring simultaneously within a short period of time. The nearest sensitive receptors, school land uses, with the highest potential to be impacted by the proposed project are listed below in Table 2.3.8-1, *Sensitive Receptor Locations* (Figure 2.3.8-1, *Air Quality Sensitive Receptor Locations*).



SOURCE: SEI

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FIGURE 2.3.8-1

Air Quality Sensitive Receptor Locations

TABLE 2.3.8-1
SENSITIVE RECEPTOR LOCATIONS

	Receptor Name	Location	Distance from Site
1	King Drew Magnet High School	1601 East 120th Street, Los Angeles 90059	Adjacent to the northwest boundary
2	Head Start/Lincoln Drew Elementary	1667 East 118th Street, Los Angeles 90059	0.10 mile north
3	Carver Elementary	1425 East 120th Street, Los Angeles 90059	0.21 mile west
4	Harriet Tubman High School	12501 South Wilmington Avenue, Compton 90222	0.25 mile south
5	Cesar Chavez Alternative School and Compton Community Day Middle School	12051 South Wilmington Avenue, Compton 90222	0.25 mile south
6	New Designs Charter School	1339 East 120th Street, Los Angeles 90059	0.28 mile northwest
7	Los Angeles Computer Science Academy	2209 East 118th Street, Los Angeles 90059	0.36 mile northeast
8	Ronald E. Mc Nair Elementary	1450 West El Segundo Boulevard, Compton, 90222	0.41 mile south
9	Martin Luther King Elementary	2270 East 122nd Street, Compton 90222	0.43 mile east
10	Willowbrook Middle School	2601 North Wilmington Avenue, Compton 90222	0.47 mile south

Additional single-family and multiple-family residences are located in the surrounding community, within 0.25 mile (1,320 feet) of the proposed project site and visitors, staff, and certain other individuals on the campus that would potentially be exposed to emissions would also be considered sensitive receptors.

2.4 SIGNIFICANCE THRESHOLDS

The proposed project's air quality and greenhouse gas emission impacts can be separated into short-term impacts due to construction and long-term or permanent impacts from project operation. Both types of impacts may occur on a local or regional scale. The potential for the proposed project to result in impacts related to air quality and greenhouse gas emissions was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. Would the proposed project:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including release in emissions which exceed quantitative thresholds for ozone precursor);

- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people;
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The County relies on significance thresholds recommended by the SCAQMD in its *CEQA Air Quality Handbook*, as revised in November 1993 and approved by the SCAQMD's Board of Directors to determine whether projects will have significant impacts to air quality.[53] The SCAQMD's emission thresholds apply to all federally regulated air pollutants except lead, which is not exceeded in the Basin.

The SCAQMD is currently in the process of preparing a new air quality handbook, *AQMD Air Quality Analysis Guidance Handbook*. Supplemental details related to air quality analysis are available online at SCAQMD's Web site.[54] Proposed chapters will be posted there as they become available. The revisions completed to date make no change in significance thresholds or analysis methodology.

There are currently no established thresholds of significance for evaluating GHG emissions under CEQA. As previously mentioned, no federal or State agency (e.g. USEPA, CARB, or SCAQMD) responsible for managing air quality emissions in the County has adopted a GHG emission significance threshold that may be used in reviewing newly proposed projects.

CAPCOA has provided several approaches to consider potential cumulative significance of projects with respect to GHGs.[55] A zero threshold approach can be considered based on the concept that climate change is a global phenomenon and all GHG emissions generated throughout the earth contribute to climate change. However, the California Environmental Quality Act (CEQA) Guidelines also recognizes that there may be a point where a project's contribution, although above zero, would not be a considerable contribution to the cumulative impact (CEQA Guidelines, Section 15130 (a)). Therefore, a threshold of greater than zero is considered more appropriate for the analysis of GHG emissions under CEQA. CAPCOA's summary of suggested thresholds for GHG emissions includes efficiency-based thresholds, quantitative emission limits, and limits on the size of projects (Table 2.4-1, *CAPCOA-Suggested Thresholds for Greenhouse Gases*).

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[53] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[54] South Coast Air Quality Management District. Accessed July 6, 2010. Air Quality Analysis Guidance Handbook. Web site. Available at: http://www.aqmd.gov/ceqa/hdbk.html

[55] California Air Pollution Control Office Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.* Sacramento, CA.

TABLE 2.4-1
CAPCOA-SUGGESTED THRESHOLDS FOR GREENHOUSE GASES

	CAPCOA Suggested Threshold
Quantitative (900 tons)	~900 tons CO_{2e}/year
Quantitative CARB Reporting Threshold/Cap and Trade	Report: 25,000 tons CO_{2e}/year Cap and Trade: 10,000 tons CO_{2e}/year
Quantitative Regulated Inventory Capture	~40,000 - 50,000 tons CO_{2e}/year
Unit-Based Threshold Based on Market Capture	Commercial space > 50,000 square feet
Projects of Statewide, Regional or Areawide Significance	Office Space > 250,000 square feet

SOURCE: California Air Pollution Control Office Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.* Sacramento, CA.

2.4.1 Construction Phase Significance Criteria

The significance criteria for the construction phase of the proposed project include the following:

- SCAQMD regional construction emission thresholds for CO, volatile organic compounds (VOCs), NO_x, SO_x, $PM_{2.5}$, and PM_{10} as presented in Table 2.4.1-1, *SCAQMD Daily Construction Emission Thresholds of Significance*
- Localized emissions of 10.4 micrograms per cubic meter averaged over a 24 hour period of PM_{10} or $PM_{2.5}$ at a sensitive receptor
- Emissions of Toxic Air Contaminants (TACs) including carcinogens and non-carcinogens - Maximum Incremental Cancer Risk ≥ 10 in 1 million; Hazard Index ≥1.0 (project increment)
- Odor nuisance pursuant to SCAQMD's Rule 402
- Inconsistency with the goal to reduce GHG emissions to 1990 levels (approximately 427 million metric tons or 10 metric tons of CO_{2e} per capita) by 2020 as required by AB 32

TABLE 2.4.1-1
SCAQMD DAILY CONSTRUCTION EMISSION THRESHOLDS OF SIGNIFICANCE

Criteria Air Pollutant	**Project Construction (lbs/day)**
Carbon monoxide (CO)	550
Volatile organic compounds (VOCs)	75
Nitrogen oxides (NO_x)	100
Sulfur oxides (SO_x)	150
Fine particulates ($PM_{2.5}$)	55
Particulates (PM_{10})	150

SOURCE: South Coast Air Quality Management District. 1993; accessed 6 July 2010. Air Quality Analysis Guidance Handbook. Web site. Available at: http://www.aqmd.gov/ceqa/hdbk.html

2.4.2 Operational Phase Significance Criteria

The significance criteria for the operational phase of the proposed project include the following:

- Daily SCAQMD operational emissions thresholds for CO, VOCs, NO_x, SO_x, $PM_{2.5}$, and PM_{10} as presented in Table 2.4.2-1, *SCAQMD Daily Operational Emission Thresholds of Significance*

- The CAAQS for the 1- and 8-hour periods of CO concentrations of 20 ppm and 9.0 ppm, respectively. If CO concentrations currently exceed the CAAQS, then an incremental increase of 1.0 ppm over "no project" conditions for the 1-hour period would be considered a significant impact. An incremental increase of 0.45 ppm over the "no project" conditions for the 8-hour period would be considered significant

- Emissions of TACs

- Odor nuisance pursuant to SCAQMD's Rule 402

- Inconsistency with the goal to reduce GHG emissions to 1990 levels (approximately 427 million metric tons or 10 metric tons of CO_{2e} per capita) by 2020 as required by AB 32

TABLE 2.4.2-1
SCAQMD DAILY OPERATIONAL EMISSION THRESHOLDS OF SIGNIFICANCE

Criteria Air Pollutant	Project Operation (lbs/day)
Carbon monoxide (CO)	550
Volatile organic compounds (VOCs)	55
Nitrogen oxides (NO_x)	55
Sulfur oxides (SO_x)	150
Fine particulates ($PM_{2.5}$)	55
Particulates (PM_{10})	150

SOURCE: South Coast Air Quality Management District. 1993; accessed 6 July 2010. Air Quality Analysis Guidance Handbook. Web site. Available at: http://www.aqmd.gov/ceqa/hdbk.html

2.5 IMPACT ANALYSIS

This section analyzes the potential for significant impacts to air quality that would occur from implementation of the proposed project. Air quality impacts of a project generally fall into four major categories:

1. *Construction Impacts*: temporary impacts, including airborne dust from grading, demolition, and dirt hauling and gaseous emissions from heavy equipment, delivery and dirt hauling trucks, employee vehicles, and paints and coatings.

   Construction emissions vary substantially from day to day, depending on the level of construction phase and weather conditions.

2. *Operational Regional Impacts*: primarily gaseous emissions from natural gas and electricity usage and vehicles traveling to and from a project site.

3. *Operational Local Impacts*: increases in pollutant concentrations, primarily carbon monoxide, resulting from traffic increases in the immediate vicinity of a project, as well as any toxic and odor emissions generated on site.

4. *Cumulative Impacts*: air quality changes resulting from the incremental impact of the project when added to other projects in the vicinity as well as cumulative global climate change impacts

2.5.1 Assessment Methods and Models

Among the modeling tools recommended by SCAQMD, four (4) tools, CALINE4, URBEMIS, EMFAC, and AERMOD, were used to quantitatively evaluate the proposed project's potential impacts to criteria pollutant emission levels.

Methodology to assess the proposed project's impacts on global climate change has not been developed by SCAQMD, state, or federal agencies. No significance thresholds have been established to determine the project's construction and operational impacts on global climate change. Given the absence of methodology and thresholds to evaluate global climate change impacts of the proposed project and the challenges associated with determining criteria for the proposed project-specific significance in regards to GHG emissions, the proposed project's global climate change impacts were analyzed qualitatively according to its operational scenario, size, and location. To quantify the amount of GHG emissions contributed by construction and operation of the proposed project, the URBEMIS 2007 emissions model, the EMFAC 2007 model, and the CCAR General Reporting Protocol were used. Typically, the more energy used during operation of the proposed project, the more GHG emissions will be contributed by the proposed project. Therefore, the quantitative analysis on the proposed project's potential impacts to global climate change also includes the analysis on energy consumption that will be required during its operational phase. Due to the absence of adopted significance criteria and thresholds for GHG emissions, the level of significance of the proposed project's potential impacts to global climate change will be determined by comparing the GHG emissions per capita to the GHG emissions per capita required to reduce California's GHG emissions to 1990 levels (10 metric tons per capita) by 2020 as required by AB 32, as well as the suggested thresholds by CAPCOA.[56]

CALINE4

The SCAQMD recommends that a CO hotspots analysis with CALINE4 be performed if a project results in increasing congestion whereby the LOS of an intersection is changed from C to D or if there is a two percent increase in the volume to capacity ratio of any intersection rated D or worse. As it is anticipated that the proposed project would result in an increase in congestion that would result in a LOS of D or worse at several of the analyzed intersections prior to implementation of traffic mitigation measures, CO hotspots analysis was performed based on a simplified CALINE4 screening procedure developed by the Bay Area Air Quality Management District and accepted by the SCAQMD. This simplified procedure is intended as a screening method that identifies potential CO hotspots. The CALINE4 screening method was used for the six intersections that would experience the greatest increases in traffic volumes as a result of the proposed project. In order to obtain the most conservative results, it was assumed that sensitive receptors were located at the edge of each roadway.

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[56] California Air Pollution Control Office Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.* Sacramento, CA.

For each intersection analyzed, roadway-specific CO emissions calculated from peak-hour traffic volumes were added to the background CO concentrations. The emission factors used in the CALINE4 calculations were from the EMFAC 2007 model.

URBEMIS Model

The methodology used to analyze construction and operational air quality impacts is consistent with the methods described in the 1993 *CEQA Air Quality Handbook.*[57] The CARB URBEMIS 2007, version 9.2.4, was used to estimate construction emissions from the demolition of up to four buildings (the existing Multi-service Ambulatory Care Center (MACC) Building, Emergency Room, Storage Building, and Cooling Towers) and the construction of approximately 156,700 square feet of new buildings during Tier I and up to approximately 1,814,696 square feet of new buildings during Tier II, although it is understood that the net new development proposed on the campus is less than the approximately 1.8 million square feet. URBEMIS is a computer program that can be used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, and office buildings; area sources such as gas appliances, wood stoves, fireplaces, and landscape maintenance equipment; and construction projects. The URBEMIS 2007 model directly calculates VOCs, NO_x, CO, SO_2, PM_{10}, $PM_{2.5}$, and CO_2 emissions. SCAQMD regional significance thresholds were used to compare the project's regional construction emission impacts to determine project significance. URBEMIS 2007, version 9.2.4, was also used to analyze the proposed project's operational emissions, which would likely result from the vehicle trips to and from the proposed project site, and area source emissions, which would likely result from natural gas combustion and landscaping activities within the vicinity of the proposed project site. Because the proposed project site does not contain an industrial component that is considered a lead emission source, the concentrations and emissions of lead were not analyzed for the proposed project. The URBEMIS 2007 model was used for analysis of construction impacts to air quality and CO_2 emissions based on the construction scenario described as an element of Section 1.0, *Introduction*.

Assumptions listed in the following were made to perform the air quality technical analysis using the URBEMIS 2007, version 9.2.4 emission model:

1. The proposed project was assumed to consist of a 38-acre development.

2. Tier 1 project construction was assumed to take 37 months in maximum from March 2011 to April 2014.
3. Six construction phases were assumed for Tier I. The activities undertaken within each phase would be as follows:

03/16/2011–04/14/2011:	Demolition
04/15/2011–05/17/2011:	Mass site grading
05/18/2011–08/15/2011:	Trenching
08/16/2011–12/15/2013:	Building construction
12/16/2013–02/12/2014:	Paving
02/13/2014–04/15/2014:	Architectural coating

4. The construction of Tier II was set to cover a ten year period from 2010 to 2020 with eight overlapping phases, each containing the same construction equipment and construction phases as assumed for Tier I:

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[57] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

Phase 1 of Tier II: 11/01/2010–11/30/2013
Phase 2 of Tier II: 11/01/2011–11/30/2014
Phase 3 of Tier II: 11/01/2012–11/30/2015
Phase 4 of Tier II: 11/01/2013–11/30/2016
Phase 5 of Tier II: 11/01/2014–11/30/2017
Phase 6 of Tier II: 11/01/2015–11/30/2018
Phase 7 of Tier II: 11/01/2016–11/30/2019
Phase 8 of Tier II: 11/01/2017–11/30/2020

5. It was assumed that a maximum of 1.25 acres would be disturbed daily during grading.

6. It was assumed that 40,000 cubic yards of soil would be exported during mass site grading.

7. The build-out year for Tier I was set to 2014 and the build-out year from Tier II was set to 2020.

8. The winter temperature was set to 60 degrees Fahrenheit and the summer temperature was set to 80 degrees Fahrenheit.

9. Tier I was assumed to require a maximum of 150 construction workers on a daily basis.

10. Tier II was assumed to require a maximum of 150 construction workers on a daily basis.

11. Consistent with the traffic study prepared for the proposed project, it was assumed that the proposed project would generate 19,677 additional daily vehicle trips upon build out of both Tier I and Tier II.

12. Default parameters, such as the horsepower and the operational duration, were used for all construction equipment anticipated to be used for the proposed project.

EMFAC 2007 Model

The CARB Emissions Factors (EMFAC) 2007 model, version 2.3, was used to evaluate the proposed project's air pollutant emissions contributed by mobile sources, such passenger cars, based on the expected vehicle fleet mix, vehicle speeds, commute distances, and temperature conditions for the estimated completion dates of Tier I and Tier II of the proposed project. The EMFAC 2007, version 2.3, which is embedded within the URBEMIS 2007 model, includes emission factors for criteria pollutants. In this analysis, fleet mix, vehicle speeds, commute distances, and temperature conditions were based on the default values in the URBEMIS 2007 and EMFAC 2007 models.

AERMOD

According to SCAQMD's localized significance threshold (LST) methodology, projects greater than 5 acres in size require air quality dispersion modeling to determine whether construction activities would cause or contribute to adverse localized air quality impacts. The criteria pollutants that are required to be analyzed are NO_x, CO, and PM. The two principal components of NO_x are NO_2 and NO, with the vast majority of NO_x emissions existing as NO. However, due to the adverse health effects that are associated with NO_2, the analysis of air quality impacts assumes all NO_X emissions are NO_2 for the purpose of modeling a worst-case scenario.

AMS/EPA Regulatory Model Improvement Committee, AERMIC Model (AERMOD) atmospheric dispersion model can be used for modeling the potential impacts of point, area, or volume sources in simple (i.e., flat) and complex (i.e., hilly) terrain. This program uses Gaussian dispersion to determine concentration of pollutants from sources based on available meteorological data. It is an accepted mathematical estimate of pollutant levels based on distance from a point source and physical conditions of equipment, site, and weather conditions. The model is limited to approximately a 50 kilometer radius, and the units of output are micrograms per cubic meter. This model was used to analyze the proposed project's short-term construction emission impacts on sensitive receptors.

Development of Tier II of the proposed project would occur over the course of 10 years. Construction activities would either occur within localized areas or concurrently at more than one development area within the 38-acre site. For the purposes of conducting conservative air quality dispersion modeling, it was assumed that the proposed project site would consist of 8 separate, approximately 5-acre development areas for Tier II, as well as the specific, known area for Tier I development (Figure 2.5.1-1, *Development Areas Used for Dispersion Modeling*), within the proposed project site. Each development area was modeled based on the worst-case daily emission scenario for each pollutant.

In accordance with SCAQMD's LST methodology, volume sources were set up to model the combustion emissions from construction equipment and area sources were set up to model the fugitive dust emissions from grading activities. Meteorological data provided by SCAQMD for the Lynwood monitoring station was used to run the dispersion model for the proposed project.

Estimated peak concentrations of NO_2 and CO generated by construction activities were added to the respective ambient concentrations to determine significance. The current peak background concentrations for NO_2, 1-hour CO, and 8-hour CO are 0.12, 6, and 4.3, respectively. Consistent with SCAQMD LST methodology, due to the fact that the Basin is currently in non-attainment for $PM_{2.5}$ and PM_{10}, the peak concentrations of $PM_{2.5}$ and PM_{10} generated by AERMOD were not added to the existing background concentrations but instead were compared directly to the SCAQMD thresholds of significance.

Dispersion modeling was not required for the operational phase of the proposed project as the main source of criteria pollutants during operation is expected to be mobile source emissions, which would not be considered to be localized impacts as they would be spread out along roadways throughout the area. SCAQMD recommends applying the LST methodology to the operational phase of a project, only if a project includes mobile sources that would spend long periods of time idling at the site, such as warehouse/transfer facilities, or stationary sources, such as boilers or combustion units.[58]

Although the campus currently contains an existing Central Plant, the proposed project would not increase the capacity of the Central Plant and would not add additional components or equipment. The proposed project does include improvements to the Central Plant, including replacing certain components with more efficient equipment that would be expect to reduce water and salt use. The existing Central Plant currently uses and will continue to use Refrigerant-134, but there will be no anticipated increases in emissions as a result of the proposed project. Due to the fact that the emissions of the Central Plant are an existing condition, no dispersion modeling is required for the proposed project.

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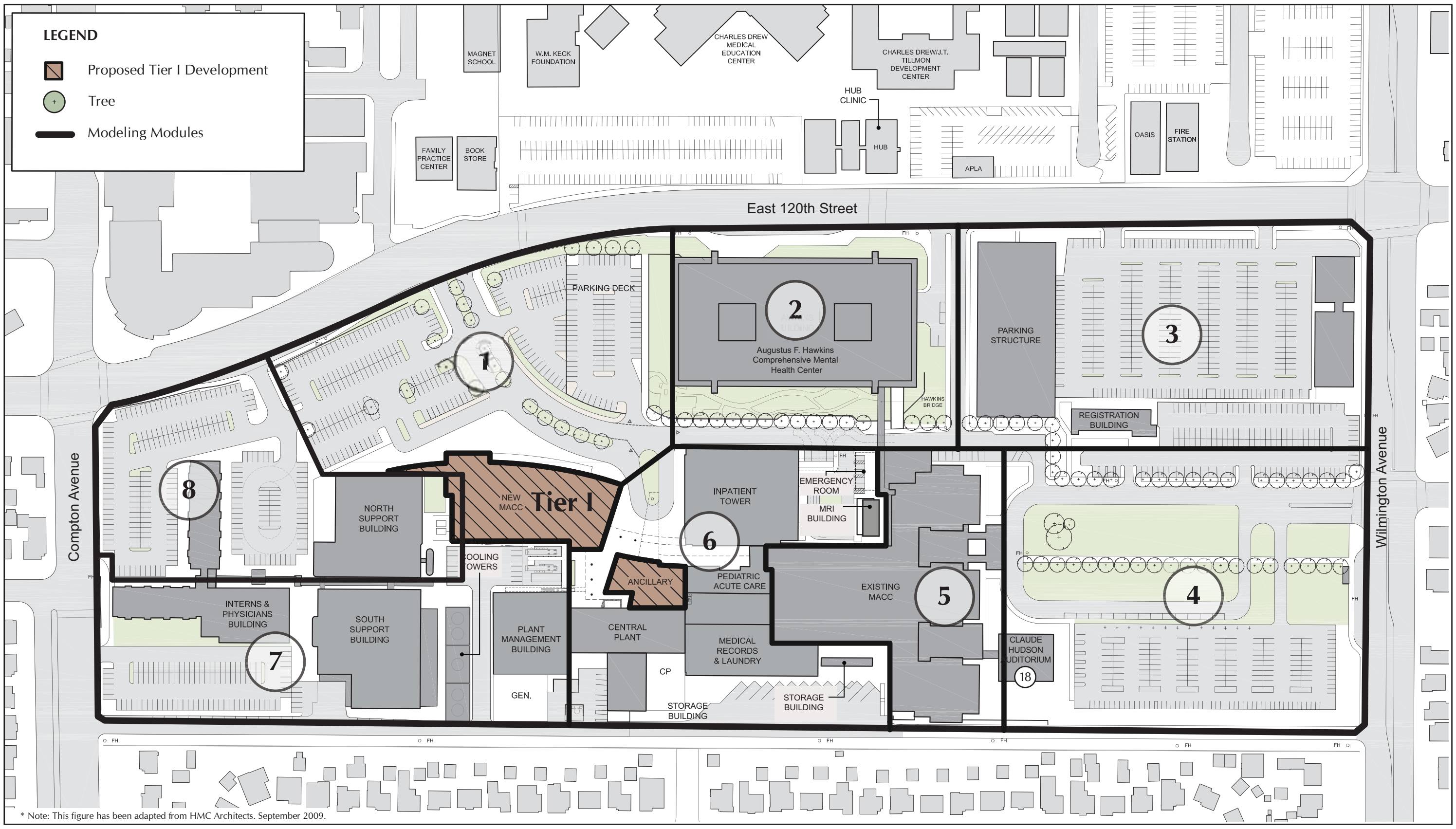
[58] SCAQMD. February 2005. Final Sample Construction Scenario Report.



* Note: This figure has been adapted from HMC Architects. September 2009.

FIGURE 2.5.1-1
Development Areas Used for Dispersion Modeling

CCAR General Reporting Protocol

Another method used to estimate the GHG emissions of the proposed project was CCAR's General Reporting Protocol, Version 3.1. The CCAR General Reporting Protocol outlines the GHG emissions reporting rules, emission calculation methodologies, and standardized recommended reporting mechanism. The CCAR General Reporting Protocol provides information on emission factors for CO_2, CH_4, N_2O, and CFCs and methodologies on how to calculate GHG emissions from annual electricity and natural gas consumption.

The methodology to quantify electricity consumption at the proposed project using the CCAR General Reporting Protocol consists of quantification of the annual electricity use required by the proposed project facilities.

2.5.2 Construction Impacts

During construction of the proposed project, there is a potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the proposed project site. The proposed project is anticipated to be developed as described in Section 1.0, *Introduction*. The timeline for construction of the different buildings at the proposed project site would result in the likelihood of overlapping construction activities. Potential emission estimates from construction activities are based on emission factors and construction scenario information for development at the proposed project site. The total amount of construction, including duration and level of construction activity occurring at the proposed project site, would influence the estimated construction emissions and resulting potential impacts. The emission forecasts are therefore based on conservative assumptions about the construction scenario, with a large amount of construction activity occurring in a relatively short time frame. In addition, worker commute trips would vary throughout the construction period. Estimates included in this analysis include the highest potential worker commute trips. Due to the conservative nature of these assumptions, actual emissions from the individual construction projects would most likely be less than the estimates forecasted.

Construction emissions are expected to result from the following activities:

- Demolition of existing structures
- Site grading
- Soil removal
- Delivery and hauling of construction materials and equipment
- Fuel combustion by on-site construction equipment
- Construction worker commute trips
- Application of architectural coatings
- Asphalt operations

The proposed project would include the demolition of up to four buildings. The primary air pollutants emitted during demolition of existing structures and site preparation (i.e., site excavation, grading, and soil removal) activities would be fugitive dust emissions. The delivery and hauling of construction materials and equipment, the use of heavy-duty construction equipment, and the construction workers' commute trips from and to the proposed project site would primarily result in NO_x emissions. During the application of architectural coating and asphalt paving operations, VOCs would likely be released. The construction air impacts assessment considers each of these potential emission sources; however, the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions can contribute to substantial variations in daily construction emissions.

The demolition of the structures shall be preceded by asbestos abatement, as necessary. The contractor shall comply with requirements of SCAQMD Rule 1403 regarding asbestos control during demolition. This rule ensures that if there is any asbestos present in the buildings scheduled for demolition, it is removed and encapsulated prior to demolition so that no asbestos fibers are released. The SCAQMD *CEQA Air Quality Handbook* (1993 edition) states that asbestos emissions from a project are fully mitigated and do not present a significant impact when the project is in compliance with Rule 1403. In addition, should any contamination be found to be present in the soils in the area exposed after demolition, construction shall stop and appropriate health and safety procedures and agency coordination shall be undertaken prior to continuing work on site.

Qualitative GHG Emission Impacts

Tier I

Tier I project construction is anticipated to take up to 37 months with build-out anticipated in 2014. During construction, standard heavy-duty construction equipment would be operated. The relatively small size of the area under construction (approximately 5 acres) and the relatively short duration of construction activities (up to 37 months) would not be expected to result in substantial emissions of GHGs. In addition, it is anticipated that mitigation measures recommended in the Air Quality Subsection 3.2.5, Mitigation Measures, of this EIR for reducing PM_{10} emissions and NO_x emissions and compliance with Leadership in Energy and Environmental Design (LEED) criteria would reduce the proposed project's GHG emission impacts during construction. Therefore, GHG emission impacts due to Tier I of the proposed project's construction phase would be expected to be below the level of significance.

Tier II

Tier II in anticipated to be completed within a ten year period from 2010 to 2020. The construction phase of Tier II of the proposed project would cover an area of approximately 38 acres in size. During construction, standard heavy-duty construction equipment would be operated. The relatively large area under construction and long duration of construction activities would be expected to result in substantial GHG emissions. Therefore, GHG emissions due to Tier II of the proposed project's construction phase may be expected to be above the level of significance.

Quantitative GHG Emission Impacts

GHG emissions during the construction phase can be attributed to emissions from demolition, excavation and construction equipment and mobile emissions from worker and vendor trips.

Tier I

Based on the methods and modeling tools previously described, Tier I construction activities would result in up to a maximum of 12,740 pounds per day of CO_2 emissions, or approximately 3,840 metric tons for the total 37-month duration of the Tier I construction phase, which is equivalent to approximately 0.0004 metric tons per capita (Table 2.5.2-1, *Tier I: Unmitigated Estimated Daily Regional Construction Emissions;* and Appendix B). The annual emissions due to construction of Tier I of the proposed project would be expected to be below the level of significance when compared to

California's GHG emissions target for 2020, 427 million metric tons per year, and the County's GHG emissions target for 2020, 108 million metric tons per year (approximately 9.6 metric tons per capita). In addition, when compared with the suggested thresholds for GHG emissions provided by CAPCOA (Table 3.5.4-1), construction of Tier I of the proposed project would not exceed the suggested cap and trade threshold of 10,000 tons CO_{2e} per year. However, construction of the proposed project may be expected to be above the level of significance if CAPCOA's suggested quantitative threshold of 900 tons of CO_{2e} per year is used. On this basis, and specific to this proposed project only, and because the County is attempting to evaluate the impacts of the proposed project from a conservative worst-case scenario, it can be conservatively determined that the GHG emission impacts due to construction of Tier I of the proposed project may be above the level of significance. (Table 2.5.2-2, *Tier I: Unmitigated Estimated Daily Regional Construction Emissions;* and Appendix B).

TABLE 2.5.2-1
TIER I: UNMITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

Construction Phase	CO_2 Emissions (Pounds/ Day)	Duration of Construction Phase (days)	CO_2 Emissions (Metric tons)	CO_2 Emissions (Metric tons per capita)
Demolition	1,915	22	19	0.0000
Mass Site Grading	9,743	23	102	0.0000
Trenching	3,150	64	91	0.0000
Building Construction[1]	11,890	609	3,284	0.0003
Paving	1,565	43	31	0.0000
Architectural Coating	107	44	2	0.0000
90 worker trips	850	805	310	0.0000
Maximum Total	**12,740**	**805**	**3,840**	**0.0004**

NOTE: Metric tons per capita were calculated using the 2014 population projection for the County.

Tier II

Tier II construction activities would result in up to a maximum of 37,088 pounds per day of CO_2 emissions, or approximately 37,804 metric tons for the total 10-year duration of the Tier II construction phase, which is equivalent to approximately 0.0033 metric tons per capita (Table 2.5.2-2, *Tier II: Unmitigated Estimated Daily Regional Construction Emissions*). The annual emissions during construction of Tier II would be a maximum of 4,206 metric tons per year, or 0.0004 metric tons per capita per year. The annual emissions due to construction of Tier II of the proposed project would be expected to be below the level of significance when compared to California's GHG emissions target for 2020, 427 million metric tons per year, and the County's GHG emissions target for 2020, 108 million metric tons per year (approximately 9.6 metric tons per capita). In addition, when compared with the suggested thresholds for GHG emissions provided by CAPCOA (Table 2.4-1), construction of Tier II of the proposed project would not exceed the suggested cap and trade threshold of 10,000 tons CO_{2e} per year. However, construction of the proposed project may be expected to be above the level of significance if CAPCOA's suggested quantitative threshold of 900 tons of CO_{2e} per year is used. On this basis, and specific to this proposed project only, and because the County is attempting to evaluate the impacts of the proposed project from a conservative worst-case scenario, it can be conservatively determined that the GHG emission impacts due to construction of Tier II of the proposed project may be above the level of significance.

TABLE 2.5.2-2
TIER II: UNMITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

Year	CO_2 Emissions (Pounds/Day)	Duration of Construction Phase (days)	CO_2 Emissions (Metric tons)	CO_2 Emissions (Metric tons per capita)
2010	9,743	45	199	0.0000
2011	21,968	260	2,591	0.0002
2012	33,857	260	3,993	0.0004
2013	35,668	260	4,206	0.0004
2014	35,668	260	4,206	0.0004
2015	35,668	260	4,206	0.0004
2016	35,667	260	4,206	0.0004
2017	35,667	260	4,206	0.0004
2018	35,667	260	4,206	0.0004
2019	23,778	260	2,804	0.0002
2020	11,889	239	1,289	0.0001
150 worker trips	1,420	2,624	1,690	0.0001
Maximum Total	**37,088**	**2,624**	**37,804**	**0.0033**

NOTE: Metric tons per capita were calculated using the 2020 population projection for the County.

Criteria Pollutant Impacts

Tier I

Daily regional construction emissions were estimated by using the URBEMIS 2007 emissions model for the construction scenario for Tier I (Table 2.5.2-3, *Tier I: Unmitigated Estimated Daily Regional Construction Emissions,* and Appendix B*)*. The daily regional construction emissions associated with the proposed project's construction activities for Tier I would not be expected to exceed the SCAQMD regional significance thresholds. Construction of Tier I is currently projected to take approximately 37 months in total. Therefore, regional construction impacts related to the emission of criteria pollutants would be expected to be below the level of significance.

TABLE 2.5.2-3
TIER I: UNMITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

Construction Phase	Construction Emissions (Pounds/Day)					
	VOCs	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
Demolition	3	21	13	0	1	1
Mass Site Grading	7	79	33	<1	9	29
Trenching	4	31	20	0	2	2
Building Construction[1]	10	81	42	<1	3	3
Paving	2	14	11	0	1	1
Architectural Coating	74	<1	0	0	<1	0
90 worker trips	<1	1	6	<1	<1	1
Maximum Regional Total	**74**	**82**	**48**	<1	**9**	**30**
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

It is mandatory for all construction projects in the South Coast Air Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Amended on June 3, 2005, the Fugitive Dust Rule 403 requires actions to prevent, reduce, or mitigate fugitive dust emissions of particulate matter in the ambient air as a result of any anthropogenic activities that are capable of generating fugitive dusts. Compliance with Rule 403 would reduce regional PM_{10} emissions associated with grading activities by at least 60 percent.

Tier II

Daily regional construction emissions were estimated by using the URBEMIS 2007 emissions model for the construction scenario for Tier II (Table 2.5.2-4, *Tier II: Unmitigated Estimated Daily Regional Construction Emissions)*. The daily regional construction emissions associated with the proposed project's construction activities for Tier II would be expected to exceed the SCAQMD regional significance thresholds for VOCs and NO_x due to the potential for overlap of the construction phases. Therefore, regional construction impacts related to the emission of criteria pollutants would be expected to be above the level of significance.

TABLE 2.5.2-4
TIER II: UNMITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

	Maximum Construction Emissions (Pounds/Day)					
Year	**VOCs**	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
2010	7	79	34	<1	9	29
2011	16	156	75	<1	11	32
2012	25	217	111	<1	14	34
2013	94	207	116	<1	13	34
2014	94	185	112	<1	12	33
2015	93	166	108	<1	11	32
2016	90	148	105	<1	10	31
2017	88	131	102	<1	10	31
2018	85	118	99	<1	4	5
2019	80	70	65	<1	3	3
2020	76	31	32	<1	1	1
150 worker trips	1	1	7	<1	<1	2
Maximum Regional Total	95	218	123	<1	14	36
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

It is mandatory for all construction projects in the South Coast Air Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Amended on June 3, 2005, the Fugitive Dust Rule 403 requires actions to prevent, reduce, or mitigate fugitive dust emissions of particulate matter in the ambient air as a result of any anthropogenic activities that are capable of generating fugitive dusts. Compliance with Rule 403 would reduce regional PM_{10} emissions associated with grading activities by at least 60 percent.[59]

Toxic Air Contaminants

Tier I

Toxic air contaminant (TAC) impacts at the proposed project site would primarily result from diesel particulate emissions associated with heavy-duty equipment operations and have been analyzed by using the standard health risks assessment methodology to determine "Individual Cancer Risk" of a person continuously exposed to TACs over a 70-year lifetime. Due to the relatively short-term construction schedule of approximately 37 months, construction-related TAC emissions due to construction of Tier I of the proposed project would be expected to be below the level of significance.

Tier II

Toxic air contaminant (TAC) impacts at the proposed project site would primarily result from diesel particulate emissions associated with heavy-duty equipment operations and have been analyzed by using the standard health risks assessment methodology to determine "Individual Cancer Risk" of a person continuously exposed to TACs over a 70-year lifetime. Construction of the proposed project

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[59] Sapphos Environmental, Inc. July 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Air Quality and Greenhouse Gas Emissions Technical Impact Report*. Pasadena, CA.

is anticipated to occur within a 10-year time period. Despite the relatively long time frame currently set for construction activities for Tier II, construction equipment would not be anticipated to operate every day throughout the 10 year timeframe. It is anticipated that construction would occur in distinct phases, between which would be periods of inactivity. In addition, the USEPA adopted low sulfur diesel fuel standards in 2006, which reduce the TAC emissions from diesel engines. Therefore, construction-related TAC emissions of the proposed project would be expected to be below the level of significance.

Odor Impacts

Tier I

Odor impacts at the proposed project site would primarily result from equipment exhaust, application of architectural coatings, and asphalt operation. However, since odors are normally localized and would be confined to the proposed project site, an odor nuisance is not likely to happen. The construction of the proposed project would use typical construction equipment, and odors at the proposed project site would be typical for most construction sites. In addition, construction of the proposed project is required to comply with SCAQMD Rule 402; therefore, odor impacts resulting from construction activities for Tier I of the proposed project would be expected to be below the level of significance.

Tier II

Odor impacts at the proposed project site would primarily result from equipment exhaust, application of architectural coatings, and asphalt operation. However, since odors are normally localized and would be confined to the proposed project site, an odor nuisance is not likely to happen. The construction of the proposed project would use typical construction equipment, and odors at the proposed project site would be typical for most construction sites. In addition, construction of the proposed project is required to comply with SCAQMD Rule 402; therefore, odor impacts resulting from construction activities of the proposed project would be expected to be below the level of significance.

Sensitive Receptors

Due to the large amount of construction activities required for complete build-out of the proposed project, sensitive receptors would have the potential be expected to be significantly affected by emissions of criteria pollutants. SCAQMD Sample LST Spreadsheets were used for the daily maximum emissions generated by a construction worst-case scenario for each phase of construction that were inputted into AEMOD for dispersion modeling (Table 2.5.2-5, *Peak SCAQMD Emissions from Sample LST Spreadsheets*; and Appendix C, *SCAQMD Sample LST Spreadsheets*).

TABLE 2.5.2-5
PEAK SCAQMD EMISSIONS FROM SAMPLE LST SPREADSHEETS

Construction Phase	Construction Emissions (Pounds/Day)			
	NO_x	CO	$PM_{2.5}$	PM_{10}
Demolition	29.6	16.7	1.9	3.8
Grading and Trenching	29.4	16.0	2.0	4.8
Building	84.7	36.6	2.9	3.3
Architectural Coating and Paving	22.3	14.1	1.4	1.5

Dispersion modeling using AERMOD was performed for the closest sensitive receptor (Table 2.3.8.1) as well as single-family residences located adjacent to the southern boundary of the proposed project site. Estimated peak concentrations of NO_2 and CO generated by construction activities were added to the respective ambient concentrations to determine significance. The current peak background concentrations for NO_2, 1-hour CO, and 8-hour CO are 0.12, 6, and 4.3, respectively (Table 2.3.6-1).

Tier I

The 1-hour and 8-hour CO emissions at the nearest sensitive receptors during construction of Tier I would not exceed the CAAQS or NAAQS, when added to the peak background concentrations (Table 2.5.2-6, *Tier I Peak Emissions at Nearest Sensitive Receptors;* and Appendix D, *AERMOD Output for the Proposed Project*). Based on the dispersion modeling results, the maximum one-hour NO_2 concentration generated by construction of the proposed project would exceed the 0.18 ppm threshold at the identified off-site receptors (Table 2.5.2-6 and Appendix D). Thus, the localized air quality impacts associated with NO_2 concentrations at sensitive receptors would have the potential to be significant. Due to the fact that the Basin is currently in non-attainment for $PM_{2.5}$ and PM_{10}, the peak concentrations of $PM_{2.5}$ and PM_{10} generated by AERMOD were not added to the existing background concentrations but instead were compared directly to the SCAQMD thresholds of significance. Based on the dispersion modeling results, PM_{10} emissions at all sensitive receptors would be below the level of significance (Table 2.5.2-6 and Appendix D).

TABLE 2.5.2-6
TIER I PEAK EMISSIONS AT NEAREST SENSITIVE RECEPTORS

Receptor Name	1-hour NO_2 (ppm)	1-hour CO (ppm)	8-hour CO (ppm)	24-hourP $M_{2.5}$ ($\mu g/m^3$)	24-hour PM_{10} ($\mu g/m^3$)
Nearest Residences	0.12	0.09	0.03	1.17	2.68
King Drew Magnet High School	0.10	0.08	0.03	2.29	5.58
Background	**0.12**	**6**	**4.3**	**N/A**	**N/A**
CAAQS	**0.18**	**20**	**9.0**	**N/A**	**N/A**
NAAQS		**35**	**9**	**35**	**35**
SCAQMD				**10.4**	**10.4**

Tier II

The 1-hour and 8-hour CO emissions at the nearest sensitive receptors during construction of Tier II would not exceed the CAAQS or NAAQS, when added to the peak background concentrations (Table 2.5.2-7, *Tier II Peak Emissions at Nearest Sensitive Receptors;* and Appendix D, *AERMOD Output for the Proposed Project*). Based on the dispersion modeling results, the maximum one-hour NO_2 concentration generated by construction of the proposed project would exceed the 0.18 ppm threshold at the identified off-site receptors (Table 2.5.2-7 and Appendix D). Thus, the localized air quality impacts associated with NO_2 concentrations at sensitive receptors would have the potential to be significant. Due to the fact that the Basin is currently in non-attainment for $PM_{2.5}$ and PM_{10}, the peak concentrations of $PM_{2.5}$ and PM_{10} generated by AERMOD were not added to the existing background concentrations but instead were compared directly to the SCAQMD thresholds of significance. Based on the dispersion modeling results, $PM_{2.5}$ and PM_{10} emissions at both of the nearest sensitive receptors would be above the level of significance prior to implementation of mitigation measures (Table 2.5.2-7 and Appendix D).

TABLE 2.5.2-7
TIER II PEAK EMISSIONS AT NEAREST SENSITIVE RECEPTORS

Receptor Name	1-hour NO_2 (ppm)	1-hour CO (ppm)	8-hour CO (ppm)	24-hourPM$_{2.5}$ (μg/m^3)	24-hour PM$_{10}$ (μg/m^3)
Nearest Residences	0.71	0.56	0.22	49.83	93.71
King Drew Magnet High School	0.62	0.49	0.20	20.90	43.68
Background	**0.12**	**6**	**4.3**	**N/A**	**N/A**
CAAQS	**0.18**	**20**	**9.0**	**N/A**	**N/A**
NAAQS		**35**	**9**	**35**	**35**
SCAQMD				**10.4**	**10.4**

2.5.3 Operational Impacts

Qualitative GHG Emission Impacts

Tier I

Tier I of the proposed project's operational phase would not be expected to result in substantial increases in GHG emissions. Due to the fact that Tier I would result in a decrease in square footage compared to existing conditions, the electricity consumption and mobile source emissions during operation of Tier I would be expected to be less than the existing conditions. In addition, operation of Tier I would be expected to emit less than significant levels of GHGs since it would incorporate green building design principles. Energy efficiency, reduction in materials and resources, and attainment of the indoor environmental quality would be integrated into the design features of Tier I to reduce or prevent GHG emissions associated with the proposed project's operation. Attainment of LEED credits and the utilization of energy-efficient equipment would be expected to be consistent with the County Energy and Environmental Policy, particularly with the Energy and Water Efficiency Program, the Environmental Stewardship Program, and the Sustainable Design Program set forth in the policy. Therefore, there would be no anticipated significant GHG emission impacts due to operation of Tier I of the proposed project.

Tier II

Incorporation of green building design principles, attainment of LEED credits and the utilization of energy-efficient equipment would be expected to reduce the operational GHG impacts of Tier II to the maximum extent feasible. However, due to the large extent of the Tier II development of the proposed project, and the large number of daily vehicle trips (19,549) expected to occur during operation of the proposed project upon full build-out, the proposed project's operational phase would be expected to result in significant and unavoidable impacts related to GHG emissions.

Quantitative GHG Emission Impacts

Over 50 percent of the electricity generated in California is derived from fossil fuels, such as natural gas and coal.[60] The combustion of fossil fuels for electricity production results in emissions of GHGs.

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[60] U.S. Environmental Protection Agency. Accessed 21 May 2009. "How Clean Is the Electricity I Use—Power Profiler." Available at: http://www.epa.gov/cleanenergy/energy-and-you/how-clean.html

Therefore, an analysis of projected electricity consumption of the proposed project is required to quantify the potential amount of GHGs emitted by the proposed project.

Two GHG emissions estimation tools, the URBEMIS 2007 model and the CCAR General Reporting Protocol, were used in evaluating the proposed project's potential GHG emission levels due to operation and maintenance. The URBEMIS 2007 model was used to estimate CO_2 emissions from on-road vehicle trips, and the CCAR General Reporting Protocol was used to estimate the CO_{2e} emissions from electricity use. (Table 2.5.3-1, *Estimated Daily Increase in Operational Emissions Due to the Proposed Project;* and Appendix E, *Operational GHG Emissions).*

TABLE 2.5.3-1
ESTIMATED DAILY INCREASE IN OPERATIONAL EMISSIONS DUE TO THE PROPOSED PROJECT

Emission Sources	CO_2 Emissions		
	Pounds/Day	**Metric Tons/Year**	**Metric Tons/Per Capita/Per Year**
Tier I Mobile Source Emissions	-40,594	-6,721	-0.0006
Tier II Mobile Source Emissions	204,009	33,776	0.0030
Net Mobile Source Emissions	**163,415**	**27,055**	**0.0024**
Tier I Electricity Consumption	-8,739	-1,447	-0.0001
Tier II Electricity Consumption	46,825	7,752	0.0007
Net Electricity Consumption	**38,085**	**6,305**	**0.0006**
Total Area Sources	**11,811**	**1,955**	**0.0002**
TOTAL EMISSIONS	**213,311**	**35,315**	**0.0032**

NOTE:

1. Metric tons per capita for Tier I and Tier II were calculated using the 2014 and 2020 population projections for the County, respectively.
2. Negative numbers indicate a decrease in emissions in comparison with existing conditions.

Tier I

Due to the fact that Tier I would reduce the existing square footage of available building space on site, Tier I would result in a decrease in emissions due to electricity consumption and mobile sources compared to existing conditions (Table 2.5.3-1). Based on a build-out year of 2014, results from the URBEMIS 2007 model suggest that CO_2 emissions associated with on-road vehicle use would be reduced by a maximum of approximately 40,560 pounds per day or 6,715 metric tons per year in comparison with existing conditions (Table 2.5.3-1). Results from the CCAR General Reporting Protocol calculations suggest that CO_{2e} emissions associated with electricity consumption would be reduced by a maximum of approximately 8,739 pounds per day or 1,447 metric tons per year in comparison with existing conditions (Table 2.5.3-1). Therefore, there would be no expected GHG emission impacts associated with operation of Tier I.

Tier II

Based on a build-out year of 2020, results from the URBEMIS 2007 model suggest that CO_2 emissions associated with on-road vehicle use would be a maximum of approximately 204,009 pounds per day or 33,776 metric tons per year upon completion of Tier II (Table 2.5.3-1). Tier II would also result in approximately 46,825 pounds per day or 7,752 metric tons of CO_{2e} emissions per year as a result of electricity consumption (Table 2.5.3-1). Using the projected 2020 population for the County, Tier II of the proposed project would be expected to contribute up to 0.004 metric tons of CO_2 per capita per year (Table 2.5.3-1).

The calculations presented do not account for the energy efficiency measures that will be incorporated into the proposed project design. For example, development of the new MACC and the Ancillary Building are currently registered with the U.S. Green Building Council under Leadership in Energy and Environmental Design for New Construction (LEED-NC).[61] The County will seek LEED Silver certification for the MACC and the Ancillary buildings.[62] The LEED program recognizes and promotes a project's success in five areas: (1) sustainable sites, (2) water efficiency, (3) energy and atmosphere efficiencies, (4) materials and resources, and (5) indoor environmental quality. In addition, the federal government has a program titled "Green Guide for Healthcare Construction" (GGHC), which is designed to help hospitals navigate through the LEED program. The proposed project would incorporate energy efficient and sustainable strategies throughout the construction, development, and operation of the proposed project. LEED requires that new construction or renovation projects achieve at least two Optimize Energy Performance points. The projects can achieve two points in this credit either by following a prescriptive compliance path or by demonstrating a percentage improvement in the proposed building performance rating compared to the baseline building performance rating of 14 percent or higher for new buildings or 7 percent or higher for existing building renovations;[63] therefore, the actual CO_{2e} emissions due to electricity consumption will be at least 14 percent less than that predicted for any buildings designed and constructed by the County.

When the worst-case scenario analysis of Tier II is compared with the suggested thresholds for GHG emissions provided by CAPCOA, operation of Tier II of the proposed project would exceed the suggested cap and trade threshold of 10,000 tons CO_{2e} per year as well as the suggested unit-based threshold of 50,000 square feet of commercial building space. On this basis, and specific to this proposed project only, and because the County is attempting to evaluate the impacts of the proposed project from a conservative worst-case scenario, it can be conservatively determined that the GHG emission impacts due to operation of the proposed project may be above the level of significance.

Criteria Pollutant Regional Impacts

The proposed project would not be anticipated to have significant impacts to air quality during operation. Long-term operational air emissions at the proposed project site are likely to result from both stationary sources (i.e., area sources from natural gas combustion and landscape maintenance equipment) and mobile sources. The URBEMIS 2007 model was used to calculate emissions from mobile and area sources (Appendix B). Mobile source emissions in the URBEMIS 2007 emissions model are based on the EMFAC 2007, version 2.3, emission inventory model, which projects emission estimates based upon the expected vehicle fleet mix for the estimated start date of the project, the vehicle speed and distance assumptions, and temperature conditions.

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[61] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[62] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[63] U.S. Green Building Council, Leadership in Energy and Environmental Design Green Building Rating System. October 2007. *New Construction and Major Renovations*. Washington, DC.

Tier I

Tier I of the proposed project would not be anticipated to have significant impacts to air quality during operation. Completion of Tier I of the proposed project would result in a decrease in square footage of facilities on the campus compared to existing conditions and a corresponding reduction in vehicle trips to and from the site. Therefore, Tier I of the proposed project would be responsible for a reduction in emissions related to mobile source emissions (Table 2.5.3-2, *Estimated Daily Operational Emissions* and Appendix B). Therefore, there would be no expected significant regional impacts due to operation of Tier I of the proposed project.

TABLE 2.5.3-2
ESTIMATED DAILY OPERATIONAL EMISSIONS

	Air Pollutants (Pounds/Day)					
Emission Sources	**VOCs**	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
Tier I Mobile Sources	-27	-34	-308	0	-13	-68
Tier II Mobile Sources	93	105	1,020	2	66	339
Total Mobile Sources	**66**	**71**	**712**	**2**	**53**	**271**
Area Sources	9	10	10	0	<1	<1
Total Emissions	**75**	**81**	**722**	**2**	**53**	**271**
SCAQMD Threshold	**55**	**55**	**550**	**150**	**55**	**150**
Exceedance of Significance?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**

Tier II

Tier II of the proposed project would be anticipated to have significant impacts to air quality during operation. Long-term operational air emissions at the proposed project site are likely to result from both stationary sources (i.e., area sources from natural gas combustion, central plant, and landscape maintenance equipment) and mobile sources. It is anticipated that Tier II of the proposed project would generate approximately 24,582 net daily vehicle trips.[64]

Daily operational emissions of SO_x and $PM_{2.5}$ would not exceed SCAQMD thresholds; however, daily operational emissions of CO, VOCs, NO_X, and PM_{10} would exceed SCAQMD thresholds (Table 2.5.3-2). Thus, the operational impacts of Tier II of the proposed project would be expected to be above the level of significance for these four criteria pollutants.

Criteria Pollutant Local Impacts

Tier I

As noted previously, completion of Tier I of the proposed project would result in a decrease in square footage of facilities on the campus compared to existing conditions and a corresponding reduction in vehicle trips to and from the site. Therefore, localized daily operational emissions would be expected to be below the level of significance.

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[64] Raju Associates, Inc. July 2010. *Traffic Study for Martin Luther King, Jr. Medical Center Campus Redevelopment Project*. Pasadena, CA.

Tier II

Carbon monoxide is considered a localized problem under Section 9.4 of SCAQMD's *CEQA Air Quality Handbook*; thus, additional analysis when a proposed project is likely to expose sensitive receptors to CO hotspots is required. Localized levels of CO concentrations from vehicles termed as CO hotspots were analyzed for Tier II of the proposed project as additional number of peak hour vehicle trips that would be added to the intersections under the existing congested condition without the proposed project. Results of the CALINE4 screening method indicated that impacts of localized concentrations of CO at sensitive receptors would be below the CAAQS and NAAQS for 1-hour and 8-hour CO concentrations (Appendix F, *CALINE4 Output for the Proposed Project)*. The CALINE4 calculations do not indicate the potential for CO hotspots. Therefore, local impacts of CO as a result of Tier II of the proposed project would be expected to be below the level of significance.

Toxic Air Contaminants

Tier I

As noted previously, completion of Tier I of the proposed project would result in a decrease in square footage of facilities on the campus compared to existing conditions and a corresponding reduction in vehicle trips to and from the site. Therefore, TAC levels would be expected to be below the level of significance.

Tier II

Toxic air contaminants impacts at the proposed project site would primarily result from diesel particulate emissions associated with heavy-duty equipment operations. The operation of Tier II of the proposed project would not generate a substantial number of heavy-duty equipment operations or daily truck trips. Delivery truck trips, during project operation, would be the only primary source contributing to the TAC level at the proposed project site. However, the number of heavy-duty delivery trucks accessing the proposed project site on a daily basis would be minimal due to the application of the proposed project as a medical and mixed use facility. In addition, other sources including manufacturing industries and automobile repair facilities are typical sources of acute and chronically hazardous TACs. Because the proposed project site does not contain manufacturing industries or automobile repair facilities, additional amounts of TACs would be less likely to be contributed to the proposed project site. Therefore, operation-related TAC emissions due to Tier II of the proposed project would be below the level of significance, and, consequently, would have a less than significant impact on human health.

Odor Impacts

Tier I

According to SCAQMD's *CEQA Air Quality Handbook*,[65] odor nuisance is associated with land uses and industrial operations including agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Since the proposed project development does not include any land uses or industrial operations that are typically associated with odor nuisance, Tier I of the proposed project would cause less than significant odor impacts. Furthermore, although on-site trash receptacles have the potential to create

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[65] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

odors, they would be maintained and controlled in a manner that controls adverse odors and complies with SCAQMD Rule 402. Therefore, operational odor impacts due to Tier I of the proposed project would be below the level of significance.

Tier II

According to SCAQMD's *CEQA Air Quality Handbook*,[66] odor nuisance is associated with land uses and industrial operations including agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Since the proposed project development does not include any land uses or industrial operations that are typically associated with odor nuisance, Tier II of the proposed project would cause less than significant odor impacts. Furthermore, although on-site trash receptacles have the potential to create odors, they would be maintained and controlled in a manner that controls adverse odors and complies with SCAQMD Rule 402. Therefore, operational odor impacts due to Tier II of the proposed project would be below the level of significance.

Sensitive Receptors

Tier I

Localized daily operational emissions, TAC levels, and odor impacts would be expected to be below the level of significance. In addition, implementation of mitigation measures, such as carpooling and the use of public transportation, would reduce NO_x emissions from mobile sources, as well as the overall NO_x emission levels, from the proposed project. Therefore, although there may be short-term related impacts, the long-term exposure of sensitive receptors to the proposed project's operational NO_x emissions would be expected to be below the level of significance.

Tier II

Localized daily operational emissions, TAC levels, and odor impacts would be expected to be below the level of significance. In addition, implementation of mitigation measures, such as carpooling and the use of public transportation, would reduce NO_x emissions from mobile sources, as well as the overall NO_x emission levels, from the proposed project. Therefore, although there may be short-term related impacts, the long-term exposure of sensitive receptors to the proposed project's operational NO_x emissions would be expected to be below the level of significance.

2.6 CUMULATIVE IMPACTS

SCAQMD's methodological framework was used to assess the proposed project's cumulative impacts. To assess cumulative impacts based on the AQMP's forecasts of attainment of ambient air quality standards set forth in the Federal and State Clean Air Acts, this methodological framework takes into account forecasted regional growth projections from SCAG. Cumulative development can affect implementation of the AQMP. The 2007 AQMP was prepared to accommodate growth, to reduce pollutants within the SCAQMD portion of the SCAB, and to minimize the impact on the economy. Growth considered to be consistent with the 2007 AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Consequently, as long as growth in the SCAB is within the projections for growth identified by SCAG,

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[66] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

implementation of the 2007 AQMP will not be obstructed by such growth and cumulative impacts would be less than significant.

Tier I

Since the proposed project would not induce substantial population growth and would be consistent with the growth projections anticipated by SCAG (as further discussed in Section 3.9, *Population and Housing,* of this EIR), Tier I of the proposed project would be expected to cause a less than significant cumulative air quality impact in relation to consistency with the AQMP.

However, it was determined that there are at least forty (40) projects (excluding the MLK campus improvements) that could affect the cumulative impact analysis of the proposed project that are anticipated to be implemented within the next year occurring within an approximate 1to 2.25 mile radius of the proposed project site (Section 2.0, *Project Description,* Table 2.6-1). According to the SCAQMD, individual construction projects that exceed the SCAQMD recommended daily thresholds for project-specific impacts would cause a cumulatively considerable increase in emissions for those pollutants for which the basin is a non-attainment area. As discussed previously, construction and operational air quality emissions from Tier I of the proposed project as analyzed in this EIR would not have the potential to be above the level of significance. Therefore, implementation of Tier I of the proposed project would not be expected to result in cumulative impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects.

Tier II

Since the proposed project would not induce substantial population growth and would be consistent with the growth projections anticipated by SCAG (as further discussed in Section 3.9, *Population and Housing,* of this EIR), Tier II of the proposed project would be expected to cause a less than significant cumulative air quality impact in relation to consistency with the AQMP.

However, it was determined that there are at least forty (40) projects (excluding the MLK campus improvements) that could affect the cumulative impact analysis of the proposed project that are anticipated to be implemented within the next year occurring within an approximate 1to 2.25 mile radius of the proposed project site (Section 2.0, *Project Description,* Table 2.6-1). According to the SCAQMD, individual construction projects that exceed the SCAQMD recommended daily thresholds for project-specific impacts would cause a cumulatively considerable increase in emissions for those pollutants for which the basin is a non-attainment area. As discussed previously, construction and operational air quality emissions from Tier II of the proposed project as analyzed in this EIR may have the potential to be above the level of significance. Therefore, implementation of Tier II of the proposed project would be expected to result in cumulative impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects.

2.7 MITIGATION MEASURES

Air quality mitigation measures are provided to reduce criteria pollutant emissions to the maximum extent feasible and to ensure compliance with SCAQMD Rule 403 Fugitive Dust to reduce, prevent, or mitigate PM_{10} emissions from the proposed project's construction phase. These mitigation measures shall be implemented for all areas of construction activities related to the proposed project (referred to as the *project* in the mitigation measures below), both on and off site.

The incorporation of GHG emission mitigation measure GHG-1 would ensure a full implementation of sustainable building design for the proposed project to assist the County in attaining the goal of reducing GHG emissions to 1990 levels by the year 2020 as required by AB 32.

The California Office of Attorney General's guidance to local agencies for addressing GHG emission impacts is recommended for consideration by the County to increase sustainability and reduce GHG emission impacts associated with operation of the proposed project.[67] Among the 52 general applicable project-level measures that can be applied to a diverse range of projects, seven (7) measures have been incorporated into the design of the proposed project.

The CARB's guidance on 44 early action measures to reduce GHG emissions has been considered by the County to reduce GHG emission impacts associated with implementation of the proposed project. In developing mitigation measures for the proposed project, only the feasible GHG emission reduction early action measures provided by the CARB that are also applicable to the proposed project have been recommended for incorporation.

2.7.1 Measure Air-1

Water or a stabilizing agent shall be applied to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element of the project, the plans and specifications shall be reviewed by the lead agency to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions, to maintain a soil moisture content of 12 percent. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the lead agency. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation.

2.7.2 Measure Air-2

Moistening or covering of excavated soil piles shall be required to treat grading areas during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.

2.7.3 Measure Air-3

Discontinuing construction activities that occur on unpaved surfaces during windy conditions shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for

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[67] California Department of Justice Office of the Attorney General. Updated 9 December 2008. *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour.

2.7.4 Measure Air-4

Track-out shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday.

2.7.5 Measure Air-5

A wheel washing system shall be installed and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site. Washing of wheels leaving the construction site during construction of each element of the project shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities.

2.7.6 Measure Air-6

All haul trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). All transport of soils to and from the project site for each element of the project shall be conducted in a manner that avoids fugitive dust emissions, ensures compliance with current air quality standards, and avoids contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site.

2.7.7 Measure Air-7

Traffic speeds on unpaved roads shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour.

2.7.8 Measure Air-8

Heavy-equipment operations shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure heavy-equipment operations be suspended during first- and second-stage smog alerts.

2.7.9 Measure Air-9

All diesel engines used for construction activities for the project that are not registered under California Air Resources Board's Statewide Portable Equipment Registration Program and have a rating of 50 horsepower (hp) or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any diesel engine larger than 50 hp, that engine shall be equipped with retrofit controls that would provide nitrogen oxide and particulate matter emissions that are equivalent to a Tier 2 engine. All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria.

2.7.10 Measure GHG-1

Prior to construction of the project, the final design plan and schemes shall be reviewed to ensure that the County of Los Angeles conforms to their commitments pursuant to the California Climate Action Registry and the GHG emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven (7) of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide (CO_2) emissions per capita:

- Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use;

- Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings;

- Create water-efficient landscapes;

- Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site.);

- Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods;

- Incorporate provisions for future public transit into project design; and

- Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio.

The review will further ensure that all applicable sustainable design measures or comparable measures have been incorporated in to the final project design.

2.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Tier I

Implementation of air quality mitigation measures Air-1 through Air-8 would reduce fugitive dust emissions associated with construction activities, which would cause daily PM2.5 and PM_{10} emissions to remain at below the SCAQMD thresholds of significance (Table 2.8-1, *Tier I: Mitigated Estimated Daily Regional Construction Emissions*, and Appendix B).

TABLE 2.8-1
TIER I: MITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

Construction Phase	**Construction Emissions (Pounds/Day)**					
	VOCs	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
Demolition	3	21	13	0	1	1
Mass Site Grading	7	79	34	<1	5	10
Trenching	4	31	20	0	2	2
Building Construction[1]	10	81	42	<1	3	3
Paving	2	14	11	0	1	1
Architectural Coating	74	<1	0	0	<1	0
90 worker trips	<1	1	6	<1	<1	1
Maximum Regional Total	**74**	**82**	**48**	<1	**5**	**11**
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Implementation of mitigation measure Air-9 would ensure that criteria pollutant emissions associated with the use of construction equipment would be reduced to the maximum extent feasible. Therefore, criteria pollutant emissions during construction would remain at below the level of significance.

Mitigation measures Air-1 through Air-9 would also ensure that cumulative air quality impacts during construction would remain at below the level of significance and that construction-related impacts to sensitive receptors would be reduced to below the level of significance.

Mitigation measure GHG-1 would reduce CO_2 emissions contributed by operation of Tier I of the proposed project, thereby assisting compliance with the goals of AB 32 to reduce CO_{2e} emissions to 1990 levels by the year 2020. Mitigation measure GHG-1 would ensure that indirect and cumulative GHG emission impacts would be reduced to the maximum extent feasible. After implementation of mitigation measure GHG-1, potential GHG emission impacts associated with operation of Tier I would remain at below the level of significance. However, cconstruction of Tier I of the proposed project may be expected to remain above the level of significance if CAPCOA's suggested quantitative threshold of 900 tons of CO_{2e} per year is used.

Tier II

Implementation of air quality mitigation measures Air-1 through Air-8 would reduce fugitive dust emissions associated with construction activities, which would cause daily $PM_{2.5}$ and PM_{10} emissions to remain at below the SCAQMD thresholds of significance (Table 2.8-2, *Tier II: Mitigated Estimated Daily Regional Construction Emissions*, and Appendix B).

TABLE 2.8-2
TIER II: MITIGATED ESTIMATED DAILY REGIONAL CONSTRUCTION EMISSIONS

	Maximum Construction Emissions (Pounds/Day)					
Year	**VOCs**	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
2010	7	79	34	<1	5	10
2011	16	156	75	<1	8	13
2012	25	217	111	<1	10	16
2013	94	207	116	<1	9	15
2014	94	185	112	<1	8	14
2015	93	166	108	<1	7	13
2016	90	148	105	<1	7	13
2017	88	131	102	<1	6	12
2018	85	118	99	<1	4	5
2019	80	70	65	<1	3	3
2020	76	31	32	<1	1	1
150 worker trips	1	1	7	<1	<1	2
Maximum Regional Total	95	218	123	<1	10	18
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Implementation of mitigation measure Air-9 would ensure that criteria pollutants emissions associated with the use of construction equipment would be reduced to the maximum extent feasible. However, VOCs and NO_x emissions during construction would still result in temporary significant and unavoidable impacts.

Mitigation measures Air-1 through Air-9 would also ensure that air quality impacts upon sensitive receptors during construction would be reduced to the maximum extent feasible. However, implementation of Tier II of the proposed project would still have the potential to result in significant impacts to sensitive receptors related to emissions of NO_x, $PM_{2.5}$, and PM_{10}.

Mitigation measures Air-1 through Air-9 would also ensure that cumulative air quality impacts during construction would be reduced to the maximum extent feasible. However, implementation of Tier II of the proposed project would still be expected to result in cumulative construction-related impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects.

As there are no feasible mitigation measures for operation of Tier II; therefore, criteria pollutant emissions from mobile sources during operation of Tier II would remain at above the level of significance.

Mitigation measure GHG-1 would reduce CO_2 emissions contributed by operation of Tier II of the proposed project, thereby assisting compliance with the goals of AB 32 to reduce CO_{2e} emissions to 1990 levels by the year 2020. Mitigation measure GHG-1 would ensure that indirect and cumulative GHG emission impacts would be reduced to the maximum extent feasible. However, potential GHG emission impacts associated with construction and operation of Tier II would remain as significant and unavoidable.

SECTION 3.0
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APPENDIX A
WIND AND CLIMATE DATA

LOS ANGELES CIVIC CENTE, CALIFORNIA

Period of Record General Climate Summary - Temperature

Station:(045115) LOS ANGELES CIVIC CENTE

From Year=1914 To Year=2006

	Monthly Averages			Daily Extremes				Monthly Extremes				Max. Temp.		Min. Temp.	
	Max.	Min.	Mean	High	Date	Low	Date	Highest Mean	Year	Lowest Mean	Year	>= 90 F	<= 32 F	<= 32 F	<= 0 F
	F	F	F	F	dd/yyyy or yyyymmdd	F	dd/yyyy or yyyymmdd	F	-	F	-	# Days	# Days	# Days	# Days
January	66.4	48.4	57.4	95	18/1971	28	04/1949	65.9	1986	46.9	1949	0.1	0.0	0.1	0.0
February	67.4	49.7	58.5	95	20/1995	34	14/1949	65.3	1995	52.7	1949	0.1	0.0	0.0	0.0
March	68.8	51.2	60.0	98	26/1988	35	04/1976	66.0	1931	54.6	1945	0.2	0.0	0.0	0.0
April	71.1	53.5	62.3	106	06/1989	39	07/1975	69.6	1992	56.0	1975	0.8	0.0	0.0	0.0
May	73.1	56.6	64.8	102	16/1967	40	12/1933	72.6	1997	58.7	1917	0.8	0.0	0.0	0.0
June	77.1	59.8	68.4	112	26/1990	49	01/1917	77.4	1981	63.4	1944	1.2	0.0	0.0	0.0
July	82.4	63.1	72.8	107	01/1985	54	09/1920	79.2	1985	66.6	1944	3.2	0.0	0.0	0.0
August	83.2	64.0	73.6	105	06/1983	53	26/1943	80.8	1983	68.1	1914	4.1	0.0	0.0	0.0
September	81.8	62.7	72.2	110	01/1955	50	22/1921	81.3	1984	64.6	1933	4.9	0.0	0.0	0.0
October	77.5	58.8	68.2	108	03/1987	41	30/1971	74.2	1983	59.7	1916	3.0	0.0	0.0	0.0
November	72.9	53.3	63.1	100	01/1966	37	28/1919	68.9	1932	58.4	1978	0.7	0.0	0.0	0.0
December	67.6	49.3	58.5	92	08/1938	30	08/1978	64.2	1939	52.6	1916	0.0	0.0	0.0	0.0
Annual	74.1	55.9	65.0	112	19900626	28	19490104	68.9	1981	60.9	1916	19.3	0.0	0.1	0.0
Winter	67.1	49.1	58.1	95	19710118	28	19490104	63.3	1986	51.0	1949	0.2	0.0	0.1	0.0
Spring	71.0	53.8	62.4	106	19890406	35	19760304	67.8	1997	57.8	1917	1.9	0.0	0.0	0.0
Summer	80.9	62.3	71.6	112	19900626	49	19170601	77.6	1981	66.4	1916	8.5	0.0	0.0	0.0
Fall	77.4	58.3	67.8	110	19550901	37	19191128	72.2	1983	61.4	1916	8.7	0.0	0.0	0.0

Table updated on Jul 28, 2006
For monthly and annual means, thresholds, and sums:
Months with 5 or more missing days are not considered
Years with 1 or more missing months are not considered
Seasons are climatological not calendar seasons

Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May

Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

Western Regional Climate Center, wrcc@dri.edu

LOS ANGELES CIVIC CENTE, CALIFORNIA

Period of Record General Climate Summary - Precipitation

Station:(045115) LOS ANGELES CIVIC CENTE														
From Year=1914 To Year=2006														
	Precipitation											Total Snowfall		
	Mean	High	Year	Low	Year	1 Day Max.		>= 0.01 in.	>= 0.10 in.	>= 0.50 in.	>= 1.00 in.	Mean	High	Year
	in.	in.	-	in.	-	in.	dd/yyyy or yyyymmdd	# Days	# Days	# Days	# Days	in.	in.	-
January	3.18	14.94	1969	0.00	1948	5.71	26/1956	6	4	2	1	0.0	0.3	1949
February	3.44	13.68	1998	0.00	1933	4.26	18/1914	6	5	2	1	0.0	0.0	1949
March	2.45	8.37	1983	0.00	1931	5.88	02/1938	6	4	2	1	0.0	0.0	1949
April	1.04	7.53	1926	0.00	1916	2.74	05/1926	4	2	1	0	0.0	0.2	1950
May	0.26	3.57	1921	0.00	1923	2.02	08/1977	1	1	0	0	0.0	0.0	1949
June	0.06	0.98	1999	0.00	1915	0.76	05/1993	1	0	0	0	0.0	0.0	1949
July	0.01	0.18	1986	0.00	1915	0.13	08/1991	0	0	0	0	0.0	0.0	1948
August	0.06	2.26	1977	0.00	1914	2.06	17/1977	0	0	0	0	0.0	0.0	1948
September	0.28	5.67	1939	0.00	1914	3.96	25/1939	1	0	0	0	0.0	0.0	1948
October	0.44	4.56	2004	0.00	1915	1.72	17/1934	2	1	0	0	0.0	0.0	1948
November	1.30	9.68	1965	0.00	1929	3.85	07/1966	3	2	1	0	0.0	0.0	1948
December	2.37	8.77	2004	0.00	1929	5.55	28/2004	5	4	2	1	0.0	0.0	1948
Annual	14.91	34.04	1983	3.85	1953	5.88	19380302	36	23	10	4	0.0	0.3	1949
Winter	9.00	29.11	2005	1.19	1924	5.71	19560126	18	13	6	3	0.0	0.3	1949
Spring	3.75	13.89	1983	0.00	1997	5.88	19380302	11	7	3	1	0.0	0.2	1950
Summer	0.13	2.26	1977	0.00	1915	2.06	19770817	1	0	0	0	0.0	0.0	1949
Fall	2.03	11.48	1965	0.00	1980	3.96	19390925	6	4	1	0	0.0	0.0	1948

Table updated on Jul 28, 2006
For monthly and annual means, thresholds, and sums:
Months with 5 or more missing days are not considered
Years with 1 or more missing months are not considered
Seasons are climatological not calendar seasons

Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May

Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

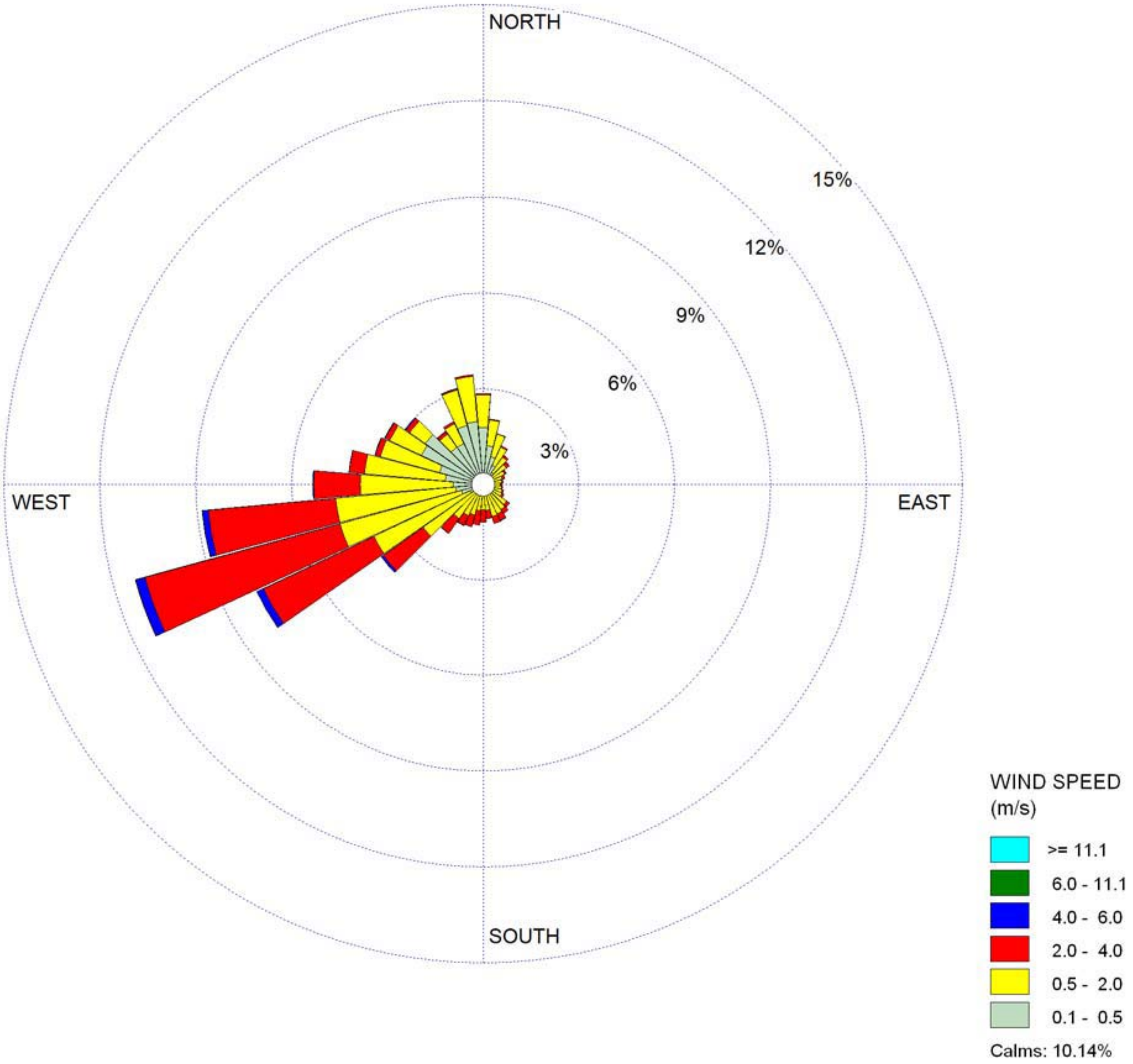
Western Regional Climate Center, wrcc@dri.edu

WIND ROSE PLOT:

Lynnwood

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

2005-2007
Jan 1 - Dec 31
00:00 - 23:00

COMPANY NAME:

County of Los Angeles

MODELER:

Sapphos Environmental, Inc.

CALM WINDS:

10.14%

TOTAL COUNT:

25852 hrs.

AVG. WIND SPEED:

1.16 m/s

DATE:

6/25/2010

PROJECT NO.:

WRPLOT View - Lakes Environmental Software

APPENDIX B
URBEMIS OUTPUT FOR THE PROPOSED PROJECT

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Existing.urb924

Project Name: Existing Conditions

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	8.00	8.31	8.51	0.00	0.02	0.02	9,948.89

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	127.19	163.79	1,471.61	1.47	240.40	46.89	143,940.08

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	135.19	172.10	1,480.12	1.47	240.42	46.91	153,888.97

6/2/2010 5:43:27 PM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Existing.urb924

Project Name: Existing Conditions

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Hospital	127.19	163.79	1,471.61	1.47	240.40	46.89	143,940.08
TOTALS (lbs/day, unmitigated)	127.19	163.79	1,471.61	1.47	240.40	46.89	143,940.08

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Hospital		14.03	1000 sq ft	1,243.26	17,442.94	139,066.54
					17,442.94	139,066.54

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.7	1.2	98.6	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	22.9	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	67.9	32.1	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Hospital				25.0	12.5	62.5

Operational Changes to Defaults

6/2/2010 5:43:16 PM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Area Source Unmitigated Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Existing.urb924

Project Name: Existing Conditions

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.60	8.29	6.96	0.00	0.01	0.01	9,946.08
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	7.28						
TOTALS (lbs/day, unmitigated)	8.00	8.31	8.51	0.00	0.02	0.02	9,948.89

Area Source Changes to Defaults

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Tier I.urb924

Project Name: MLK Tier I

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 3/16/2011-4/14/2011 Active Days: 22	2.51	19.78	12.25	0.00	0.01	1.07	1.08	0.00	0.98	0.99	1,914.56
Demolition 03/16/2011-04/14/2011	2.51	19.78	12.25	0.00	0.01	1.07	1.08	0.00	0.98	0.99	1,914.56
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.48	19.72	11.27	0.00	0.00	1.07	1.07	0.00	0.98	0.98	1,790.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37
Time Slice 4/15/2011-5/17/2011 Active Days: 23	6.68	72.23	31.68	**0.07**	**25.25**	3.13	**28.38**	**5.30**	2.88	**8.19**	9,742.82
Mass Grading 04/15/2011-05/17/2011	6.68	72.23	31.68	0.07	25.25	3.13	28.38	5.30	2.88	8.19	9,742.82
Mass Grading Dust	0.00	0.00	0.00	0.00	25.00	0.00	25.00	5.22	0.00	5.22	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	3.83	48.74	18.75	0.07	0.25	1.96	2.20	0.08	1.80	1.88	7,371.13
Mass Grading Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37
Time Slice 5/18/2011-8/15/2011 Active Days: 64	4.07	31.15	19.92	0.00	0.01	1.81	1.82	0.00	1.67	1.67	3,150.15
Trenching 05/18/2011-08/15/2011	4.07	31.15	19.92	0.00	0.01	1.81	1.82	0.00	1.67	1.67	3,150.15
Trenching Off Road Diesel	4.03	31.08	18.70	0.00	0.00	1.81	1.81	0.00	1.66	1.66	2,994.69
Trenching Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.46

Time Slice 8/16/2011-12/30/2011 Active Days: 99	9.50	**81.41**	**42.32**	0.02	0.07	**3.39**	3.46	0.02	**3.12**	3.14	**11,889.71**
Building 08/16/2011-12/15/2013	9.50	81.41	42.32	0.02	0.07	3.39	3.46	0.02	3.12	3.14	11,889.71
Building Off Road Diesel	9.08	79.38	31.58	0.00	0.00	3.30	3.30	0.00	3.03	3.03	10,368.45
Building Vendor Trips	0.13	1.47	1.25	0.00	0.01	0.06	0.07	0.00	0.06	0.06	311.42
Building Worker Trips	0.29	0.55	9.49	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.85
Time Slice 1/2/2012-12/31/2012 Active Days: 261	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building 08/16/2011-12/15/2013	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building Off Road Diesel	8.73	72.97	30.31	0.00	0.00	2.95	2.95	0.00	2.71	2.71	10,368.45
Building Vendor Trips	0.12	1.32	1.15	0.00	0.01	0.05	0.07	0.00	0.05	0.05	311.42
Building Worker Trips	0.27	0.50	8.83	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.64
Time Slice 1/1/2013-12/13/2013 Active Days: 249	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building 08/16/2011-12/15/2013	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Time Slice 12/16/2013-12/31/2013 Active Days: 12	2.34	13.92	10.69	0.00	0.01	1.16	1.17	0.00	1.07	1.07	1,564.93
Asphalt 12/16/2013-02/12/2014	2.34	13.92	10.69	0.00	0.01	1.16	1.17	0.00	1.07	1.07	1,564.93
Paving Off-Gas	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.19	13.60	8.91	0.00	0.00	1.15	1.15	0.00	1.05	1.05	1,272.04
Paving On Road Diesel	0.02	0.23	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	44.23
Paving Worker Trips	0.05	0.09	1.69	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.66

Time Slice 1/1/2014-2/12/2014 Active Days: 31	2.20	13.18	10.50	0.00	0.01	1.08	1.09	0.00	0.99	0.99	1,564.90
Asphalt 12/16/2013-02/12/2014	2.20	13.18	10.50	0.00	0.01	1.08	1.09	0.00	0.99	0.99	1,564.90
Paving Off-Gas	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.06	12.89	8.85	0.00	0.00	1.06	1.06	0.00	0.98	0.98	1,272.04
Paving On Road Diesel	0.02	0.20	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	44.23
Paving Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.64
Time Slice 2/13/2014-4/15/2014 Active Days: 44	**74.02**	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.37
Coating 02/13/2014-04/15/2014	74.02	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.37
Architectural Coating	74.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.37

Phase Assumptions

Phase: Demolition 3/16/2011 - 4/14/2011 - Default Mass Site Grading/Excavation Description

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Mass Grading 4/15/2011 - 5/17/2011 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 5

Maximum Daily Acreage Disturbed: 1.25

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1739.13

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 5/18/2011 - 8/15/2011 - Default Trenching Description
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Paving 12/16/2013 - 2/12/2014 - Default Paving Description
Acres to be Paved: 1.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 8/16/2011 - 12/15/2013 - Default Building Construction Description
Off-Road Equipment:
2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day
1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day
16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 2/13/2014 - 4/15/2014 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Tier II.urb924

Project Name: MLK Tier II

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	7.19	79.22	34.31	0.07	25.25	3.47	28.72	5.30	3.19	8.50	9,742.84
2010 TOTALS (lbs/day mitigated)	7.19	79.22	34.31	0.07	6.73	3.47	10.20	1.44	3.19	4.63	9,742.84
2011 TOTALS (lbs/day unmitigated)	16.36	155.85	74.85	0.09	25.33	6.61	31.94	5.33	6.08	11.41	21,967.58
2011 TOTALS (lbs/day mitigated)	16.36	155.85	74.85	0.09	6.81	6.61	13.43	1.46	6.08	7.55	21,967.58
2012 TOTALS (lbs/day unmitigated)	24.61	216.97	110.52	0.10	25.40	8.93	34.33	5.36	8.21	13.57	33,856.86
2012 TOTALS (lbs/day mitigated)	24.61	216.97	110.52	0.10	6.88	8.93	15.81	1.49	8.21	9.70	33,856.86
2013 TOTALS (lbs/day unmitigated)	93.70	206.68	116.20	0.10	25.39	8.58	33.57	5.35	7.88	12.88	35,668.13
2013 TOTALS (lbs/day mitigated)	86.30	206.68	116.20	0.10	6.87	8.58	15.06	1.49	7.88	9.01	35,668.13
2014 TOTALS (lbs/day unmitigated)	94.44	185.23	111.79	0.10	25.39	7.49	32.54	5.35	6.88	11.92	35,667.80

2014 TOTALS (lbs/day mitigated)	86.86	185.23	111.79	0.10	6.87	7.49	14.02	1.49	6.88	8.06	35,667.80
2015 TOTALS (lbs/day unmitigated)	93.08	165.59	108.16	0.10	25.39	6.69	31.74	5.35	6.14	11.19	35,667.54
2015 TOTALS (lbs/day mitigated)	85.51	165.59	108.16	0.10	6.87	6.69	13.23	1.49	6.14	7.33	35,667.54
2016 TOTALS (lbs/day unmitigated)	90.48	147.72	104.94	0.10	25.40	5.71	30.94	5.36	5.25	10.45	35,667.13
2016 TOTALS (lbs/day mitigated)	83.08	147.72	104.94	0.10	6.88	5.71	12.42	1.49	5.25	6.58	35,667.13
2017 TOTALS (lbs/day unmitigated)	88.00	131.47	102.48	0.11	25.41	5.41	30.59	5.36	4.97	10.12	35,666.87
2017 TOTALS (lbs/day mitigated)	80.76	131.47	102.48	0.11	6.89	5.41	12.07	1.49	4.97	6.25	35,666.87
2018 TOTALS (lbs/day unmitigated)	85.45	117.59	99.44	0.05	0.20	4.57	4.77	0.07	4.20	4.27	35,666.70
2018 TOTALS (lbs/day mitigated)	78.21	117.59	99.44	0.05	0.20	4.57	4.77	0.07	4.20	4.27	35,666.70
2019 TOTALS (lbs/day unmitigated)	80.24	69.98	65.29	0.03	0.14	2.87	3.01	0.05	2.63	2.68	23,777.73
2019 TOTALS (lbs/day mitigated)	72.84	69.98	65.29	0.03	0.14	2.87	3.01	0.05	2.63	2.68	23,777.73
2020 TOTALS (lbs/day unmitigated)	75.73	31.23	31.94	0.02	0.07	1.17	1.24	0.02	1.08	1.10	11,888.84
2020 TOTALS (lbs/day mitigated)	68.16	31.23	31.94	0.02	0.07	1.17	1.24	0.02	1.08	1.10	11,888.84

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.21	1.05	3.94	0.00	0.01	0.01	1,221.62

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OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	18.54	27.01	239.92	0.32	51.28	9.97	30,655.45

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	19.75	28.06	243.86	0.32	51.29	9.98	31,877.07

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Tier I Worker Trips.urb924

Project Name: Tier I Worker Trips

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Medical office building	0.47	0.70	6.25	0.01	1.42	0.28	850.01
TOTALS (lbs/day, unmitigated)	0.47	0.70	6.25	0.01	1.42	0.28	850.01

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Medical office building		90.00	1000 sq ft	1.00	90.00	823.99
					90.00	823.99

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.1	0.4	99.4	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	23.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.8	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Medical office building				7.0	3.5	89.5

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Operational Changes to Defaults

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Tier II.urb924

Project Name: MLK Tier II

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 11/1/2010-11/30/2010 Active Days: 22	2.67	20.93	12.91	0.00	0.01	1.14	1.15	0.00	1.05	1.05	1,914.59
Demolition 11/01/2010-11/30/2010	2.67	20.93	12.91	0.00	0.01	1.14	1.15	0.00	1.05	1.05	1,914.59
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.64	20.87	11.86	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,790.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.39
Time Slice 12/1/2010-12/31/2010 Active Days: 23	7.19	79.22	34.31	0.07	25.25	3.47	28.72	5.30	3.19	8.50	9,742.84
Mass Grading 12/01/2010-12/31/2010	7.19	79.22	34.31	0.07	25.25	3.47	28.72	5.30	3.19	8.50	9,742.84
Mass Grading Dust	0.00	0.00	0.00	0.00	25.00	0.00	25.00	5.22	0.00	5.22	0.00
Mass Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Mass Grading On Road Diesel	4.16	54.17	20.80	0.07	0.25	2.22	2.46	0.08	2.04	2.12	7,371.13
Mass Grading Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.39
Time Slice 1/3/2011-3/31/2011 Active Days: 64	4.07	31.15	19.92	0.00	0.01	1.81	1.82	0.00	1.67	1.67	3,150.15
Trenching 01/01/2011-03/31/2011	4.07	31.15	19.92	0.00	0.01	1.81	1.82	0.00	1.67	1.67	3,150.15
Trenching Off Road Diesel	4.03	31.08	18.70	0.00	0.00	1.81	1.81	0.00	1.66	1.66	2,994.69
Trenching Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.46

Time Slice 4/1/2011-10/31/2011 Active Days: 152	9.50	81.41	42.32	0.02	0.07	3.39	3.46	0.02	3.12	3.14	11,889.71
Building 04/01/2011-07/31/2013	9.50	81.41	42.32	0.02	0.07	3.39	3.46	0.02	3.12	3.14	11,889.71
Building Off Road Diesel	9.08	79.38	31.58	0.00	0.00	3.30	3.30	0.00	3.03	3.03	10,368.45
Building Vendor Trips	0.13	1.47	1.25	0.00	0.01	0.06	0.07	0.00	0.06	0.06	311.42
Building Worker Trips	0.29	0.55	9.49	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.85
Time Slice 11/1/2011-11/30/2011 Active Days: 22	12.01	101.19	54.57	0.02	0.07	4.46	4.54	0.03	4.10	4.13	13,804.27
Building 04/01/2011-07/31/2013	9.50	81.41	42.32	0.02	0.07	3.39	3.46	0.02	3.12	3.14	11,889.71
Building Off Road Diesel	9.08	79.38	31.58	0.00	0.00	3.30	3.30	0.00	3.03	3.03	10,368.45
Building Vendor Trips	0.13	1.47	1.25	0.00	0.01	0.06	0.07	0.00	0.06	0.06	311.42
Building Worker Trips	0.29	0.55	9.49	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.85
Demolition 11/01/2011-11/30/2011	2.51	19.78	12.25	0.00	0.01	1.07	1.08	0.00	0.98	0.99	1,914.56
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.48	19.72	11.27	0.00	0.00	1.07	1.07	0.00	0.98	0.98	1,790.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37
Time Slice 12/1/2011-12/30/2011 Active Days: 22	16.36	155.85	74.85	0.09	25.33	6.61	31.94	5.33	6.08	11.41	21,967.58
Building 04/01/2011-07/31/2013	9.50	81.41	42.32	0.02	0.07	3.39	3.46	0.02	3.12	3.14	11,889.71
Building Off Road Diesel	9.08	79.38	31.58	0.00	0.00	3.30	3.30	0.00	3.03	3.03	10,368.45
Building Vendor Trips	0.13	1.47	1.25	0.00	0.01	0.06	0.07	0.00	0.06	0.06	311.42
Building Worker Trips	0.29	0.55	9.49	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.85
Mass Grading 12/01/2011-12/31/2011	6.86	74.45	32.54	0.07	25.26	3.22	28.48	5.31	2.96	8.27	10,077.87
Mass Grading Dust	0.00	0.00	0.00	0.00	25.00	0.00	25.00	5.22	0.00	5.22	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	4.00	50.95	19.60	0.07	0.26	2.05	2.30	0.08	1.88	1.97	7,706.18
Mass Grading Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37

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Time Slice 1/2/2012-3/30/2012 Active Days: 65	12.92	104.00	59.60	0.02	0.08	4.68	4.75	0.03	4.30	4.33	15,039.63
Building 04/01/2011-07/31/2013	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building Off Road Diesel	8.73	72.97	30.31	0.00	0.00	2.95	2.95	0.00	2.71	2.71	10,368.45
Building Vendor Trips	0.12	1.32	1.15	0.00	0.01	0.05	0.07	0.00	0.05	0.05	311.42
Building Worker Trips	0.27	0.50	8.83	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.64
Trenching 01/01/2012-03/31/2012	3.80	29.21	19.31	0.00	0.01	1.65	1.65	0.00	1.51	1.52	3,150.12
Trenching Off Road Diesel	3.77	29.15	18.18	0.00	0.00	1.64	1.64	0.00	1.51	1.51	2,994.69
Trenching Worker Trips	0.03	0.06	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.43
Time Slice 4/2/2012-10/31/2012 Active Days: 153	18.24	149.58	80.58	0.03	0.14	6.07	6.20	0.05	5.58	5.63	23,779.01
Building 04/01/2011-07/31/2013	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building Off Road Diesel	8.73	72.97	30.31	0.00	0.00	2.95	2.95	0.00	2.71	2.71	10,368.45
Building Vendor Trips	0.12	1.32	1.15	0.00	0.01	0.05	0.07	0.00	0.05	0.05	311.42
Building Worker Trips	0.27	0.50	8.83	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.64
Building 04/01/2012-07/31/2014	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building Off Road Diesel	8.73	72.97	30.31	0.00	0.00	2.95	2.95	0.00	2.71	2.71	10,368.45
Building Vendor Trips	0.12	1.32	1.15	0.00	0.01	0.05	0.07	0.00	0.05	0.05	311.42
Building Worker Trips	0.27	0.50	8.83	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.64

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Time Slice 11/1/2012-11/30/2012 Active Days: 22	20.61	168.26	92.24	0.03	0.14	7.05	7.20	0.05	6.48	6.53	25,693.56
Building 04/01/2011-07/31/2013	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building Off Road Diesel	8.73	72.97	30.31	0.00	0.00	2.95	2.95	0.00	2.71	2.71	10,368.45
Building Vendor Trips	0.12	1.32	1.15	0.00	0.01	0.05	0.07	0.00	0.05	0.05	311.42
Building Worker Trips	0.27	0.50	8.83	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.64
Building 04/01/2012-07/31/2014	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building Off Road Diesel	8.73	72.97	30.31	0.00	0.00	2.95	2.95	0.00	2.71	2.71	10,368.45
Building Vendor Trips	0.12	1.32	1.15	0.00	0.01	0.05	0.07	0.00	0.05	0.05	311.42
Building Worker Trips	0.27	0.50	8.83	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.64
Demolition 11/01/2012-11/30/2012	2.37	18.67	11.67	0.00	0.01	0.99	0.99	0.00	0.91	0.91	1,914.54
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.35	18.62	10.76	0.00	0.00	0.98	0.98	0.00	0.90	0.90	1,790.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.35

Time Slice 12/3/2012-12/31/2012 Active Days: 21	24.61	**216.97**	110.52	0.10	25.40	**8.93**	**34.33**	5.36	**8.21**	**13.57**	33,856.86
Building 04/01/2011-07/31/2013	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building Off Road Diesel	8.73	72.97	30.31	0.00	0.00	2.95	2.95	0.00	2.71	2.71	10,368.45
Building Vendor Trips	0.12	1.32	1.15	0.00	0.01	0.05	0.07	0.00	0.05	0.05	311.42
Building Worker Trips	0.27	0.50	8.83	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.64
Building 04/01/2012-07/31/2014	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building Off Road Diesel	8.73	72.97	30.31	0.00	0.00	2.95	2.95	0.00	2.71	2.71	10,368.45
Building Vendor Trips	0.12	1.32	1.15	0.00	0.01	0.05	0.07	0.00	0.05	0.05	311.42
Building Worker Trips	0.27	0.50	8.83	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.64
Mass Grading 12/01/2012-12/31/2012	6.37	67.39	29.95	0.07	25.26	2.87	28.13	5.31	2.64	7.94	10,077.85
Mass Grading Dust	0.00	0.00	0.00	0.00	25.00	0.00	25.00	5.22	0.00	5.22	0.00
Mass Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
Mass Grading On Road Diesel	3.66	45.39	17.53	0.07	0.26	1.79	2.05	0.08	1.65	1.73	7,706.18
Mass Grading Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.35
Time Slice 1/1/2013-3/29/2013 Active Days: 64	21.02	165.18	96.17	0.03	0.14	7.23	7.37	0.05	6.65	6.70	26,928.86
Building 04/01/2011-07/31/2013	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Building 04/01/2012-07/31/2014	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Trenching 01/01/2013-03/31/2013	3.61	27.39	18.71	0.00	0.01	1.51	1.52	0.00	1.39	1.39	3,150.10
Trenching Off Road Diesel	3.58	27.33	17.65	0.00	0.00	1.51	1.51	0.00	1.39	1.39	2,994.69
Trenching Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.41

Time Slice 4/1/2013-7/31/2013 Active Days: 88	26.11	206.68	**116.20**	0.05	0.20	8.58	8.78	0.07	7.88	7.96	**35,668.13**
Building 04/01/2011-07/31/2013	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Building 04/01/2012-07/31/2014	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Building 04/01/2013-07/31/2015	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Time Slice 8/1/2013-9/30/2013 Active Days: 43	19.75	151.71	88.16	0.03	0.15	6.88	7.03	0.05	6.32	6.38	25,343.68
Asphalt 08/01/2013-09/30/2013	2.34	13.92	10.69	0.00	0.01	1.16	1.17	0.00	1.07	1.07	1,564.93
Paving Off-Gas	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.19	13.60	8.91	0.00	0.00	1.15	1.15	0.00	1.05	1.05	1,272.04
Paving On Road Diesel	0.02	0.23	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	44.23
Paving Worker Trips	0.05	0.09	1.69	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.66
Building 04/01/2012-07/31/2014	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Building 04/01/2013-07/31/2015	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49

Time Slice 10/1/2013-10/31/2013 Active Days: 23	91.43	137.83	78.19	0.03	0.14	5.72	5.86	0.05	5.26	5.31	23,886.13
Building 04/01/2012-07/31/2014	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Building 04/01/2013-07/31/2015	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Coating 10/01/2013-11/30/2013	74.02	0.04	0.73	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.38
Architectural Coating	74.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.73	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.38

Time Slice 11/1/2013-11/29/2013 Active Days: 21	93.70	155.46	89.28	0.03	0.15	6.62	6.77	0.05	6.09	6.14	25,800.66
Building 04/01/2012-07/31/2014	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Building 04/01/2013-07/31/2015	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Coating 10/01/2013-11/30/2013	74.02	0.04	0.73	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.38
Architectural Coating	74.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.73	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.38
Demolition 11/01/2013-11/30/2013	2.27	17.63	11.09	0.00	0.01	0.90	0.91	0.00	0.83	0.83	1,914.53
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.25	17.58	10.24	0.00	0.00	0.90	0.90	0.00	0.82	0.82	1,790.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33

Time Slice 12/2/2013-12/31/2013 Active Days: 22	23.15	196.70	104.26	0.10	25.39	8.19	33.57	5.35	7.53	12.88	33,521.54
Building 04/01/2012-07/31/2014	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Building 04/01/2013-07/31/2015	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Mass Grading 12/01/2013-12/31/2013	5.74	58.91	26.79	0.07	25.25	2.47	27.72	5.30	2.27	7.57	9,742.78
Mass Grading Dust	0.00	0.00	0.00	0.00	25.00	0.00	25.00	5.22	0.00	5.22	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	3.17	38.30	14.85	0.07	0.25	1.48	1.72	0.08	1.36	1.44	7,371.13
Mass Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33
Time Slice 1/1/2014-3/31/2014 Active Days: 64	19.95	149.05	92.70	0.03	0.14	6.34	6.48	0.05	5.82	5.88	26,928.62
Building 04/01/2012-07/31/2014	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Building 04/01/2013-07/31/2015	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Trenching 01/01/2014-03/31/2014	3.39	25.56	18.17	0.00	0.01	1.34	1.35	0.00	1.24	1.24	3,150.09
Trenching Off Road Diesel	3.36	25.50	17.19	0.00	0.00	1.34	1.34	0.00	1.23	1.23	2,994.69
Trenching Worker Trips	0.03	0.05	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.40

Time Slice 4/1/2014-7/31/2014 Active Days: 88	24.85	185.23	111.79	0.05	0.20	7.49	7.69	0.07	6.88	6.95	35,667.80
Building 04/01/2012-07/31/2014	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Building 04/01/2013-07/31/2015	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Building 04/01/2014-07/31/2016	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Time Slice 8/1/2014-9/30/2014 Active Days: 43	18.76	136.66	85.03	0.03	0.15	6.07	6.22	0.05	5.58	5.63	25,343.44
Asphalt 08/01/2014-09/30/2014	2.20	13.18	10.50	0.00	0.01	1.08	1.09	0.00	0.99	0.99	1,564.90
Paving Off-Gas	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.06	12.89	8.85	0.00	0.00	1.06	1.06	0.00	0.98	0.98	1,272.04
Paving On Road Diesel	0.02	0.20	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	44.23
Paving Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.64
Building 04/01/2013-07/31/2015	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Building 04/01/2014-07/31/2016	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38

Time Slice 10/1/2014-10/31/2014 Active Days: 23	92.31	123.53	75.22	0.03	0.14	5.00	5.14	0.05	4.59	4.64	23,888.40
Building 04/01/2013-07/31/2015	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Building 04/01/2014-07/31/2016	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Coating 10/01/2014-11/30/2014	75.74	0.04	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.86
Architectural Coating	75.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.86

Time Slice 11/3/2014-11/28/2014 Active Days: 20	**94.44**	140.04	85.83	0.03	0.15	5.81	5.96	0.05	5.34	5.39	25,802.91
Building 04/01/2013-07/31/2015	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Building 04/01/2014-07/31/2016	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Coating 10/01/2014-11/30/2014	75.74	0.04	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.86
Architectural Coating	75.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.86
Demolition 11/01/2014-11/30/2014	2.13	16.51	10.61	0.00	0.01	0.82	0.82	0.00	0.75	0.75	1,914.51
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.11	16.47	9.82	0.00	0.00	0.81	0.81	0.00	0.75	0.75	1,790.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.02	0.04	0.79	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.32

Time Slice 12/1/2014-12/31/2014 Active Days: 23	21.85	176.13	99.12	0.10	25.39	7.15	32.54	5.35	6.57	11.92	33,521.31
Building 04/01/2013-07/31/2015	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Building 04/01/2014-07/31/2016	8.28	61.74	37.26	0.02	0.07	2.50	2.56	0.02	2.29	2.32	11,889.27
Building Off Road Diesel	7.96	60.30	28.64	0.00	0.00	2.42	2.42	0.00	2.23	2.23	10,368.45
Building Vendor Trips	0.10	1.02	0.98	0.00	0.01	0.04	0.05	0.00	0.04	0.04	311.45
Building Worker Trips	0.22	0.42	7.64	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.38
Mass Grading 12/01/2014-12/31/2014	5.29	52.65	24.59	0.07	25.25	2.16	27.41	5.30	1.98	7.29	9,742.77
Mass Grading Dust	0.00	0.00	0.00	0.00	25.00	0.00	25.00	5.22	0.00	5.22	0.00
Mass Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Mass Grading On Road Diesel	2.85	33.53	13.07	0.07	0.25	1.27	1.51	0.08	1.17	1.25	7,371.13
Mass Grading Worker Trips	0.02	0.04	0.79	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.32
Time Slice 1/1/2015-3/31/2015 Active Days: 64	18.48	133.81	89.76	0.03	0.14	5.69	5.83	0.05	5.23	5.28	26,928.43
Building 04/01/2013-07/31/2015	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Building 04/01/2014-07/31/2016	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Trenching 01/01/2015-03/31/2015	3.14	23.42	17.65	0.00	0.01	1.23	1.24	0.00	1.13	1.14	3,150.07
Trenching Off Road Diesel	3.12	23.37	16.74	0.00	0.00	1.23	1.23	0.00	1.13	1.13	2,994.69
Trenching Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.39

Time Slice 4/1/2015-7/31/2015 Active Days: 88	23.00	165.59	108.16	0.05	0.20	6.69	6.89	0.07	6.14	6.22	35,667.54
Building 04/01/2013-07/31/2015	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Building 04/01/2014-07/31/2016	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Building 04/01/2015-07/31/2017	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Time Slice 8/3/2015-9/30/2015 Active Days: 43	17.40	122.72	82.41	0.03	0.15	5.45	5.60	0.05	5.01	5.06	25,342.24
Asphalt 08/01/2015-09/30/2015	2.07	12.32	10.31	0.00	0.01	0.99	1.00	0.00	0.91	0.92	1,563.88
Paving Off-Gas	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.93	12.07	8.78	0.00	0.00	0.98	0.98	0.00	0.90	0.90	1,272.04
Paving On Road Diesel	0.02	0.17	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	43.22
Paving Worker Trips	0.04	0.08	1.46	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.62
Building 04/01/2014-07/31/2016	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Building 04/01/2015-07/31/2017	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27

Time Slice 10/1/2015-10/30/2015 Active Days: 22	91.08	110.43	72.75	0.03	0.14	4.46	4.60	0.05	4.10	4.15	23,888.21
Building 04/01/2014-07/31/2016	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Building 04/01/2015-07/31/2017	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Coating 10/01/2015-11/30/2015	75.74	0.04	0.65	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.85
Architectural Coating	75.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.65	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.85

Time Slice 11/2/2015-11/30/2015 Active Days: 21	93.08	125.80	82.87	0.03	0.15	5.21	5.36	0.05	4.79	4.84	25,802.72
Building 04/01/2014-07/31/2016	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Building 04/01/2015-07/31/2017	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Coating 10/01/2015-11/30/2015	75.74	0.04	0.65	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.85
Architectural Coating	75.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.65	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.85
Demolition 11/01/2015-11/30/2015	2.01	15.37	10.11	0.00	0.01	0.75	0.75	0.00	0.69	0.69	1,914.50
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.99	15.33	9.38	0.00	0.00	0.74	0.74	0.00	0.68	0.68	1,790.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.02	0.04	0.73	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.31

Time Slice 12/1/2015-12/31/2015 Active Days: 23	20.17	157.18	94.71	0.10	25.39	6.36	31.74	5.35	5.84	11.19	33,521.12
Building 04/01/2014-07/31/2016	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Building 04/01/2015-07/31/2017	7.67	55.20	36.05	0.02	0.07	2.23	2.30	0.02	2.05	2.07	11,889.18
Building Off Road Diesel	7.38	53.91	28.03	0.00	0.00	2.16	2.16	0.00	1.98	1.98	10,368.45
Building Vendor Trips	0.09	0.90	0.90	0.00	0.01	0.04	0.05	0.00	0.03	0.04	311.46
Building Worker Trips	0.20	0.39	7.12	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.27
Mass Grading 12/01/2015-12/31/2015	4.84	46.79	22.60	0.07	25.25	1.90	27.15	5.30	1.74	7.05	9,742.76
Mass Grading Dust	0.00	0.00	0.00	0.00	25.00	0.00	25.00	5.22	0.00	5.22	0.00
Mass Grading Off Road Diesel	2.26	17.50	10.40	0.00	0.00	0.81	0.81	0.00	0.74	0.74	2,247.32
Mass Grading On Road Diesel	2.56	29.24	11.48	0.07	0.25	1.08	1.33	0.08	1.00	1.08	7,371.13
Mass Grading Worker Trips	0.02	0.04	0.73	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.31
Time Slice 1/1/2016-3/31/2016 Active Days: 65	17.52	119.94	87.16	0.03	0.14	4.91	5.05	0.05	4.51	4.56	26,928.15
Building 04/01/2014-07/31/2016	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Building 04/01/2015-07/31/2017	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Trenching 01/01/2016-03/31/2016	2.94	21.46	17.20	0.00	0.01	1.10	1.11	0.00	1.01	1.02	3,150.06
Trenching Off Road Diesel	2.91	21.41	16.35	0.00	0.00	1.10	1.10	0.00	1.01	1.01	2,994.69
Trenching Worker Trips	0.02	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.37

Time Slice 4/1/2016-7/29/2016 Active Days: 86	21.87	147.72	104.94	0.05	0.20	5.71	5.92	0.07	5.25	5.32	35,667.13
Building 04/01/2014-07/31/2016	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Building 04/01/2015-07/31/2017	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Building 04/01/2016-07/31/2018	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Time Slice 8/1/2016-9/30/2016 Active Days: 45	16.51	109.99	80.11	0.03	0.15	4.70	4.85	0.05	4.32	4.37	25,340.98
Asphalt 08/01/2016-09/30/2016	1.93	11.51	10.15	0.00	0.01	0.90	0.91	0.00	0.82	0.83	1,562.89
Paving Off-Gas	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.80	11.29	8.72	0.00	0.00	0.88	0.88	0.00	0.81	0.81	1,272.04
Paving On Road Diesel	0.01	0.15	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.01	42.26
Paving Worker Trips	0.04	0.07	1.37	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.59
Building 04/01/2015-07/31/2017	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Building 04/01/2016-07/31/2018	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13

Time Slice 10/3/2016-10/31/2016 Active Days: 21	88.60	98.51	70.55	0.03	0.14	3.81	3.95	0.05	3.50	3.55	23,885.43
Building 04/01/2015-07/31/2017	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Building 04/01/2016-07/31/2018	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Coating 10/01/2016-11/30/2016	74.02	0.03	0.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.34
Architectural Coating	74.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.34

Time Slice 11/1/2016-11/30/2016 Active Days: 22	90.48	112.84	80.23	0.03	0.15	4.51	4.66	0.05	4.14	4.20	25,799.92
Building 04/01/2015-07/31/2017	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Building 04/01/2016-07/31/2018	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Coating 10/01/2016-11/30/2016	74.02	0.03	0.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.34
Architectural Coating	74.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.34
Demolition 11/01/2016-11/30/2016	1.88	14.33	9.68	0.00	0.01	0.70	0.71	0.00	0.64	0.65	1,914.49
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.87	14.29	8.99	0.00	0.00	0.70	0.70	0.00	0.64	0.64	1,790.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.02	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.29

Time Slice 12/1/2016-12/30/2016 Active Days: 22	19.16	141.50	91.38	0.10	25.40	5.54	30.94	5.36	5.09	10.45	33,855.88
Building 04/01/2015-07/31/2017	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Building 04/01/2016-07/31/2018	7.29	49.24	34.98	0.02	0.07	1.90	1.97	0.02	1.75	1.77	11,889.04
Building Off Road Diesel	7.02	48.09	27.49	0.00	0.00	1.84	1.84	0.00	1.69	1.69	10,368.45
Building Vendor Trips	0.08	0.79	0.84	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.47
Building Worker Trips	0.19	0.36	6.65	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.13
Mass Grading 12/01/2016-12/31/2016	4.58	43.02	21.42	0.07	25.26	1.73	27.00	5.31	1.60	6.90	10,077.79
Mass Grading Dust	0.00	0.00	0.00	0.00	25.00	0.00	25.00	5.22	0.00	5.22	0.00
Mass Grading Off Road Diesel	2.13	16.07	10.09	0.00	0.00	0.75	0.75	0.00	0.69	0.69	2,247.32
Mass Grading On Road Diesel	2.43	26.92	10.64	0.07	0.26	0.98	1.23	0.08	0.90	0.98	7,706.18
Mass Grading Worker Trips	0.02	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.29
Time Slice 1/2/2017-3/31/2017 Active Days: 65	16.59	107.24	85.11	0.03	0.14	4.60	4.74	0.05	4.22	4.27	26,927.96
Building 04/01/2015-07/31/2017	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Building 04/01/2016-07/31/2018	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Trenching 01/01/2017-03/31/2017	2.77	19.60	16.79	0.00	0.01	0.99	1.00	0.00	0.91	0.91	3,150.04
Trenching Off Road Diesel	2.75	19.55	15.99	0.00	0.00	0.98	0.98	0.00	0.91	0.91	2,994.69
Trenching Worker Trips	0.02	0.04	0.80	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.35

Time Slice 4/3/2017-7/31/2017 Active Days: 86	20.74	131.47	102.48	0.05	0.20	5.41	5.62	0.07	4.97	5.04	35,666.87
Building 04/01/2015-07/31/2017	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Building 04/01/2016-07/31/2018	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Building 04/01/2017-07/31/2019	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Time Slice 8/1/2017-9/29/2017 Active Days: 44	15.64	98.43	78.31	0.03	0.15	4.43	4.58	0.05	4.07	4.12	25,341.74
Asphalt 08/01/2017-09/30/2017	1.82	10.78	9.99	0.00	0.01	0.82	0.84	0.00	0.76	0.76	1,563.83
Paving Off-Gas	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.58	8.67	0.00	0.00	0.81	0.81	0.00	0.75	0.75	1,272.04
Paving On Road Diesel	0.01	0.13	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	43.22
Paving Worker Trips	0.04	0.07	1.27	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.57
Building 04/01/2016-07/31/2018	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Building 04/01/2017-07/31/2019	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03

Time Slice 10/2/2017-10/31/2017 Active Days: 22	86.20	87.68	68.86	0.03	0.14	3.61	3.75	0.05	3.32	3.37	23,882.86
Building 04/01/2016-07/31/2018	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Building 04/01/2017-07/31/2019	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Coating 10/01/2017-11/30/2017	72.37	0.03	0.54	0.00	0.00	0.00	0.01	0.00	0.00	0.00	104.95
Architectural Coating	72.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.54	0.00	0.00	0.00	0.01	0.00	0.00	0.00	104.95

Time Slice 11/1/2017-11/30/2017 Active Days: 22	88.00	101.02	78.14	0.03	0.15	4.24	4.39	0.05	3.90	3.95	25,797.34
Building 04/01/2016-07/31/2018	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Building 04/01/2017-07/31/2019	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Coating 10/01/2017-11/30/2017	72.37	0.03	0.54	0.00	0.00	0.00	0.01	0.00	0.00	0.00	104.95
Architectural Coating	72.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.54	0.00	0.00	0.00	0.01	0.00	0.00	0.00	104.95
Demolition 11/01/2017-11/30/2017	1.80	13.34	9.28	0.00	0.01	0.63	0.64	0.00	0.58	0.58	1,914.48
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.78	13.30	8.64	0.00	0.00	0.63	0.63	0.00	0.58	0.58	1,790.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.02	0.03	0.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.28

Time Slice 12/1/2017-12/29/2017 Active Days: 21	18.20	127.39	88.74	**0.11**	**25.41**	5.18	30.59	**5.36**	4.76	10.12	34,222.66
Building 04/01/2016-07/31/2018	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Building 04/01/2017-07/31/2019	6.91	43.82	34.16	0.02	0.07	1.80	1.87	0.02	1.66	1.68	11,888.96
Building Off Road Diesel	6.67	42.79	27.18	0.00	0.00	1.74	1.74	0.00	1.60	1.60	10,368.45
Building Vendor Trips	0.08	0.70	0.78	0.00	0.01	0.03	0.04	0.00	0.03	0.03	311.48
Building Worker Trips	0.17	0.33	6.20	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,209.03
Mass Grading 12/01/2017-12/31/2017	4.37	39.75	20.42	0.08	25.27	1.57	26.84	5.31	1.44	6.76	10,444.75
Mass Grading Dust	0.00	0.00	0.00	0.00	25.00	0.00	25.00	5.22	0.00	5.22	0.00
Mass Grading Off Road Diesel	2.03	14.69	9.80	0.00	0.00	0.68	0.68	0.00	0.62	0.62	2,247.32
Mass Grading On Road Diesel	2.32	25.03	9.98	0.08	0.27	0.89	1.16	0.09	0.82	0.91	8,073.14
Mass Grading Worker Trips	0.02	0.03	0.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.28
Time Slice 1/1/2018-3/30/2018 Active Days: 65	15.64	96.25	82.71	0.03	0.14	3.92	4.07	0.05	3.60	3.65	26,927.83
Building 04/01/2016-07/31/2018	6.54	39.20	33.15	0.02	0.07	1.52	1.59	0.02	1.40	1.42	11,888.90
Building Off Road Diesel	6.31	38.26	26.64	0.00	0.00	1.46	1.46	0.00	1.34	1.34	10,368.45
Building Vendor Trips	0.07	0.63	0.73	0.00	0.01	0.03	0.04	0.00	0.02	0.03	311.50
Building Worker Trips	0.16	0.30	5.78	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.96
Building 04/01/2017-07/31/2019	6.54	39.20	33.15	0.02	0.07	1.52	1.59	0.02	1.40	1.42	11,888.90
Building Off Road Diesel	6.31	38.26	26.64	0.00	0.00	1.46	1.46	0.00	1.34	1.34	10,368.45
Building Vendor Trips	0.07	0.63	0.73	0.00	0.01	0.03	0.04	0.00	0.02	0.03	311.50
Building Worker Trips	0.16	0.30	5.78	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.96
Trenching 01/01/2018-03/31/2018	2.56	17.86	16.42	0.00	0.01	0.88	0.88	0.00	0.81	0.81	3,150.03
Trenching Off Road Diesel	2.54	17.82	15.68	0.00	0.00	0.87	0.87	0.00	0.80	0.80	2,994.69
Trenching Worker Trips	0.02	0.04	0.74	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.35

Time Slice 4/2/2018-7/31/2018 Active Days: 87	19.62	117.59	99.44	0.05	0.20	4.57	4.77	0.07	4.20	4.27	35,666.70
Building 04/01/2016-07/31/2018	6.54	39.20	33.15	0.02	0.07	1.52	1.59	0.02	1.40	1.42	11,888.90
Building Off Road Diesel	6.31	38.26	26.64	0.00	0.00	1.46	1.46	0.00	1.34	1.34	10,368.45
Building Vendor Trips	0.07	0.63	0.73	0.00	0.01	0.03	0.04	0.00	0.02	0.03	311.50
Building Worker Trips	0.16	0.30	5.78	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.96
Building 04/01/2017-07/31/2019	6.54	39.20	33.15	0.02	0.07	1.52	1.59	0.02	1.40	1.42	11,888.90
Building Off Road Diesel	6.31	38.26	26.64	0.00	0.00	1.46	1.46	0.00	1.34	1.34	10,368.45
Building Vendor Trips	0.07	0.63	0.73	0.00	0.01	0.03	0.04	0.00	0.02	0.03	311.50
Building Worker Trips	0.16	0.30	5.78	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.96
Building 04/01/2018-07/31/2020	6.54	39.20	33.15	0.02	0.07	1.52	1.59	0.02	1.40	1.42	11,888.90
Building Off Road Diesel	6.31	38.26	26.64	0.00	0.00	1.46	1.46	0.00	1.34	1.34	10,368.45
Building Vendor Trips	0.07	0.63	0.73	0.00	0.01	0.03	0.04	0.00	0.02	0.03	311.50
Building Worker Trips	0.16	0.30	5.78	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.96
Time Slice 8/1/2018-9/28/2018 Active Days: 43	14.79	88.48	76.16	0.03	0.15	3.80	3.95	0.05	3.49	3.54	25,342.62
Asphalt 08/01/2018-09/30/2018	1.71	10.09	9.87	0.00	0.01	0.75	0.76	0.00	0.69	0.69	1,564.82
Paving Off-Gas	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.59	9.90	8.63	0.00	0.00	0.74	0.74	0.00	0.68	0.68	1,272.04
Paving On Road Diesel	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	44.23
Paving Worker Trips	0.03	0.06	1.19	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.55
Building 04/01/2017-07/31/2019	6.54	39.20	33.15	0.02	0.07	1.52	1.59	0.02	1.40	1.42	11,888.90
Building Off Road Diesel	6.31	38.26	26.64	0.00	0.00	1.46	1.46	0.00	1.34	1.34	10,368.45
Building Vendor Trips	0.07	0.63	0.73	0.00	0.01	0.03	0.04	0.00	0.02	0.03	311.50
Building Worker Trips	0.16	0.30	5.78	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.96
Building 04/01/2018-07/31/2020	6.54	39.20	33.15	0.02	0.07	1.52	1.59	0.02	1.40	1.42	11,888.90
Building Off Road Diesel	6.31	38.26	26.64	0.00	0.00	1.46	1.46	0.00	1.34	1.34	10,368.45
Building Vendor Trips	0.07	0.63	0.73	0.00	0.01	0.03	0.04	0.00	0.02	0.03	311.50
Building Worker Trips	0.16	0.30	5.78	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.96

Time Slice 10/1/2018-11/30/2018 Active Days: 45	85.45	78.42	66.80	0.03	0.14	3.05	3.19	0.05	2.80	2.85	23,882.74
Building 04/01/2017-07/31/2019	6.54	39.20	33.15	0.02	0.07	1.52	1.59	0.02	1.40	1.42	11,888.90
Building Off Road Diesel	6.31	38.26	26.64	0.00	0.00	1.46	1.46	0.00	1.34	1.34	10,368.45
Building Vendor Trips	0.07	0.63	0.73	0.00	0.01	0.03	0.04	0.00	0.02	0.03	311.50
Building Worker Trips	0.16	0.30	5.78	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.96
Building 04/01/2018-07/31/2020	6.54	39.20	33.15	0.02	0.07	1.52	1.59	0.02	1.40	1.42	11,888.90
Building Off Road Diesel	6.31	38.26	26.64	0.00	0.00	1.46	1.46	0.00	1.34	1.34	10,368.45
Building Vendor Trips	0.07	0.63	0.73	0.00	0.01	0.03	0.04	0.00	0.02	0.03	311.50
Building Worker Trips	0.16	0.30	5.78	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.96
Coating 10/01/2018-11/30/2018	72.37	0.03	0.50	0.00	0.00	0.00	0.01	0.00	0.00	0.00	104.94
Architectural Coating	72.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.50	0.00	0.00	0.00	0.01	0.00	0.00	0.00	104.94
Time Slice 12/3/2018-12/31/2018 Active Days: 21	13.08	78.39	66.30	0.03	0.14	3.05	3.18	0.05	2.80	2.85	23,777.80
Building 04/01/2017-07/31/2019	6.54	39.20	33.15	0.02	0.07	1.52	1.59	0.02	1.40	1.42	11,888.90
Building Off Road Diesel	6.31	38.26	26.64	0.00	0.00	1.46	1.46	0.00	1.34	1.34	10,368.45
Building Vendor Trips	0.07	0.63	0.73	0.00	0.01	0.03	0.04	0.00	0.02	0.03	311.50
Building Worker Trips	0.16	0.30	5.78	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.96
Building 04/01/2018-07/31/2020	6.54	39.20	33.15	0.02	0.07	1.52	1.59	0.02	1.40	1.42	11,888.90
Building Off Road Diesel	6.31	38.26	26.64	0.00	0.00	1.46	1.46	0.00	1.34	1.34	10,368.45
Building Vendor Trips	0.07	0.63	0.73	0.00	0.01	0.03	0.04	0.00	0.02	0.03	311.50
Building Worker Trips	0.16	0.30	5.78	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.96

Time Slice 1/1/2019-7/31/2019 Active Days: 152	12.45	69.98	65.29	0.03	0.14	2.87	3.01	0.05	2.63	2.68	23,777.73
Building 04/01/2017-07/31/2019	6.22	34.99	32.65	0.02	0.07	1.43	1.50	0.02	1.32	1.34	11,888.86
Building Off Road Diesel	6.01	34.14	26.57	0.00	0.00	1.37	1.37	0.00	1.26	1.26	10,368.45
Building Vendor Trips	0.06	0.57	0.69	0.00	0.01	0.02	0.03	0.00	0.02	0.03	311.51
Building Worker Trips	0.14	0.28	5.39	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.91
Building 04/01/2018-07/31/2020	6.22	34.99	32.65	0.02	0.07	1.43	1.50	0.02	1.32	1.34	11,888.86
Building Off Road Diesel	6.01	34.14	26.57	0.00	0.00	1.37	1.37	0.00	1.26	1.26	10,368.45
Building Vendor Trips	0.06	0.57	0.69	0.00	0.01	0.02	0.03	0.00	0.02	0.03	311.51
Building Worker Trips	0.14	0.28	5.39	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.91
Time Slice 8/1/2019-9/30/2019 Active Days: 43	7.82	44.44	42.36	0.02	0.08	2.11	2.19	0.03	1.94	1.97	13,453.67
Asphalt 08/01/2019-09/30/2019	1.60	9.45	9.72	0.00	0.01	0.68	0.69	0.00	0.62	0.63	1,564.81
Paving Off-Gas	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.48	9.28	8.57	0.00	0.00	0.66	0.66	0.00	0.61	0.61	1,272.04
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	44.23
Paving Worker Trips	0.03	0.06	1.11	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.54
Building 04/01/2018-07/31/2020	6.22	34.99	32.65	0.02	0.07	1.43	1.50	0.02	1.32	1.34	11,888.86
Building Off Road Diesel	6.01	34.14	26.57	0.00	0.00	1.37	1.37	0.00	1.26	1.26	10,368.45
Building Vendor Trips	0.06	0.57	0.69	0.00	0.01	0.02	0.03	0.00	0.02	0.03	311.51
Building Worker Trips	0.14	0.28	5.39	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.91
Time Slice 10/1/2019-11/29/2019 Active Days: 44	80.24	35.02	33.12	0.02	0.07	1.44	1.51	0.03	1.32	1.35	11,996.19
Building 04/01/2018-07/31/2020	6.22	34.99	32.65	0.02	0.07	1.43	1.50	0.02	1.32	1.34	11,888.86
Building Off Road Diesel	6.01	34.14	26.57	0.00	0.00	1.37	1.37	0.00	1.26	1.26	10,368.45
Building Vendor Trips	0.06	0.57	0.69	0.00	0.01	0.02	0.03	0.00	0.02	0.03	311.51
Building Worker Trips	0.14	0.28	5.39	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.91
Coating 10/01/2019-11/30/2019	74.01	0.02	0.48	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.32
Architectural Coating	74.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.48	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.32

Time Slice 12/2/2019-12/31/2019 Active Days: 22	6.22	34.99	32.65	0.02	0.07	1.43	1.50	0.02	1.32	1.34	11,888.86
Building 04/01/2018-07/31/2020	6.22	34.99	32.65	0.02	0.07	1.43	1.50	0.02	1.32	1.34	11,888.86
Building Off Road Diesel	6.01	34.14	26.57	0.00	0.00	1.37	1.37	0.00	1.26	1.26	10,368.45
Building Vendor Trips	0.06	0.57	0.69	0.00	0.01	0.02	0.03	0.00	0.02	0.03	311.51
Building Worker Trips	0.14	0.28	5.39	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.91
Time Slice 1/1/2020-7/31/2020 Active Days: 153	5.91	31.23	31.94	0.02	0.07	1.17	1.24	0.02	1.08	1.10	11,888.84
Building 04/01/2018-07/31/2020	5.91	31.23	31.94	0.02	0.07	1.17	1.24	0.02	1.08	1.10	11,888.84
Building Off Road Diesel	5.72	30.45	26.28	0.00	0.00	1.12	1.12	0.00	1.03	1.03	10,368.45
Building Vendor Trips	0.06	0.52	0.65	0.00	0.01	0.02	0.03	0.00	0.02	0.02	311.52
Building Worker Trips	0.13	0.26	5.02	0.01	0.06	0.04	0.09	0.02	0.03	0.05	1,208.87
Time Slice 8/3/2020-9/30/2020 Active Days: 43	1.49	8.85	9.61	0.00	0.01	0.63	0.64	0.00	0.58	0.58	1,563.79
Asphalt 08/01/2020-09/30/2020	1.49	8.85	9.61	0.00	0.01	0.63	0.64	0.00	0.58	0.58	1,563.79
Paving Off-Gas	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.38	8.70	8.54	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,272.04
Paving On Road Diesel	0.01	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.22
Paving Worker Trips	0.03	0.05	1.03	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.53
Time Slice 10/1/2020-11/30/2020 Active Days: 43	75.73	0.02	0.46	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.82
Coating 10/01/2020-11/30/2020	75.73	0.02	0.46	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.82
Architectural Coating	75.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.46	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.82

Phase Assumptions

Phase: Demolition 11/1/2010 - 11/30/2010 - Default Mass Site Grading/Excavation Description

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Demolition 11/1/2011 - 11/30/2011 - Type Your Description Here
Building Volume Total (cubic feet): 0
Building Volume Daily (cubic feet): 0
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Demolition 11/1/2012 - 11/30/2012 - Type Your Description Here
Building Volume Total (cubic feet): 0
Building Volume Daily (cubic feet): 0
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Demolition 11/1/2013 - 11/30/2013 - Type Your Description Here
Building Volume Total (cubic feet): 0
Building Volume Daily (cubic feet): 0
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Demolition 11/1/2014 - 11/30/2014 - Type Your Description Here
Building Volume Total (cubic feet): 0
Building Volume Daily (cubic feet): 0
On Road Truck Travel (VMT): 0
Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Demolition 11/1/2015 - 11/30/2015 - Type Your Description Here
Building Volume Total (cubic feet): 0
Building Volume Daily (cubic feet): 0
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Demolition 11/1/2016 - 11/30/2016 - Type Your Description Here
Building Volume Total (cubic feet): 0
Building Volume Daily (cubic feet): 0
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Demolition 11/1/2017 - 11/30/2017 - Type Your Description Here
Building Volume Total (cubic feet): 0
Building Volume Daily (cubic feet): 0
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Mass Grading 12/1/2010 - 12/31/2010 - Default Fine Site Grading/Excavation Description
Total Acres Disturbed: 5
Maximum Daily Acreage Disturbed: 1.25
Fugitive Dust Level of Detail: Default

20 lbs per acre-day
On Road Truck Travel (VMT): 1739.13
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 12/1/2011 - 12/31/2011 - Type Your Description Here
Total Acres Disturbed: 5
Maximum Daily Acreage Disturbed: 1.25
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 1818.18
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 12/1/2012 - 12/31/2012 - Type Your Description Here
Total Acres Disturbed: 5
Maximum Daily Acreage Disturbed: 1.25
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 1818.18
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 12/1/2013 - 12/31/2013 - Type Your Description Here
Total Acres Disturbed: 5
Maximum Daily Acreage Disturbed: 1.25

Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 1739.13
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 12/1/2014 - 12/31/2014 - Type Your Description Here
Total Acres Disturbed: 5
Maximum Daily Acreage Disturbed: 1.25
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 1739.13
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 12/1/2015 - 12/31/2015 - Type Your Description Here
Total Acres Disturbed: 5
Maximum Daily Acreage Disturbed: 1.25
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 1739.13
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 12/1/2016 - 12/31/2016 - Type Your Description Here
Total Acres Disturbed: 5

Maximum Daily Acreage Disturbed: 1.25

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1818.18

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 12/1/2017 - 12/31/2017 - Type Your Description Here

Total Acres Disturbed: 5

Maximum Daily Acreage Disturbed: 1.25

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1904.76

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 1/1/2011 - 3/31/2011 - Default Trenching Description

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Trenching 1/1/2012 - 3/31/2012 - Type Your Description Here

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Trenching 1/1/2013 - 3/31/2013 - Type Your Description Here

Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Trenching 1/1/2014 - 3/31/2014 - Type Your Description Here
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Trenching 1/1/2015 - 3/31/2015 - Type Your Description Here
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Trenching 1/1/2016 - 3/31/2016 - Type Your Description Here
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Trenching 1/1/2017 - 3/31/2017 - Type Your Description Here
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Trenching 1/1/2018 - 3/31/2018 - Type Your Description Here
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Paving 8/1/2013 - 9/30/2013 - Default Paving Description
Acres to be Paved: 1.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Paving 8/1/2014 - 9/30/2014 - Type Your Description Here
Acres to be Paved: 1.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Paving 8/1/2015 - 9/30/2015 - Type Your Description Here
Acres to be Paved: 1.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Paving 8/1/2016 - 9/30/2016 - Type Your Description Here
Acres to be Paved: 1.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Paving 8/1/2017 - 9/30/2017 - Type Your Description Here
Acres to be Paved: 1.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Paving 8/1/2018 - 9/30/2018 - Type Your Description Here
Acres to be Paved: 1.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Paving 8/1/2019 - 9/30/2019 - Type Your Description Here
Acres to be Paved: 1.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Paving 8/1/2020 - 9/30/2020 - Type Your Description Here
Acres to be Paved: 1.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 4/1/2011 - 7/31/2013 - Default Building Construction Description
Off-Road Equipment:
2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day
1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day
16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 4/1/2012 - 7/31/2014 - Type Your Description Here
Off-Road Equipment:
2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day
1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day
16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 4/1/2013 - 7/31/2015 - Type Your Description Here
Off-Road Equipment:
2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day
1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day
16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 4/1/2014 - 7/31/2016 - Type Your Description Here
Off-Road Equipment:
2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day
16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 4/1/2015 - 7/31/2017 - Type Your Description Here
Off-Road Equipment:
2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day
1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day
16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 4/1/2016 - 7/31/2018 - Type Your Description Here
Off-Road Equipment:
2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day
1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day
16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 4/1/2017 - 7/31/2019 - Type Your Description Here
Off-Road Equipment:
2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day
1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day
16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 4/1/2018 - 7/31/2020 - Type Your Description Here
Off-Road Equipment:
2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day
1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day
16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 10/1/2013 - 11/30/2013 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Phase: Architectural Coating 10/1/2014 - 11/30/2014 - Type Your Description Here
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Phase: Architectural Coating 10/1/2015 - 11/30/2015 - Type Your Description Here
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Phase: Architectural Coating 10/1/2016 - 11/30/2016 - Type Your Description Here
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Phase: Architectural Coating 10/1/2017 - 11/30/2017 - Type Your Description Here
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Phase: Architectural Coating 10/1/2018 - 11/30/2018 - Type Your Description Here
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Phase: Architectural Coating 10/1/2019 - 11/30/2019 - Type Your Description Here
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Phase: Architectural Coating 10/1/2020 - 11/30/2020 - Type Your Description Here
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

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Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Tier II Worker Trips.urb924

Project Name: Tier I Worker Trips

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Medical office building	0.53	0.72	6.87	0.01	2.37	0.46	1,420.09
TOTALS (lbs/day, unmitigated)	0.53	0.72	6.87	0.01	2.37	0.46	1,420.09

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Medical office building		150.00	1000 sq ft	1.00	150.00	1,373.32
					150.00	1,373.32

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	50.6	0.0	100.0	0.0
Light Truck < 3750 lbs	7.2	0.0	98.6	1.4

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	23.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	11.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	41.4	58.6	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Medical office building				7.0	3.5	89.5

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Operational Changes to Defaults

8/4/2010 5:29:53 PM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Tier I_operation.urb924

Project Name: Tier I Operational Emissions

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Hospital	26.59	33.75	308.25	0.41	67.60	13.20	40,593.94
TOTALS (lbs/day, unmitigated)	26.59	33.75	308.25	0.41	67.60	13.20	40,593.94

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Hospital		14.48	1000 sq ft	338.69	4,904.23	39,099.75
					4,904.23	39,099.75

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.1	0.4	99.4	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	23.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.8	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Hospital				25.0	12.5	62.5

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Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Tier II_operation.urb924

Project Name: Tier II Operational Emissions

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Hospital	92.97	104.63	1,019.84	2.07	338.56	65.83	204,008.82
TOTALS (lbs/day, unmitigated)	92.97	104.63	1,019.84	2.07	338.56	65.83	204,008.82

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Hospital		13.55	1000 sq ft	1,814.70	24,589.18	196,041.11
					24,589.18	196,041.11

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	50.6	0.0	100.0	0.0
Light Truck < 3750 lbs	7.2	0.0	98.6	1.4

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	23.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	11.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	41.4	58.6	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Hospital				25.0	12.5	62.5

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Area Source Unmitigated Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Operation.urb924

Project Name: Operational Emissions

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.71	9.84	8.27	0.00	0.02	0.02	11,808.00
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	8.64						
TOTALS (lbs/day, unmitigated)	9.47	9.86	9.82	0.00	0.03	0.03	11,810.81

Area Source Changes to Defaults

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: X:\1217\1217-071\Data\Air Quality\Tier I.urb924

Project Name: MLK Tier I

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 3/16/2011-4/14/2011 Active Days: 22	2.51	19.78	12.25	0.00	0.01	1.07	1.08	0.00	0.98	0.99	1,914.56
Demolition 03/16/2011-04/14/2011	2.51	19.78	12.25	0.00	0.01	1.07	1.08	0.00	0.98	0.99	1,914.56
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.48	19.72	11.27	0.00	0.00	1.07	1.07	0.00	0.98	0.98	1,790.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37
Time Slice 4/15/2011-5/17/2011 Active Days: 23	6.68	72.23	31.68	**0.07**	6.73	3.13	9.87	1.44	2.88	4.32	9,742.82
Mass Grading 04/15/2011-05/17/2011	6.68	72.23	31.68	0.07	6.73	3.13	9.87	1.44	2.88	4.32	9,742.82
Mass Grading Dust	0.00	0.00	0.00	0.00	6.48	0.00	6.48	1.35	0.00	1.35	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	3.83	48.74	18.75	0.07	0.25	1.96	2.20	0.08	1.80	1.88	7,371.13
Mass Grading Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37
Time Slice 5/18/2011-8/15/2011 Active Days: 64	4.07	31.15	19.92	0.00	0.01	1.81	1.82	0.00	1.67	1.67	3,150.15
Trenching 05/18/2011-08/15/2011	4.07	31.15	19.92	0.00	0.01	1.81	1.82	0.00	1.67	1.67	3,150.15
Trenching Off Road Diesel	4.03	31.08	18.70	0.00	0.00	1.81	1.81	0.00	1.66	1.66	2,994.69
Trenching Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.46

Time Slice 8/16/2011-12/30/2011 Active Days: 99	9.50	**81.41**	**42.32**	0.02	0.07	**3.39**	3.46	0.02	**3.12**	3.14	**11,889.71**
Building 08/16/2011-12/15/2013	9.50	81.41	42.32	0.02	0.07	3.39	3.46	0.02	3.12	3.14	11,889.71
Building Off Road Diesel	9.08	79.38	31.58	0.00	0.00	3.30	3.30	0.00	3.03	3.03	10,368.45
Building Vendor Trips	0.13	1.47	1.25	0.00	0.01	0.06	0.07	0.00	0.06	0.06	311.42
Building Worker Trips	0.29	0.55	9.49	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.85
Time Slice 1/2/2012-12/31/2012 Active Days: 261	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building 08/16/2011-12/15/2013	9.12	74.79	40.29	0.02	0.07	3.03	3.10	0.02	2.79	2.81	11,889.51
Building Off Road Diesel	8.73	72.97	30.31	0.00	0.00	2.95	2.95	0.00	2.71	2.71	10,368.45
Building Vendor Trips	0.12	1.32	1.15	0.00	0.01	0.05	0.07	0.00	0.05	0.05	311.42
Building Worker Trips	0.27	0.50	8.83	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.64
Time Slice 1/1/2013-12/13/2013 Active Days: 249	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building 08/16/2011-12/15/2013	8.70	68.89	38.73	0.02	0.07	2.86	2.93	0.02	2.63	2.65	11,889.38
Building Off Road Diesel	8.35	67.27	29.46	0.00	0.00	2.78	2.78	0.00	2.56	2.56	10,368.45
Building Vendor Trips	0.11	1.16	1.06	0.00	0.01	0.05	0.06	0.00	0.04	0.05	311.44
Building Worker Trips	0.24	0.46	8.21	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,209.49
Time Slice 12/16/2013-12/31/2013 Active Days: 12	2.34	13.92	10.69	0.00	0.01	1.16	1.17	0.00	1.07	1.07	1,564.93
Asphalt 12/16/2013-02/12/2014	2.34	13.92	10.69	0.00	0.01	1.16	1.17	0.00	1.07	1.07	1,564.93
Paving Off-Gas	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.19	13.60	8.91	0.00	0.00	1.15	1.15	0.00	1.05	1.05	1,272.04
Paving On Road Diesel	0.02	0.23	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	44.23
Paving Worker Trips	0.05	0.09	1.69	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.66

Time Slice 1/1/2014-2/12/2014 Active Days: 31	2.20	13.18	10.50	0.00	0.01	1.08	1.09	0.00	0.99	0.99	1,564.90
Asphalt 12/16/2013-02/12/2014	2.20	13.18	10.50	0.00	0.01	1.08	1.09	0.00	0.99	0.99	1,564.90
Paving Off-Gas	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.06	12.89	8.85	0.00	0.00	1.06	1.06	0.00	0.98	0.98	1,272.04
Paving On Road Diesel	0.02	0.20	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	44.23
Paving Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.64
Time Slice 2/13/2014-4/15/2014 Active Days: 44	66.62	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.37
Coating 02/13/2014-04/15/2014	66.62	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.37
Architectural Coating	66.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.00	107.37

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 4/15/2011 - 5/17/2011 - Default Fine Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Architectural Coating 2/13/2014 - 4/15/2014 - Default Architectural Coating Description

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Phase Assumptions

Phase: Demolition 3/16/2011 - 4/14/2011 - Default Mass Site Grading/Excavation Description

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Mass Grading 4/15/2011 - 5/17/2011 - Default Fine Site Grading/Excavation Description
Total Acres Disturbed: 5
Maximum Daily Acreage Disturbed: 1.25
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 1739.13
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 5/18/2011 - 8/15/2011 - Default Trenching Description
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Paving 12/16/2013 - 2/12/2014 - Default Paving Description
Acres to be Paved: 1.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 8/16/2011 - 12/15/2013 - Default Building Construction Description
Off-Road Equipment:
2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day
1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day
16 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 2/13/2014 - 4/15/2014 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

APPENDIX C
SCAQMD SAMPLE LST SPREADSHEETS

Summary of Five Acre Site Example Results By Phase and Equipment

PM2.5 Fractions		
Combustion (Offroad)	Combustion (Onroad)	Fugitive
0.92	0.964	0.21

Demolition of Existing 506,485 Square Foot Structure

Vehicle Description	No. of Vehicle	Hours	Trips	Length	CO	NOx	PM10	PM2.5	Combustion PM10	Fugitive PM10		
Concrete/Industrial Saws	1	8.0			3.23	4.21	0.33	0.30	0.33			
Rubber Tired Dozers	1	8.0			8.85	19.06	1.93	0.97	0.79	1.14		
Tractors/Loaders/Backhoes	2	6.0			4.50	5.97	1.55	0.62	0.41	1.14		
Haul Trucks			44	0.1	0.11	0.37	0.018	0.016	0.018			
Total Onsite Emissions					**16.7**	**29.6**	**3.8**	**1.9**	1.53	2.28	3.83	1.91
Localized Significance Threshold*					**412**	**221**	**11**	**6**				
Exceed Significance?					**NO**	**NO**	**NO**	**NO**				

Grading

Vehicle Description	No. of Vehicle	Hours	Trips	Length	CO	NOx	PM10	PM2.5	Combustion PM10	Fugitive PM10		
Rubber Tired Dozers	1	6.0			6.64	14.29	0.60	0.55	0.60	0.00		
Graders	1	6.0			3.59	6.48	0.32	0.30	0.32	0.00		
Tractors/Loaders/Backhoes	2	7.0			5.25	6.96	3.71	1.12	0.48	3.23		
Haul Trucks			1	0.1	0.00	0.01	0.001	0.000	0.000			
Water Trucks			3	6.4	0.49	1.61	0.15	0.07	0.08			
Total Onsite Emissions					**16.0**	**29.4**	**4.8**	**2.0**	1.48	3.23	5.57	2.84
Localized Significance Threshold*					**412**	**221**	**11**	**6**				
Exceed Significance?					**NO**	**NO**	**NO**	**NO**				

Building of 164,00 Square Foot Structure

Vehicle Description	No. of Vehicle	Hours	Trips	Length	CO	NOx	PM10	PM2.5				
Cranes	2	6.0			5.46	13.27	0.56	0.51				
Forklifts	3	6.0			3.99	6.38	0.32	0.30				
Tractors/Loaders/Backhoes	4	8.0			19.67	53.13	1.85	1.70				
Generator Sets	2	8.0			3.00	4.59	0.29	0.27				
Electric Welders	1	8.0			4.02	5.69	0.20	N/A				
Haul Trucks			3	0.1	0.01	0.03	0.0012	0.0011				
Water Trucks			3	6.4	0.49	1.61	0.08	0.07				
Total Onsite Emissions					**36.6**	**84.7**	**3.3**	**2.9**			3.89	3.59
Localized Significance Threshold*					**412**	**221**	**11**	**6**				
Exceed Significance?					**NO**	**NO**	**NO**	**NO**				

* Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

Architectural Coating and Asphalt Paving of Parking Lot

Vehicle Description	No. of Vehicle	Hours	Trips	Length	CO	NOx	PM10	PM2.5
Pavers	1	7.0			3.69	5.68	0.39	0.36
Rollers	1	7.0			2.81	4.31	0.29	0.27
Paving Equipment	1	8.0			3.42	5.85	0.40	0.37
Cement and Mortar Mixers	4	6.0			1.01	1.32	0.06	0.05
Tractors/Loaders/Backhoes	1	7.0			2.62	3.48	0.24	0.22
Haul Trucks			9	0.1	0.02	0.08	0.004	0.003

Summary of Five Acre Site Example Results By Phase and Equipment

Water Trucks	3	6.4	0.49	1.61	0.08	0.07		
Total Onsite Emissions			**14.1**	**22.3**	**1.5**	**1.4**	1.47	1.36
Localized Significance Threshold*			**412**	**221**	**11**	**6**		
Exceed Significance?			**NO**	**NO**	**NO**	**NO**		

* For illustration purposes only, this analysis is based on the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

Summary of Five Acre Site Example Results By Phase

Total On Site

	CO	NOx	PM10	PM2.5
Demolition	16.7	29.6	3.8	1.9
Grading and Trenching	16.0	29.4	4.8	2.0
Building	36.6	84.7	3.3	2.9
Arch Coating and Paving	14.1	22.3	1.5	1.4
Localized Significance Threshold*	412	221	11	6
Exceed Significance?	NO	NO	NO	NO

* For illustration purposes only, this analysis is based on the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

Five Acre Site Example - Architectural Coating and Asphalt Paving

Example		**Construction Activity**
Five Acre Site		Architectural Coating and Asphalt Paving of Parking Lot
Construction Schedule -	**87**	**days[a]**

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Pavers	1	7.0	90
Rollers	1	7.0	
Paving Equipment	1	8.0	
Cement and Mortar Mixers	4	6.0	
Tractors/Loaders/Backhoes	1	7.0	

Construction Equipment Combustion Emission Factors

	CO	**NOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr
Pavers	0.528	0.811	0.056
Rollers	0.402	0.616	0.042
Paving Equipment	0.427	0.731	0.050
Cement and Mortar Mixers	0.042	0.055	0.002
Tractors/Loaders/Backhoes	0.375	0.497	0.034

Construction Vehicle (Mobile Source) Emission Factors

	CO	**NOx**	**PM10**
	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[d]	0.012822	0.041846	0.001996

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**Trip Length (miles)**
Delivery Truck[e]	9	0.1
Water Truck[f]	3	6.4

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day

	CO	**NOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day
Pavers	3.69	5.68	0.39
Rollers	2.81	4.31	0.29
Paving Equipment	3.42	5.85	0.40
Cement and Mortar Mixers	1.01	1.32	0.06

Five Acre Site Example - Architectural Coating and Asphalt Paving

Tractors/Loaders/Backhoes	2.62	3.48	0.24
Total	**13.6**	**20.6**	**1.4**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day

Vehicle	**CO** lb/day	**NOx** lb/day	**PM10** lb/day
Delivery Truck	0.02	0.08	0.00
Water Truck	0.49	1.61	0.08
Total	**0.51**	**1.69**	**0.08**

Total Incremental Combustion Emissions from Construction Activities

Sources	**CO** lb/day	**NOx** lb/day	**PM10** lb/day
On-Site Emissions	**14.1**	**22.3**	**1.5**
Significance Threshold[g]	***412***	***221***	***11***
Exceed Significance?	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction**[h]	**PM10** lb/day	**PM2.5** lb/day	**Percentage Contribution**
Combustion (Offroad)	0.92	1.4	1.3	94.1%
Combustion (Onroad)	0.96	0.08	0.08	5.9%
Fugitive	0.21	0	0	0.0%
Total		**1.5**	**1.4**	
Significance Threshold[g]			**6**	
Exceed Significance?			**NO**	

Notes:

Project specific data may be entered into shaded cells. Changing the values in the shaded cells will not affect the integrity of the worksheets. Verify that units of values entered match units for cell. Adding lines or entering values with units different than those associated with the shaded cells may alter the integrity of the sheets or produce incorrect results.

a) SCAQMD, estimated from survey data, Sept 2004

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically

c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled except the welders which are powered by the generator.

d) 2009 fleet year. http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html.

e) Assumed haul truck travels 0.1 miles through facility

f) Assumed six foot wide water truck traverses over 200,000 square feet of disturbed area

g) Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

h) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Five Acre Site Example - Structure Construction

Example		**Construction Activity**		
Five Acre Site		Building	152,000	Square Foot Structure[a]
Construction Schedule	**609**	**days**		

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Cranes	2	6.0	90
Forklifts	3	6.0	
Off-Highway Trucks	4	8.0	
Aerial Lifts	2	8.0	
Cement and Mortar Mixers	16	8.0	
Tractors/Loaders/Backhoes	1	8.0	
Bore/Drill Rigs	1	8.0	

Construction Equipment Combustion Emission Factors

	CO	**NOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr
Cranes	0.455	1.106	0.047
Forklifts	0.221	0.355	0.018
Off-Highway Trucks	0.615	1.660	0.058
Aerial Lifts	0.188	0.287	0.018
Cement and Mortar Mixers	0.042	0.055	0.002
Tractors/Loaders/Backhoes	0.375	0.497	0.034
Bore/Drill Rigs	0.503	0.711	0.025

Construction Vehicle (Mobile Source) Emission Factors

	CO	**NOx**	**PM10**
	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[d]	0.012822	0.041846	0.001996

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**Trip Length (miles)**
Flatbed Truck[a,e]	3	0.1
Water Truck[f]	3	6.4

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day

	CO	**NOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day
Cranes	5.46	13.27	0.56

Five Acre Site Example - Structure Construction

Forklifts	3.99	6.38	0.32
Off-Highway Trucks	19.67	53.13	1.85
Aerial Lifts	3.00	4.59	0.29
Cement and Mortar Mixers	5.37	7.04	0.31
Tractors/Loaders/Backhoes	3.00	3.98	0.27
Bore/Drill Rigs	4.02	5.69	0.20
Total	**44.5**	**94.1**	**3.8**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day

	CO	**NOx**	**PM10**
Vehicle	lb/day	lb/day	lb/day
Flatbed Truck	0.01	0.03	0.00
Water Truck	0.49	1.61	0.08
Total	**0.50**	**1.64**	**0.08**

Total Incremental Combustion Emissions from Construction Activities

	CO	**NOx**	**PM10**
Sources	lb/day	lb/day	lb/day
On-Site Emissions	**45.0**	**95.7**	**3.9**
Significance Threshold[g]	***412***	***221***	***11***
Exceed Significance?	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction**[h]	**PM10**	**PM2.5**	**Percentage**
		lb/day	lb/day	**Contribution**
Combustion (Offroad)	0.92	3.8	3.5	97.8%
Combustion (Onroad)	0.96	0.08	0.08	2.2%
Fugitive	0.21	0	0	0.0%
Total		**3.9**	**3.6**	
Significance Threshold[g]			**6**	
Exceed Significance?			**NO**	

Notes:

Project specific data may be entered into shaded cells. Changing the values in the shaded cells will not affect the integrity of the worksheets. Verify that units of values entered match units for cell.

Adding lines or entering values with units different than those associated with the shaded cells may alter the integrity of the sheets or produce incorrect results.

a) SCAQMD, estimated from survey data, Sept 2004

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically

c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled except the welders which are powered by the generator.

d) 2009 fleet year. http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html.

e) Assumed haul truck travels 0.1 miles through facility

f) Assumed six foot wide water truck traverses over 200,000 square feet of disturbed area

g) Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

h) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Five Acre Site Example - Demolition Phase

Example		**Construction Activity**		
Five Acre Site		Demolition of Existing	506,485	Square Foot Structure[a]
Demolition Schedule -	**22**	**days[a]**		

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Concrete/Industrial Saws	1	8.0	90
Rubber Tired Dozers	1	8.0	
Tractors/Loaders/Backhoes	2	6.0	

Construction Equipment Emission Factors

	CO	**NOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr
Concrete/Industrial Saws	0.403	0.527	0.041
Rubber Tired Dozers	1.106	2.382	0.099
Tractors/Loaders/Backhoes	0.375	0.497	0.034

Building Dimensions

Description[a]	**Width of Building**	**Length of Building**	**Height of Building**
	ft	ft	ft
Total Project	18.69	18.69	50

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	**Mean Wind Speed[e]**	**Moisture Content[f]**	**Debris Handled[g]**
	mph		ton/day
0.35	10	2.0	1,059

Construction Vehicle (Mobile Source) Emission Factors

	CO	**NOx**	**PM10**
	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[h]	0.012822	0.041846	0.001996

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**Trip Length (miles)**
Haul Truck	44	0.1

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	CO	**NOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day
Concrete/Industrial Saws	3.23	4.21	0.33
Rubber Tired Dozers	8.85	19.06	0.79
Tractors/Loaders/Backhoes	4.50	5.97	0.41
Total	**16.6**	**29.2**	**1.5**

Incremental Increase in Onsite Fugitive Dust Emissions from Construction Equipment

Material Handling[k]: (0.0032 x Aerodynamic Particle Size Multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x debris handled (ton/day)) x
(1 - control efficiency) = PM10 Emissions (lb/day)

Five Acre Site Example - Demolition Phase

Description	Control Efficiency	PM10 Mitigated[m]
	%	lb/day
Material Handling (Demolition)[l]	61	1.14
Material Handling (Debris)	61	1.14
Total		**2.28**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	CO	NOx	PM10
Vehicle	lb/day	lb/day	lb/day
Offsite (Haul Truck)	0.11	0.37	0.018
Total	**0.11**	**0.37**	**0.018**

Total Incremental Localized Emissions from Construction Activities

	CO	NOx	PM10
Sources	lb/day	lb/day	lb/day
On-site Emissions (Mitigated)	**16.7**	**29.6**	**3.8**
Significance Threshold[n]	***412***	***221***	***11***
Exceed Significance?	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	PM2.5 Fraction[o]	PM10	PM2.5	Percentage Contribution
		lb/day	lb/day	
Combustion (Offroad)	0.92	1.5	1.4	74.00%
Combustion (Onroad)	0.96	0.02	0.02	0.89%
Fugitive	0.21	2.28	0.48	25.11%
Total		**3.8**	**1.9**	
Significance Threshold[n]			**6**	
Exceed Significance?			**NO**	

Notes:

Project specific data may be entered into shaded cells. Changing the values in the shaded cells will not affect the integrity of the worksheets. Verify that units of values entered match units for cell.
Adding lines or entering values with units different than those associated with the shaded cells may alter the integrity of the sheets or produce incorrect results.

a) SCAQMD, estimated from survey data, Sept 2004

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled.

d) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, p 13.2.4-3 Aerodynamic particle size multiplier for < 10 μm

e) Mean wind speed - maximum of daily average wind speeds reported in 1981 meteorological data.

f) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, equation 2-13, p 2-28

g) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, p 2-28. Debris weight to area ratio = 0.046 ton/sq ft
(506,485 sq ft x 0.046 ton/sq ft)/22 days = 1059 ton/day

h) 2009 fleet year. http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html.

i) Assumed 30 cubic yd truck capacity [(1059 tons/day x 2,000 lb/ton x cyd/1,620 lb = 1307 cyd)/30 cyd/truck = 44 one-way truck trips/day, where building debris density is assumed to be 1,620 lb/cyd]
Multiple trucks may be used.

j) Assumed trucks travel 0.1 mile through project site.

k) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, equation 2-13, p 2-28. EPA suggests using the material handling equation for demolition emission estimates.

l) EPA suggests using the material handling equation for demolition emission estimates.

m) Includes watering at least three times a day per Rule 403 (68% control efficiency)

n) Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

o) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Five Acre Site Example - Grading Phase

Example		**Construction Activity**		
Five Acre Site		Grading	200,000	Square Feet[a]
Grading Schedule -	**87**	days[a]		

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Rubber Tired Dozers	1	6.0	90
Excavators	2	8.0	
Graders	1	6.0	
Tractors/Loaders/Backhoes	2	7.0	

Construction Equipment Emission Factors

	CO	**NOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr
Rubber Tired Dozers	1.106	2.382	0.099
Excavators	0.529	0.829	0.043
Graders	0.599	1.080	0.054
Tractors/Loaders/Backhoes	0.375	0.497	0.034

Fugitive Dust Grading Parameters

Vehicle Speed (mph)[d]	**Vehicle Miles Traveled[e]**
3	0.04

Fugitive Dust Stockpiling Parameters

Silt Content[f]	**Precipitation Days[g]**	**Mean Wind Speed Percent[h]**	**TSP Fraction**	**Area[i] (acres)**
6.9	10	100	0.5	0.21

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[j]	**Mean Wind Speed[k]**	**Moisture Content[f]**	**Dirt Handled[a]**	**Dirt Handled[l]**
	mph		cy	lb/day
0.35	10	7.9	1,481	42,557

Construction Vehicle (Mobile Source) Emission Factors

	CO	**NOx**	**PM10**
	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[m]	0.012822	0.041846	0.001996

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Haul Truck[n]	1	0.1
Water Truck[o]	3	6.4

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	CO	**NOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day
Rubber Tired Dozers	6.64	14.29	0.60
Excavators	9.58	17.27	0.86
Graders	3.59	6.48	0.32
Tractors/Loaders/Backhoes	5.25	6.96	0.48
Total	**25.1**	**45.0**	**2.26**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Five Acre Site Example - Grading Phase

Equations:

Grading[p]: PM10 Emissions (lb/day) = 0.60 x 0.051 x mean vehicle speed$^{2.0}$ x VMT x (1 - control efficiency)

Storage Piles[q]: PM10 Emissions (lb/day) = 1.7 x (silt content/1.5) x ((365-precipitation days)/235) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[r]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	Control Efficiency %	Unmitigated PM10[s] lb/day
Earthmoving	61	0
Storage Piles	61	3.23
Material Handling	61	0
Total		**3.23**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	CO	**NOx**	**PM10**
Vehicle	lb/day	lb/day	lb/day
Haul Truck	0.00	0.01	0.00
Water Truck	0.49	1.61	0.08
Total	**0.49**	**1.62**	**0.08**

Total Incremental Localized Emissions from Construction Activities

	CO	**NOx**	**PM10**
Sources	lb/day	lb/day	lb/day
On-site Emissions	**25.5**	**46.6**	**5.6**
Significance Threshold[t]	***412***	***221***	***11***
Exceed Significance?	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[u]**	**PM10**	**PM2.5**	**Percentage Contribution**
		lb/day	lb/day	
Combustion (Offroad)	0.92	2.3	2.1	73.3%
Combustion (Onroad)	0.96	0.08	0.08	2.7%
Fugitive	0.21	3.2	1	23.9%
Total		**5.6**	**2.8**	
Significance Threshold[t]			**6**	
Exceed Significance?			**NO**	

Notes:

Project specific data may be entered into shaded cells. Changing the values in the shaded cells will not affect the integrity of the worksheets. Verify that units of values entered match units for cell.

Adding lines or entering values with units different than those associated with the shaded cells may alter the integrity of the sheets or produce incorrect results.

a) SCAQMD, estimated from survey data, Sept 2004

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically

c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled.

d) Caterpillar Performance Handbook, Edition 33, October 2003 Operating Speeds, p 2-3.

e) Assuming 1,481 cubic yards of dirt handled [(1,481 cyd x 2,500 lb/cyd)/87 days = 42,557 lb/day]

f) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations

g) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

h) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph. At least one meteorological site recorded wind speeds greater than 12 mph over a 24-hour period in 1981.

i) Assumed storage piles are 0.21 acres in size

j) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, p 13.2.4-3 Aerodynamic particle size multiplier for < 10 µm

k) Mean wind speed - maximum of daily average wind speeds reported in 1981 meteorological data.

l) Assuming 1,481 cubic yards of dirt handled [(1,481 cyd x 2,500 lb/cyd)/87 days = 42,557 lb/day]

m) 2009 fleet year. http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html.

n) Assumed 30 cubic yd truck capacity 1,481 cyd of dirt [(1,481 cyd x truck/30 cyd)/87 days = 1 one-way truck trips/day]. Assumed haul truck travels 0.1 miles through facility

o) Assumed six foot wide water truck traverses over 200,000 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading≤ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (61% control efficiency).

t) Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

APPENDIX D
AERMOD OUTPUT FOR THE PROPOSED PROJECT

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  CONC  PVMRM
CO RUNORNOT  RUN
CO AVERTIME  1
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  NO2
CO OZONEFIL  C:\DOCUME~1\lwatson\AERMOD\O3LYNN0507.dat  PPM
** OZONEFIL  "C:\Documents and Settings\lwatson\AERMOD\O3LYNN0507.dat"
CO NO2STACK  0.10
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  E1BFL003  VOLUME    385063.6  3754304.5  0
SO SRCPARAM  E1BFL003  1.334003  5  122.4  1.4
SO URBANSRC  E1BFL003
SO CONCUNIT  521.94838  GRAMS/SEC  PPM
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
** BOUNDARY  8QN3H000
RE DISCCART  384813.2  3754208.1  0  0
RE DISCCART  385451.6  3754204.4  0  0
RE DISCCART  385451.6  3754094.9  0  0
RE DISCCART  384813.2  3754094.9  0  0
```

```
RE FINISHED


ME STARTING

ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC

** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"

ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"

ME SURFDATA  0  2005

ME UAIRDATA  3190  2005

ME PROFBASE  87

ME FINISHED


OU STARTING

OU RECTABLE  1  FIRST

OU FINISHED
***********************************
*** SETUP Finishes Successfully ***
***********************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                   ***
                       ***       15:03:20
**MODELOPTs:
                                  PAGE   1
CONC                               ELEV
                    PVMRM

                                            ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     1 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses User-Specified Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
```

```
         3. Plume Volume Molar Ratio Method (PVMRM) Used for NO2 Conversion
            with an Equilibrium NO2/NOx Ratio of  0.900
            and with a Default In-stack Ratio of  0.100

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:   1-HR

**This Run Includes:     1 Source(s);      1 Source Group(s); and       4
Receptor(s)

**The Model Assumes A Pollutant Type of:  NO2

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                               ;
Emission Rate Unit Factor =    521.95
                 Output Units   = PPM

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                      ***       08/04/10
                                ***
                     ***        15:03:20
**MODELOPTs:
                                PAGE   2
CONC                             ELEV
                    PVMRM



                                                  *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                      BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
    SOURCE    PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY       SZ
    SOURCE  SCALAR VARY
     ID       CATS.              (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

  E1BFL003      0   0.13340E+01  385063.6 3754304.5     0.0     5.00   122.40
1.40     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                      ***       08/04/10
                                ***
                     ***        15:03:20
**MODELOPTs:
                                PAGE   3
CONC                             ELEV
```

```
                    PVMRM


                                                  *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                         SOURCE IDs



 ALL       E1BFL003,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       15:03:20
**MODELOPTs:
                                 PAGE   4
CONC                              ELEV
                    PVMRM



                                              *** IN-STACK NO2 RATIOS FOR OLM/PVMRM OPTIONS
***


SOURCE_ID  NO2_RATIO        SOURCE_ID  NO2_RATIO        SOURCE_ID  NO2_RATIO
SOURCE_ID  NO2_RATIO

E1BFL003     0.100
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       15:03:20
**MODELOPTs:
                                 PAGE   5
CONC                              ELEV
                    PVMRM



                                                    *** DISCRETE CARTESIAN RECEPTORS ***
                                                  (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                                  (METERS)

    ( 384813.2, 3754208.0,       0.0,       0.0,       0.0);         ( 385451.6,
3754204.5,       0.0,       0.0,       0.0);
    ( 385451.6, 3754095.0,       0.0,       0.0,       0.0);         ( 384813.2,
3754095.0,       0.0,       0.0,       0.0);
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       15:03:20
**MODELOPTs:
                                 PAGE   6
CONC                              ELEV
                    PVMRM



                                                   *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                                      (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
```

```
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                            AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                 *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                             (METERS/SEC)

                                                1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                            ***       08/04/10
                                       ***
                           ***       15:03:20
**MODELOPTs:
                                     PAGE   7
CONC                                   ELEV
                    PVMRM


                                   *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
                Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

  Surface station no.:        0                Upper air station no.:     3190
                 Name: UNKNOWN                                  Name: UNKNOWN

                 Year:   2005                                   Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
```

```
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.       2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.       2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.       2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.       2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.       2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.      -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.     -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.      -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.     -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.     -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.     -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.      -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.    -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.       2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.       3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.       2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        15:03:20
**MODELOPTs:
                                  PAGE   8
CONC                               ELEV
```

```
                    PVMRM

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):      E1BFL003,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF NO2      IN PPM
                 **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)             X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754208.00        0.11588  (05102508)               385451.59
3754204.50        0.10220  (07041507)
       385451.59   3754095.00        0.09974  (05092607)               384813.19
3754095.00        0.10934  (07121809)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       15:03:20
**MODELOPTs:
                                 PAGE   9
CONC                              ELEV
                    PVMRM

                                                *** THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


                                        ** CONC OF NO2      IN PPM
                 **

                                                     DATE
                                 NETWORK
GROUP ID                        AVERAGE CONC     (YYMMDDHH)            RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)     OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  1ST HIGH VALUE IS       0.11588  ON 05102508: AT (  384813.19,
3754208.00,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       15:03:20
**MODELOPTs:
                                 PAGE  10
CONC                              ELEV
                    PVMRM


*** Message Summary : AERMOD Model Execution ***
```

```
 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           0 Warning Message(s)
A Total of        3086 Informational Message(s)

A Total of        2622 Calm Hours Identified

A Total of         464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  CONC  PVMRM
CO RUNORNOT  RUN
CO AVERTIME  1
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  NO2
CO OZONEFIL  C:\DOCUME~1\lwatson\AERMOD\O3LYNN0507.dat  PPM
** OZONEFIL  "C:\Documents and Settings\lwatson\AERMOD\O3LYNN0507.dat"
CO NO2STACK  0.10
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  E1BFL003  VOLUME    385063.6  3754304.5  0
SO SRCPARAM  E1BFL003  1.334003  5  122.4  1.4
SO URBANSRC  E1BFL003
SO CONCUNIT  521.94838  GRAMS/SEC  PPM
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
** BOUNDARY  8QN3H000
RE DISCCART  384813.2  3754405.1  0  0
RE DISCCART  384840.1  3754409.5  0  0
RE DISCCART  384901.6  3754429.7  0  0
RE DISCCART  384951  3754456.2  0  0
```

```
RE DISCCART  384951.7  3754514  0  0

RE DISCCART  384810.2  3754513  0  0

RE DISCCART  384810.2  3754512.7  0  0

RE FINISHED


ME STARTING

ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC

** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"

ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"

ME SURFDATA  0  2005

ME UAIRDATA  3190  2005

ME PROFBASE  87

ME FINISHED


OU STARTING

OU RECTABLE  1  FIRST

OU FINISHED
***********************************
*** SETUP Finishes Successfully ***
***********************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                   ***
                       ***       15:02:30
**MODELOPTs:
                                  PAGE   1
CONC                               ELEV
                    PVMRM

                                            ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     1 Source(s),
```

```
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses User-Specified Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Plume Volume Molar Ratio Method (PVMRM) Used for NO2 Conversion
           with an Equilibrium NO2/NOx Ratio of  0.900
           and with a Default In-stack Ratio of  0.100

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:   1-HR

**This Run Includes:     1 Source(s);      1 Source Group(s); and       7
Receptor(s)

**The Model Assumes A Pollutant Type of:  NO2

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                               ;
Emission Rate Unit Factor =    521.95
                 Output Units   = PPM

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                   ***
                       ***       15:02:30
**MODELOPTs:
                                 PAGE   2
CONC                              ELEV
                    PVMRM



                                                     *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                      BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
    SOURCE    PART.  (GRAMS/SEC)     X         Y       ELEV.   HEIGHT      SY       SZ
    SOURCE  SCALAR VARY
     ID       CATS.              (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -

  E1BFL003      0   0.13340E+01  385063.6 3754304.5     0.0     5.00   122.40
1.40     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
```

```
                                ***        08/04/10
                                            ***
                               ***        15:02:30
**MODELOPTs:
                                           PAGE   3
CONC                                        ELEV
                    PVMRM



                                                   *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                         SOURCE IDs



 ALL       E1BFL003,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                                ***        08/04/10
                                            ***
                               ***        15:02:30
**MODELOPTs:
                                           PAGE   4
CONC                                        ELEV
                    PVMRM



                                               *** IN-STACK NO2 RATIOS FOR OLM/PVMRM OPTIONS
***


SOURCE_ID  NO2_RATIO         SOURCE_ID  NO2_RATIO         SOURCE_ID  NO2_RATIO
SOURCE_ID  NO2_RATIO

E1BFL003     0.100
  *** AERMOD - VERSION 07026 ***    ***  MLK
                                ***        08/04/10
                                            ***
                               ***        15:02:30
**MODELOPTs:
                                           PAGE   5
CONC                                        ELEV
                    PVMRM



                                                     *** DISCRETE CARTESIAN RECEPTORS ***
                                                   (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                                   (METERS)

    ( 384813.2, 3754405.0,       0.0,       0.0,       0.0);         ( 384840.1,
3754409.5,       0.0,       0.0,       0.0);
    ( 384901.6, 3754429.8,       0.0,       0.0,       0.0);         ( 384951.0,
3754456.2,       0.0,       0.0,       0.0);
    ( 384951.7, 3754514.0,       0.0,       0.0,       0.0);         ( 384810.2,
3754513.0,       0.0,       0.0,       0.0);
    ( 384810.2, 3754512.8,       0.0,       0.0,       0.0);

  *** AERMOD - VERSION 07026 ***    ***  MLK
                                ***        08/04/10
                                            ***
                               ***        15:02:30
**MODELOPTs:
```

```
                                 PAGE   6
CONC                               ELEV
                    PVMRM

                     * SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT
BE PERFORMED *
                          LESS THAN 1.0 METER OR WITHIN OPEN PIT SOURCE

                              SOURCE         - - RECEPTOR LOCATION - -
DISTANCE
                                ID           XR (METERS)   YR (METERS)
(METERS)
                             - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- -

                              E1BFL003          384840.1     3754409.5
-16.22
                              E1BFL003          384901.6     3754429.8
-58.39
                              E1BFL003          384951.0     3754456.2
-74.20
                              E1BFL003          384951.7     3754514.0
-25.65
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/04/10
                                   ***
                        ***       15:02:30
**MODELOPTs:
                                 PAGE   7
CONC                               ELEV
                    PVMRM


                                                    *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                                       (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                          AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.
```

```
                                  *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                           (METERS/SEC)

                                              1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/04/10
                                   ***
                        ***       15:02:30
**MODELOPTs:
                                  PAGE   8
CONC                               ELEV
                    PVMRM


                                   *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
                Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

  Surface station no.:       0                Upper air station no.:     3190
                 Name: UNKNOWN                                 Name: UNKNOWN

                 Year:   2005                                  Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
```

```
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        15:02:30
**MODELOPTs:
                                  PAGE   9
CONC                               ELEV
                    PVMRM

                             *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):      E1BFL003,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF NO2      IN PPM
                   **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754405.00        0.10338  (05041807)               384840.09
3754409.50        0.00000  (00000000)
       384901.59   3754429.75        0.00000  (00000000)               384951.00
3754456.25        0.00000  (00000000)
       384951.69   3754514.00        0.00000  (00000000)               384810.19
3754513.00        0.07811  (05041807)
       384810.19   3754512.75        0.07819  (05041807)
```

```
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***       08/04/10
                                    ***
                         ***       15:02:30
**MODELOPTS:
                                   PAGE  10
CONC                                ELEV
                    PVMRM

                                                         *** THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


                                                ** CONC OF NO2      IN PPM
                   **

                                                               DATE
                                   NETWORK
GROUP ID                          AVERAGE CONC     (YYMMDDHH)            RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)     OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  1ST HIGH VALUE IS       0.10338  ON 05041807: AT (  384813.19,
3754405.00,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***       08/04/10
                                    ***
                         ***       15:02:30
**MODELOPTS:
                                   PAGE  11
CONC                                ELEV
                    PVMRM


*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            0 Warning Message(s)
A Total of         3086 Informational Message(s)

A Total of         2622 Calm Hours Identified

A Total of          464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
```

```
*** AERMOD Finishes Successfully ***
************************************
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  CONC  PVMRM
CO RUNORNOT  RUN
CO AVERTIME  1
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  NO2
CO OZONEFIL  C:\DOCUME~1\lwatson\AERMOD\O3LYNN0507.dat  PPM
** OZONEFIL  "C:\Documents and Settings\lwatson\AERMOD\O3LYNN0507.dat"
CO NO2STACK  0.10
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  JKW9Y003  VOLUME    385393.6  3754415.8  0
SO LOCATION  JKW9Y004  VOLUME    385380.4  3754298.4  0
SO LOCATION  JKW9Y005  VOLUME    385246  3754300.3  0
SO LOCATION  JKW9Y006  VOLUME    385160.6  3754272  0
SO LOCATION  JKW9Y007  VOLUME    384957.1  3754256.9  0
SO LOCATION  JKW9Y008  VOLUME    384872.8  3754340.5  0
SO LOCATION  E1BFL008  VOLUME    384969.7  3754386.9  0
SO LOCATION  E1BFL00B  VOLUME    385195.7  3754407.6  0
SO SRCPARAM  JKW9Y003  1.334003  5  105.2  1.4
SO SRCPARAM  JKW9Y004  1.334003  5  144.1  1.4
SO SRCPARAM  JKW9Y005  1.334003  5  79.9  1.4
SO SRCPARAM  JKW9Y006  1.334003  5  69  1.4
SO SRCPARAM  JKW9Y007  1.334003  5  86.9  1.4
SO SRCPARAM  JKW9Y008  1.334003  5  83.7  1.4
```

```
SO SRCPARAM  E1BFL008  1.334003  5  65.7  1.4

SO SRCPARAM  E1BFL00B  1.334003  5  123.6  1.4

SO URBANSRC  JKW9Y003  JKW9Y004  JKW9Y005  JKW9Y006  JKW9Y007  JKW9Y008

SO URBANSRC  E1BFL008  E1BFL00B

SO CONCUNIT  521.94838  GRAMS/SEC  PPM

SO SRCGROUP  ALL

SO FINISHED


RE STARTING

RE ELEVUNIT  METERS

** BOUNDARY  3DIVB000

RE DISCCART  384813.2  3754208.1  0  0

RE DISCCART  385451.6  3754204.4  0  0

RE DISCCART  385451.6  3754094.9  0  0

RE DISCCART  384813.2  3754094.9  0  0

RE FINISHED


ME STARTING

ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC

** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"

ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"

ME SURFDATA  0  2005

ME UAIRDATA  3190  2005

ME PROFBASE  87

ME FINISHED


OU STARTING

OU RECTABLE  1  FIRST

OU FINISHED
***********************************
*** SETUP Finishes Successfully ***
```

```
***********************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                   ***
                       ***       15:05:14
**MODELOPTs:
                                  PAGE   1
CONC                               ELEV
                    PVMRM

                                           ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     8 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses User-Specified Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Plume Volume Molar Ratio Method (PVMRM) Used for NO2 Conversion
           with an Equilibrium NO2/NOx Ratio of  0.900
           and with a Default In-stack Ratio of  0.100

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:   1-HR

**This Run Includes:     8 Source(s);      1 Source Group(s); and       4
Receptor(s)

**The Model Assumes A Pollutant Type of:  NO2

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;
Emission Rate Unit Factor =    521.95
                 Output Units   = PPM

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
```

```
                          ***        08/04/10
                                     ***
                         ***       15:05:14
**MODELOPTs:
                                   PAGE   2
CONC                                 ELEV
                    PVMRM



                                                   *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                       BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
    SOURCE    PART.  (GRAMS/SEC)     X         Y       ELEV.   HEIGHT      SY       SZ
    SOURCE  SCALAR VARY
     ID       CATS.                (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

  JKW9Y003      0   0.13340E+01  385393.6 3754415.8     0.0     5.00   105.20
1.40     YES
  JKW9Y004      0   0.13340E+01  385380.4 3754298.5     0.0     5.00   144.10
1.40     YES
  JKW9Y005      0   0.13340E+01  385246.0 3754300.2     0.0     5.00    79.90
1.40     YES
  JKW9Y006      0   0.13340E+01  385160.6 3754272.0     0.0     5.00    69.00
1.40     YES
  JKW9Y007      0   0.13340E+01  384957.1 3754257.0     0.0     5.00    86.90
1.40     YES
  JKW9Y008      0   0.13340E+01  384872.8 3754340.5     0.0     5.00    83.70
1.40     YES
  E1BFL008      0   0.13340E+01  384969.7 3754387.0     0.0     5.00    65.70
1.40     YES
  E1BFL00B      0   0.13340E+01  385195.7 3754407.5     0.0     5.00   123.60
1.40     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                     ***
                         ***       15:05:14
**MODELOPTs:
                                   PAGE   3
CONC                                 ELEV
                    PVMRM



                                            *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                      SOURCE IDs



 ALL       JKW9Y003, JKW9Y004, JKW9Y005, JKW9Y006, JKW9Y007, JKW9Y008, E1BFL008,
E1BFL00B,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                     ***
                         ***       15:05:14
**MODELOPTs:
                                   PAGE   4
CONC                                 ELEV
```

```
                    PVMRM



                                           *** IN-STACK NO2 RATIOS FOR OLM/PVMRM OPTIONS
***


SOURCE_ID  NO2_RATIO        SOURCE_ID  NO2_RATIO        SOURCE_ID  NO2_RATIO
SOURCE_ID  NO2_RATIO

JKW9Y003     0.100          JKW9Y004     0.100          JKW9Y005     0.100
JKW9Y006     0.100
JKW9Y007     0.100          JKW9Y008     0.100          E1BFL008     0.100
E1BFL00B     0.100
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/04/10
                                    ***
                        ***       15:05:14
**MODELOPTs:
                                   PAGE   5
CONC                                ELEV
                    PVMRM


                                                 *** DISCRETE CARTESIAN RECEPTORS ***
                                               (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                               (METERS)

    ( 384813.2, 3754208.0,       0.0,       0.0,       0.0);         ( 385451.6,
3754204.5,       0.0,       0.0,       0.0);
    ( 385451.6, 3754095.0,       0.0,       0.0,       0.0);         ( 384813.2,
3754095.0,       0.0,       0.0,       0.0);
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/04/10
                                    ***
                        ***       15:05:14
**MODELOPTs:
                                   PAGE   6
CONC                                ELEV
                    PVMRM

                     * SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT
BE PERFORMED *
                          LESS THAN 1.0 METER OR WITHIN OPEN PIT SOURCE


                              SOURCE         - - RECEPTOR LOCATION - -
DISTANCE
                                ID           XR (METERS)   YR (METERS)
(METERS)
                             - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- -

                              JKW9Y003          385451.6     3754204.5
-7.11
                              JKW9Y004          385451.6     3754204.5
-191.90
                              JKW9Y004          385451.6     3754095.0
-94.22
                              JKW9Y007          384813.2     3754208.0
-34.82
                              JKW9Y008          384813.2     3754208.0
```

```
-34.66
  *** AERMOD - VERSION 07026 ***    ***  MLK
                       ***       08/04/10
                                 ***
                      ***       15:05:14
**MODELOPTs:
                                PAGE   7
CONC                             ELEV
                    PVMRM


                                            *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                                   (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                          AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                 *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                               (METERS/SEC)

                                                 1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                       ***       08/04/10
                                 ***
                      ***       15:05:14
**MODELOPTs:
                                PAGE   8
CONC                             ELEV
                    PVMRM


                                   *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
              Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL
```

```
   Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
   Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

   Surface station no.:       0                Upper air station no.:     3190
                 Name: UNKNOWN                                   Name: UNKNOWN

                 Year:   2005                                    Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
```

```
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        15:05:14
**MODELOPTs:
                                  PAGE   9
CONC                               ELEV
                    PVMRM

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):      JKW9Y003, JKW9Y004,
JKW9Y005, JKW9Y006, JKW9Y007, JKW9Y008, E1BFL008,
         E1BFL00B,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF NO2      IN PPM
                  **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754208.00        0.53709  (05102508)              385451.59
3754204.50        0.71156  (07041507)
       385451.59   3754095.00        0.65470  (05092607)              384813.19
3754095.00        0.68446  (05102508)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        15:05:14
**MODELOPTs:
                                  PAGE  10
CONC                               ELEV
                    PVMRM

                                                *** THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


                                        ** CONC OF NO2      IN PPM
                  **

                                                      DATE
                                  NETWORK
GROUP ID                         AVERAGE CONC     (YYMMDDHH)            RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)     OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  1ST HIGH VALUE IS       0.71156  ON 07041507: AT (  385451.59,
3754204.50,      0.00,      0.00,      0.00)  DC
```

```
 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        15:05:14
**MODELOPTS:
                                  PAGE  11
CONC                               ELEV
                    PVMRM


*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           0 Warning Message(s)
A Total of        3086 Informational Message(s)

A Total of        2622 Calm Hours Identified

A Total of         464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  CONC  PVMRM
CO RUNORNOT  RUN
CO AVERTIME  1
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  NO2
CO OZONEFIL  C:\DOCUME~1\lwatson\AERMOD\O3LYNN0507.dat  PPM
** OZONEFIL  "C:\Documents and Settings\lwatson\AERMOD\O3LYNN0507.dat"
CO NO2STACK  0.10
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  JKW9Y003  VOLUME    385393.6  3754415.8  0
SO LOCATION  JKW9Y004  VOLUME    385380.4  3754298.4  0
SO LOCATION  JKW9Y005  VOLUME    385246  3754300.3  0
SO LOCATION  JKW9Y006  VOLUME    385160.6  3754272  0
SO LOCATION  JKW9Y007  VOLUME    384957.1  3754256.9  0
SO LOCATION  JKW9Y008  VOLUME    384872.8  3754340.5  0
SO LOCATION  E1BFL008  VOLUME    384969.7  3754386.9  0
SO LOCATION  E1BFL00B  VOLUME    385195.7  3754407.6  0
SO SRCPARAM  JKW9Y003  1.334003  5  105.2  1.4
SO SRCPARAM  JKW9Y004  1.334003  5  144.1  1.4
SO SRCPARAM  JKW9Y005  1.334003  5  79.9  1.4
SO SRCPARAM  JKW9Y006  1.334003  5  69  1.4
SO SRCPARAM  JKW9Y007  1.334003  5  86.9  1.4
SO SRCPARAM  JKW9Y008  1.334003  5  83.7  1.4
```

```
SO SRCPARAM  E1BFL008  1.334003  5  65.7  1.4
SO SRCPARAM  E1BFL00B  1.334003  5  123.6  1.4
SO URBANSRC  JKW9Y003  JKW9Y004  JKW9Y005  JKW9Y006  JKW9Y007  JKW9Y008
SO URBANSRC  E1BFL008  E1BFL00B
SO CONCUNIT  521.94838  GRAMS/SEC  PPM
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
** BOUNDARY  3DIVB000
RE DISCCART  384813.2  3754405.1  0  0
RE DISCCART  384840.1  3754409.5  0  0
RE DISCCART  384901.6  3754429.7  0  0
RE DISCCART  384951  3754456.2  0  0
RE DISCCART  384951.7  3754514  0  0
RE DISCCART  384810.2  3754513  0  0
RE DISCCART  384810.2  3754512.7  0  0
RE FINISHED

ME STARTING
ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"
ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL
** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"
ME SURFDATA  0  2005
ME UAIRDATA  3190  2005
ME PROFBASE  87
ME FINISHED

OU STARTING
```

```
OU RECTABLE  1  FIRST

OU FINISHED

***********************************
*** SETUP Finishes Successfully ***
***********************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        15:03:59
**MODELOPTs:
                                  PAGE   1
CONC                               ELEV
                    PVMRM

                                          ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     8 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses User-Specified Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Plume Volume Molar Ratio Method (PVMRM) Used for NO2 Conversion
           with an Equilibrium NO2/NOx Ratio of  0.900
           and with a Default In-stack Ratio of  0.100

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:   1-HR

**This Run Includes:     8 Source(s);      1 Source Group(s); and       7
Receptor(s)

**The Model Assumes A Pollutant Type of:  NO2

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                               ;
```

```
Emission Rate Unit Factor =    521.95
                 Output Units   = PPM

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        15:03:59
**MODELOPTs:
                                  PAGE   2
CONC                               ELEV
                    PVMRM



                                                    *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                         BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
    SOURCE    PART.  (GRAMS/SEC)     X         Y      ELEV.   HEIGHT      SY       SZ
    SOURCE  SCALAR VARY
     ID       CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

  JKW9Y003      0   0.13340E+01  385393.6 3754415.8     0.0     5.00   105.20
1.40     YES
  JKW9Y004      0   0.13340E+01  385380.4 3754298.5     0.0     5.00   144.10
1.40     YES
  JKW9Y005      0   0.13340E+01  385246.0 3754300.2     0.0     5.00    79.90
1.40     YES
  JKW9Y006      0   0.13340E+01  385160.6 3754272.0     0.0     5.00    69.00
1.40     YES
  JKW9Y007      0   0.13340E+01  384957.1 3754257.0     0.0     5.00    86.90
1.40     YES
  JKW9Y008      0   0.13340E+01  384872.8 3754340.5     0.0     5.00    83.70
1.40     YES
  E1BFL008      0   0.13340E+01  384969.7 3754387.0     0.0     5.00    65.70
1.40     YES
  E1BFL00B      0   0.13340E+01  385195.7 3754407.5     0.0     5.00   123.60
1.40     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        15:03:59
**MODELOPTs:
                                  PAGE   3
CONC                               ELEV
                    PVMRM



                                             *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                   SOURCE IDs



 ALL       JKW9Y003, JKW9Y004, JKW9Y005, JKW9Y006, JKW9Y007, JKW9Y008, E1BFL008,
E1BFL00B,
  *** AERMOD - VERSION 07026 ***    ***  MLK
```

```
                                ***        08/04/10
                                           ***
                               ***        15:03:59
**MODELOPTs:
                                          PAGE   4
CONC                                       ELEV
                    PVMRM



                                              *** IN-STACK NO2 RATIOS FOR OLM/PVMRM OPTIONS
***


SOURCE_ID  NO2_RATIO         SOURCE_ID  NO2_RATIO         SOURCE_ID  NO2_RATIO
SOURCE_ID  NO2_RATIO

JKW9Y003     0.100           JKW9Y004     0.100           JKW9Y005     0.100
JKW9Y006     0.100
JKW9Y007     0.100           JKW9Y008     0.100           E1BFL008     0.100
E1BFL00B     0.100
  *** AERMOD - VERSION 07026 ***    ***  MLK
                                ***        08/04/10
                                           ***
                               ***        15:03:59
**MODELOPTs:
                                          PAGE   5
CONC                                       ELEV
                    PVMRM


                                                    *** DISCRETE CARTESIAN RECEPTORS ***
                                                  (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                                  (METERS)

    ( 384813.2, 3754405.0,       0.0,        0.0,       0.0);         ( 384840.1,
3754409.5,       0.0,       0.0,        0.0);
    ( 384901.6, 3754429.8,       0.0,        0.0,       0.0);         ( 384951.0,
3754456.2,       0.0,       0.0,        0.0);
    ( 384951.7, 3754514.0,       0.0,        0.0,       0.0);         ( 384810.2,
3754513.0,       0.0,       0.0,        0.0);
    ( 384810.2, 3754512.8,       0.0,        0.0,       0.0);

  *** AERMOD - VERSION 07026 ***    ***  MLK
                                ***        08/04/10
                                           ***
                               ***        15:03:59
**MODELOPTs:
                                          PAGE   6
CONC                                       ELEV
                    PVMRM

                     * SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT
BE PERFORMED *
                          LESS THAN 1.0 METER OR WITHIN OPEN PIT SOURCE


                              SOURCE         - - RECEPTOR LOCATION - -
DISTANCE
                                ID           XR (METERS)   YR (METERS)
(METERS)
                              - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- -
```

```
                              JKW9Y007          384901.6     3754429.8
-5.39
                              JKW9Y008          384813.2     3754405.0
-92.12
                              JKW9Y008          384840.1     3754409.5
-103.59
                              JKW9Y008          384901.6     3754429.8
-86.18
                              JKW9Y008          384951.0     3754456.2
-40.27
                              E1BFL008          384840.1     3754409.5
-9.72
                              E1BFL008          384901.6     3754429.8
-60.85
                              E1BFL008          384951.0     3754456.2
-69.53
                              E1BFL008          384951.7     3754514.0
-12.99
                              E1BFL00B          384951.0     3754456.2
-16.24
                              E1BFL00B          384951.7     3754514.0
0.49
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***        08/04/10
                                    ***
                        ***       15:03:59
**MODELOPTs:
                                  PAGE   7
CONC                               ELEV
                    PVMRM


                                            *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                             (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                  AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.
```

```
                                 *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                          (METERS/SEC)

                                              1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       15:03:59
**MODELOPTs:
                                 PAGE   8
CONC                              ELEV
                    PVMRM


                                  *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
              Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

  Surface station no.:       0                Upper air station no.:    3190
               Name: UNKNOWN                                Name: UNKNOWN

               Year:   2005                                 Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
```

```
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        15:03:59
**MODELOPTS:
                                  PAGE   9
CONC                               ELEV
                    PVMRM

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                INCLUDING SOURCE(S):      JKW9Y003, JKW9Y004,
JKW9Y005, JKW9Y006, JKW9Y007, JKW9Y008, E1BFL008,
         E1BFL00B,

                                               *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                          ** CONC OF NO2      IN PPM
                    **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)         CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754405.00        0.60037  (05041807)              384840.09
3754409.50        0.45521  (05041807)
       384901.59   3754429.75        0.43394  (05041807)              384951.00
3754456.25        0.39650  (05041807)
       384951.69   3754514.00        0.39336  (05041807)              384810.19
3754513.00        0.61923  (05041807)
       384810.19   3754512.75        0.61976  (05041807)
```

```
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       15:03:59
**MODELOPTs:
                                 PAGE  10
CONC                              ELEV
                    PVMRM

                                                   *** THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


                                           ** CONC OF NO2      IN PPM
                  **

                                                       DATE
                                 NETWORK
GROUP ID                        AVERAGE CONC     (YYMMDDHH)            RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)     OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  1ST HIGH VALUE IS       0.61976  ON 05041807: AT (  384810.19,
3754512.75,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       15:03:59
**MODELOPTs:
                                 PAGE  11
CONC                              ELEV
                    PVMRM


*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            0 Warning Message(s)
A Total of         3086 Informational Message(s)

A Total of         2622 Calm Hours Identified

A Total of          464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***
```

```
************************************
*** AERMOD Finishes Successfully ***
************************************
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  DFAULT  CONC
CO RUNORNOT  RUN
CO AVERTIME  1  8
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  CO
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  E1BFL003  VOLUME    385063.6  3754304.5  0
SO SRCPARAM  E1BFL003  0.5764403  5  122.4  1.4
SO URBANSRC  E1BFL003
SO CONCUNIT  857.2769  GRAMS/SEC  PPM
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
** BOUNDARY  3DIVB000
RE DISCCART  384813.2  3754208.1  0  0
RE DISCCART  385451.6  3754204.4  0  0
RE DISCCART  385451.6  3754094.9  0  0
RE DISCCART  384813.2  3754094.9  0  0
RE FINISHED

ME STARTING
```

```
ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC

** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"

ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"

ME SURFDATA  0  2005

ME UAIRDATA  3190  2005

ME PROFBASE  87

ME FINISHED


OU STARTING

OU RECTABLE  1  FIRST

OU RECTABLE  8  FIRST

OU PLOTFILE  1  ALL  FIRST  ALL`1`FIRST.plt  10000

OU FINISHED

 *** Message Summary For AERMOD Model Setup ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           1 Warning Message(s)
A Total of           0 Informational Message(s)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565    45 OUPLOT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

***********************************
*** SETUP Finishes Successfully ***
***********************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/04/10
                                   ***
                        ***       14:59:38
**MODELOPTs:
                                  PAGE   1
CONC                        DFAULT ELEV


                                            ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -
```

```
**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     1 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
           1. Stack-tip Downwash.
           2. Model Accounts for ELEVated Terrain Effects.
           3. Use Calms Processing Routine.
           4. Use Missing Data Processing Routine.
           5. No Exponential Decay for URBAN/Non-SO2

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  2 Short Term Average(s) of:   1-HR   8-HR

**This Run Includes:     1 Source(s);      1 Source Group(s); and       4
Receptor(s)

**The Model Assumes A Pollutant Type of:  CO

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                               ;
Emission Rate Unit Factor =    857.28
                 Output Units   = PPM

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       14:59:38
**MODELOPTs:
                                 PAGE   2
CONC                        DFAULT ELEV



                                                  *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                      BASE    RELEASE    INIT.
```

```
INIT.   URBAN  EMISSION RATE
    SOURCE    PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY       SZ
    SOURCE  SCALAR VARY
     ID       CATS.            (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - -

  E1BFL003      0   0.57644E+00  385063.6 3754304.5     0.0     5.00   122.40
1.40     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       14:59:38
**MODELOPTs:
                                 PAGE   3
CONC                        DFAULT ELEV



                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                         SOURCE IDs



 ALL       E1BFL003,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       14:59:38
**MODELOPTs:
                                 PAGE   4
CONC                        DFAULT ELEV



                                            *** DISCRETE CARTESIAN RECEPTORS ***
                                          (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                           (METERS)

    ( 384813.2, 3754208.0,       0.0,       0.0,       0.0);         ( 385451.6,
3754204.5,       0.0,       0.0,       0.0);
    ( 385451.6, 3754095.0,       0.0,       0.0,       0.0);         ( 384813.2,
3754095.0,       0.0,       0.0,       0.0);
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       14:59:38
**MODELOPTs:
                                 PAGE   5
CONC                        DFAULT ELEV



                                           *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                               (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
```

```
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                            AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                 *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                             (METERS/SEC)

                                                 1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       14:59:38
**MODELOPTs:
                                 PAGE   6
CONC                        DFAULT ELEV



                                   *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
                Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

  Surface station no.:        0                  Upper air station no.:     3190
                 Name: UNKNOWN                                  Name: UNKNOWN

                 Year:   2005                                   Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
```

```
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        14:59:38
**MODELOPTs:
                                  PAGE   7
CONC                            DFAULT ELEV
```

```
                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):      E1BFL003,

                                                *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                           ** CONC OF CO       IN PPM
                  **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754208.00        0.09138  (05102508)                385451.59
3754204.50       0.08060  (07041507)
       385451.59   3754095.00        0.07865  (05092607)                384813.19
3754095.00       0.08623  (07121809)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        14:59:38
**MODELOPTs:
                                  PAGE   8
CONC                        DFAULT ELEV


                              *** THE   1ST HIGHEST  8-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):      E1BFL003,

                                                *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                           ** CONC OF CO       IN PPM
                  **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754208.00        0.02399  (05102508)                385451.59
3754204.50       0.02562c (06082708)
       385451.59   3754095.00        0.03069  (05081608)                384813.19
3754095.00       0.02400  (07121816)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        14:59:38
**MODELOPTs:
                                  PAGE   9
CONC                        DFAULT ELEV


                                                   *** THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


                                           ** CONC OF CO       IN PPM
                  **

                                                          DATE
                                  NETWORK
```

```
GROUP ID                          AVERAGE CONC     (YYMMDDHH)             RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)      OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  1ST HIGH VALUE IS       0.09138  ON 05102508: AT (  384813.19,
3754208.00,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                   ***
                       ***       14:59:38
**MODELOPTs:
                                  PAGE  10
CONC                        DFAULT ELEV


                                               *** THE SUMMARY OF HIGHEST  8-HR
RESULTS ***


                                       ** CONC OF CO       IN PPM
                  **

                                                     DATE
                                  NETWORK
GROUP ID                          AVERAGE CONC     (YYMMDDHH)             RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)      OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  1ST HIGH VALUE IS       0.03069  ON 05081608: AT (  385451.59,
3754095.00,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                   ***
                       ***       14:59:38
**MODELOPTs:
                                  PAGE  11
CONC                        DFAULT ELEV



*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of          0 Fatal Error Message(s)
A Total of          1 Warning Message(s)
A Total of       3086 Informational Message(s)

A Total of       2622 Calm Hours Identified
```

```
A Total of          464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565    45 OUPLOT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  DFAULT  CONC
CO RUNORNOT  RUN
CO AVERTIME  1  8
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  CO
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  E1BFL003  VOLUME    385063.6  3754304.5  0
SO SRCPARAM  E1BFL003  0.5764403  5  122.4  1.4
SO URBANSRC  E1BFL003
SO CONCUNIT  857.2769  GRAMS/SEC  PPM
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
** BOUNDARY  3DIVB000
RE DISCCART  384813.2  3754405.1  0  0
RE DISCCART  384840.1  3754409.5  0  0
RE DISCCART  384901.6  3754429.7  0  0
RE DISCCART  384951  3754456.2  0  0
RE DISCCART  384951.7  3754514  0  0
RE DISCCART  384810.2  3754513  0  0
RE DISCCART  384810.2  3754512.7  0  0
```

```
RE FINISHED


ME STARTING

ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC

** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"

ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"

ME SURFDATA  0  2005

ME UAIRDATA  3190  2005

ME PROFBASE  87

ME FINISHED


OU STARTING

OU RECTABLE  1  FIRST

OU RECTABLE  8  FIRST

OU PLOTFILE  1  ALL  FIRST  ALL`1`FIRST.plt  10000

OU FINISHED

 *** Message Summary For AERMOD Model Setup ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            1 Warning Message(s)
A Total of            0 Informational Message(s)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565    48 OUPLOT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

***********************************
*** SETUP Finishes Successfully ***
***********************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        14:58:23
**MODELOPTs:
                                  PAGE   1
CONC                        DFAULT ELEV
```

```
                                            ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     1 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
           1. Stack-tip Downwash.
           2. Model Accounts for ELEVated Terrain Effects.
           3. Use Calms Processing Routine.
           4. Use Missing Data Processing Routine.
           5. No Exponential Decay for URBAN/Non-SO2

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  2 Short Term Average(s) of:   1-HR   8-HR

**This Run Includes:     1 Source(s);      1 Source Group(s); and       7
Receptor(s)

**The Model Assumes A Pollutant Type of:  CO

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                ;
Emission Rate Unit Factor =    857.28
                 Output Units   = PPM

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        14:58:23
**MODELOPTs:
                                  PAGE   2
CONC                         DFAULT ELEV
```

```
                                              *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
    SOURCE    PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY       SZ
    SOURCE  SCALAR VARY
     ID       CATS.              (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - -

  E1BFL003      0   0.57644E+00  385063.6 3754304.5     0.0     5.00   122.40
1.40     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                      ***       08/04/10
                                 ***
                     ***       14:58:23
**MODELOPTs:
                                 PAGE   3
CONC                        DFAULT ELEV



                                         *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                      SOURCE IDs



 ALL       E1BFL003,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                      ***       08/04/10
                                 ***
                     ***       14:58:23
**MODELOPTs:
                                 PAGE   4
CONC                        DFAULT ELEV



                                           *** DISCRETE CARTESIAN RECEPTORS ***
                                         (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                         (METERS)

    ( 384813.2, 3754405.0,       0.0,       0.0,       0.0);         ( 384840.1,
3754409.5,       0.0,       0.0,       0.0);
    ( 384901.6, 3754429.8,       0.0,       0.0,       0.0);         ( 384951.0,
3754456.2,       0.0,       0.0,       0.0);
    ( 384951.7, 3754514.0,       0.0,       0.0,       0.0);         ( 384810.2,
3754513.0,       0.0,       0.0,       0.0);
    ( 384810.2, 3754512.8,       0.0,       0.0,       0.0);

  *** AERMOD - VERSION 07026 ***    ***  MLK
                      ***       08/04/10
                                 ***
                     ***       14:58:23
**MODELOPTs:
                                 PAGE   5
CONC                        DFAULT ELEV
```

```
                     * SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT
BE PERFORMED *
                          LESS THAN 1.0 METER OR WITHIN OPEN PIT SOURCE

                             SOURCE         - - RECEPTOR LOCATION - -
DISTANCE
                               ID           XR (METERS)   YR (METERS)
(METERS)
                            - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- -
                             E1BFL003          384840.1     3754409.5
-16.22
                             E1BFL003          384901.6     3754429.8
-58.39
                             E1BFL003          384951.0     3754456.2
-74.20
                             E1BFL003          384951.7     3754514.0
-25.65
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                   ***
                       ***       14:58:23
**MODELOPTs:
                                 PAGE   6
CONC                            DFAULT ELEV


                                            *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                               (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                      AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.


                                 *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
```

```
CATEGORIES ***
                                                                 (METERS/SEC)

                                                    1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                   ***
                       ***       14:58:23
**MODELOPTS:
                                  PAGE   7
CONC                        DFAULT ELEV



                                   *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
              Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

  Surface station no.:        0                  Upper air station no.:     3190
                Name: UNKNOWN                                    Name: UNKNOWN

                Year:   2005                                     Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
```

```
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                     ***
                         ***        14:58:23
**MODELOPTs:
                                    PAGE   8
CONC                           DFAULT ELEV


                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):      E1BFL003,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF CO       IN PPM
                   **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754405.00        0.08152  (05041807)              384840.09
3754409.50        0.00000  (00000000)
       384901.59   3754429.75        0.00000  (00000000)              384951.00
3754456.25        0.00000  (00000000)
       384951.69   3754514.00        0.00000  (00000000)              384810.19
3754513.00        0.06160  (05041807)
       384810.19   3754512.75        0.06166  (05041807)

  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
```

```
                                   ***
                         ***       14:58:23
**MODELOPTs:
                                  PAGE   9
CONC                           DFAULT ELEV


                              *** THE   1ST HIGHEST  8-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):      E1BFL003,

                                                *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                           ** CONC OF CO       IN PPM
                  **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754405.00        0.02486c (05041808)                384840.09
3754409.50        0.00000  (00000000)
       384901.59   3754429.75        0.00000  (00000000)                384951.00
3754456.25        0.00000  (00000000)
       384951.69   3754514.00        0.00000  (00000000)                384810.19
3754513.00        0.02632c (05041808)
       384810.19   3754512.75        0.02634c (05041808)

  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                     ***
                         ***       14:58:23
**MODELOPTs:
                                  PAGE  10
CONC                           DFAULT ELEV


                                                   *** THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


                                           ** CONC OF CO       IN PPM
                  **

                                                       DATE
                                  NETWORK
GROUP ID                         AVERAGE CONC     (YYMMDDHH)            RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)     OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -


ALL      HIGH  1ST HIGH VALUE IS       0.08152  ON 05041807: AT (  384813.19,
3754405.00,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                     ***
```

```
                          ***        14:58:23
**MODELOPTs:
                                     PAGE  11
CONC                         DFAULT ELEV


                                                  *** THE SUMMARY OF HIGHEST  8-HR
RESULTS ***


                                          ** CONC OF CO       IN PPM
                  **

                                                            DATE
                                     NETWORK
GROUP ID                            AVERAGE CONC     (YYMMDDHH)            RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)        OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  1ST HIGH VALUE IS       0.02634c ON 05041808: AT (  384810.19,
3754512.75,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                           ***        08/04/10
                                      ***
                          ***        14:58:23
**MODELOPTs:
                                     PAGE  12
CONC                         DFAULT ELEV



*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           1 Warning Message(s)
A Total of        3086 Informational Message(s)

A Total of        2622 Calm Hours Identified

A Total of         464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565    48 OUPLOT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

```
** BREEZE AERMOD

** Trinity Consultants

** VERSION  7.1


CO STARTING

CO TITLEONE  MLK

CO MODELOPT  DFAULT  CONC

CO RUNORNOT  RUN

CO AVERTIME  1  8

CO URBANOPT  9862049  AREA1  1

CO POLLUTID  CO

CO FINISHED


SO STARTING

SO ELEVUNIT  METERS

SO LOCATION  JKW9Y003  VOLUME    385393.6  3754415.8  0

SO LOCATION  JKW9Y004  VOLUME    385380.4  3754298.4  0

SO LOCATION  JKW9Y005  VOLUME    385246  3754300.3  0

SO LOCATION  JKW9Y006  VOLUME    385160.6  3754272  0

SO LOCATION  JKW9Y007  VOLUME    384957.1  3754256.9  0

SO LOCATION  JKW9Y008  VOLUME    384872.8  3754340.5  0

SO LOCATION  E1BFL008  VOLUME    384969.7  3754386.9  0

SO LOCATION  E1BFL00B  VOLUME    385195.7  3754407.6  0

SO SRCPARAM  JKW9Y003  0.5764403  5  105.2  1.4

SO SRCPARAM  JKW9Y004  0.5764403  5  144.1  1.4

SO SRCPARAM  JKW9Y005  0.5764403  5  79.9  1.4

SO SRCPARAM  JKW9Y006  0.5764403  5  69  1.4

SO SRCPARAM  JKW9Y007  0.5764403  5  86.9  1.4

SO SRCPARAM  JKW9Y008  0.5764403  5  83.7  1.4

SO SRCPARAM  E1BFL008  0.5764403  5  65.7  1.4

SO SRCPARAM  E1BFL00B  0.5764403  5  123.6  1.4

SO URBANSRC  JKW9Y003  JKW9Y004  JKW9Y005  JKW9Y006  JKW9Y007  JKW9Y008
```

```
SO URBANSRC  E1BFL008  E1BFL00B
SO CONCUNIT  857.2769  GRAMS/SEC  PPM
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
** BOUNDARY  3DIVB000
RE DISCCART  384813.2  3754208.1  0  0
RE DISCCART  385451.6  3754204.4  0  0
RE DISCCART  385451.6  3754094.9  0  0
RE DISCCART  384813.2  3754094.9  0  0
RE FINISHED

ME STARTING
ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"
ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL
** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"
ME SURFDATA  0  2005
ME UAIRDATA  3190  2005
ME PROFBASE  87
ME FINISHED

OU STARTING
OU RECTABLE  1  FIRST
OU RECTABLE  8  FIRST
OU PLOTFILE  1  ALL  FIRST  ALL`1`FIRST.plt  10000
OU FINISHED

 *** Message Summary For AERMOD Model Setup ***

 --------- Summary of Total Messages --------
```

```
A Total of           0 Fatal Error Message(s)
A Total of           1 Warning Message(s)
A Total of           0 Informational Message(s)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565    60 OUPLOT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

***********************************
*** SETUP Finishes Successfully ***
***********************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/04/10
                                   ***
                        ***       15:01:10
**MODELOPTs:
                                  PAGE   1
CONC                        DFAULT ELEV


                                           ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     8 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
         1. Stack-tip Downwash.
         2. Model Accounts for ELEVated Terrain Effects.
         3. Use Calms Processing Routine.
         4. Use Missing Data Processing Routine.
         5. No Exponential Decay for URBAN/Non-SO2

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  2 Short Term Average(s) of:   1-HR   8-HR

**This Run Includes:     8 Source(s);      1 Source Group(s); and       4
Receptor(s)

**The Model Assumes A Pollutant Type of:  CO

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
```

```
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                     ;
Emission Rate Unit Factor =    857.28
                 Output Units   = PPM

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                     ***
                       ***        15:01:10
**MODELOPTs:
                                  PAGE   2
CONC                         DFAULT ELEV



                                                  *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                     BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
    SOURCE    PART.  (GRAMS/SEC)     X         Y      ELEV.   HEIGHT      SY       SZ
    SOURCE  SCALAR VARY
     ID       CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -


  JKW9Y003      0   0.57644E+00  385393.6 3754415.8     0.0     5.00   105.20
1.40     YES
  JKW9Y004      0   0.57644E+00  385380.4 3754298.5     0.0     5.00   144.10
1.40     YES
  JKW9Y005      0   0.57644E+00  385246.0 3754300.2     0.0     5.00    79.90
1.40     YES
  JKW9Y006      0   0.57644E+00  385160.6 3754272.0     0.0     5.00    69.00
1.40     YES
  JKW9Y007      0   0.57644E+00  384957.1 3754257.0     0.0     5.00    86.90
1.40     YES
  JKW9Y008      0   0.57644E+00  384872.8 3754340.5     0.0     5.00    83.70
1.40     YES
  E1BFL008      0   0.57644E+00  384969.7 3754387.0     0.0     5.00    65.70
1.40     YES
  E1BFL00B      0   0.57644E+00  385195.7 3754407.5     0.0     5.00   123.60
1.40     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                     ***
                       ***        15:01:10
**MODELOPTs:
                                  PAGE   3
CONC                         DFAULT ELEV
```

```
                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                     SOURCE IDs



 ALL       JKW9Y003, JKW9Y004, JKW9Y005, JKW9Y006, JKW9Y007, JKW9Y008, E1BFL008,
E1BFL00B,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/04/10
                                    ***
                        ***       15:01:10
**MODELOPTs:
                                  PAGE   4
CONC                        DFAULT ELEV



                                            *** DISCRETE CARTESIAN RECEPTORS ***
                                          (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

    ( 384813.2, 3754208.0,       0.0,       0.0,       0.0);         ( 385451.6,
3754204.5,       0.0,       0.0,       0.0);
    ( 385451.6, 3754095.0,       0.0,       0.0,       0.0);         ( 384813.2,
3754095.0,       0.0,       0.0,       0.0);
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/04/10
                                    ***
                        ***       15:01:10
**MODELOPTs:
                                  PAGE   5
CONC                        DFAULT ELEV


                     * SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT
BE PERFORMED *
                          LESS THAN 1.0 METER OR WITHIN OPEN PIT SOURCE


                              SOURCE         - - RECEPTOR LOCATION - -
DISTANCE
                                ID           XR (METERS)   YR (METERS)
(METERS)
                             - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- -

                              JKW9Y003          385451.6     3754204.5
-7.11
                              JKW9Y004          385451.6     3754204.5
-191.90
                              JKW9Y004          385451.6     3754095.0
-94.22
                              JKW9Y007          384813.2     3754208.0
-34.82
                              JKW9Y008          384813.2     3754208.0
-34.66
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/04/10
                                    ***
                        ***       15:01:10
```

```
**MODELOPTs:
                                            PAGE   6
CONC                          DFAULT ELEV



                                                      *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                                                 (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                          AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                 *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                              (METERS/SEC)

                                                1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                            ***       08/04/10
                                      ***
                           ***       15:01:10
**MODELOPTs:
                                            PAGE   7
CONC                          DFAULT ELEV



                                   *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
                Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)
```

```
  Surface station no.:        0                Upper air station no.:     3190
                Name: UNKNOWN                                   Name: UNKNOWN

                Year:   2005                                    Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
```

```
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        15:01:10
**MODELOPTs:
                                  PAGE   8
CONC                         DFAULT ELEV


                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):      JKW9Y003, JKW9Y004,
JKW9Y005, JKW9Y006, JKW9Y007, JKW9Y008, E1BFL008,
         E1BFL00B,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF CO       IN PPM
                  **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754208.00        0.42354  (05102508)                385451.59
3754204.50        0.56113  (07041507)
       385451.59   3754095.00        0.51629  (05092607)                384813.19
3754095.00        0.53976  (05102508)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/04/10
                                   ***
                       ***        15:01:10
**MODELOPTs:
                                  PAGE   9
CONC                         DFAULT ELEV


                              *** THE   1ST HIGHEST  8-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):      JKW9Y003, JKW9Y004,
JKW9Y005, JKW9Y006, JKW9Y007, JKW9Y008, E1BFL008,
         E1BFL00B,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF CO       IN PPM
                  **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754208.00        0.10648  (05102508)                385451.59
3754204.50        0.18887c (06082708)
       385451.59   3754095.00        0.21666  (05081608)                384813.19
3754095.00        0.16421  (05102508)
  *** AERMOD - VERSION 07026 ***    ***  MLK
```

```
                              ***        08/04/10
                                         ***
                             ***        15:01:10
**MODELOPTs:
                                        PAGE  10
CONC                            DFAULT ELEV


                                                       *** THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


                                              ** CONC OF CO       IN PPM
                   **

                                                              DATE
                                        NETWORK
GROUP ID                               AVERAGE CONC     (YYMMDDHH)             RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)           OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  1ST HIGH VALUE IS       0.56113  ON 07041507: AT (  385451.59,
3754204.50,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                              ***        08/04/10
                                         ***
                             ***        15:01:10
**MODELOPTs:
                                        PAGE  11
CONC                            DFAULT ELEV


                                                       *** THE SUMMARY OF HIGHEST  8-HR
RESULTS ***


                                              ** CONC OF CO       IN PPM
                   **

                                                              DATE
                                        NETWORK
GROUP ID                               AVERAGE CONC     (YYMMDDHH)             RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)           OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  1ST HIGH VALUE IS       0.21666  ON 05081608: AT (  385451.59,
3754095.00,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                              ***        08/04/10
```

```
                                 ***
                         ***        15:01:10
**MODELOPTs:
                                    PAGE  12
CONC                            DFAULT ELEV


*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           1 Warning Message(s)
A Total of        3086 Informational Message(s)

A Total of        2622 Calm Hours Identified

A Total of         464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565    60 OUPLOT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  DFAULT  CONC
CO RUNORNOT  RUN
CO AVERTIME  1  8
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  CO
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  JKW9Y003  VOLUME    385393.6  3754415.8  0
SO LOCATION  JKW9Y004  VOLUME    385380.4  3754298.4  0
SO LOCATION  JKW9Y005  VOLUME    385246  3754300.3  0
SO LOCATION  JKW9Y006  VOLUME    385160.6  3754272  0
SO LOCATION  JKW9Y007  VOLUME    384957.1  3754256.9  0
SO LOCATION  JKW9Y008  VOLUME    384872.8  3754340.5  0
SO LOCATION  E1BFL008  VOLUME    384969.7  3754386.9  0
SO LOCATION  E1BFL00B  VOLUME    385195.7  3754407.6  0
SO SRCPARAM  JKW9Y003  0.5764403  5  105.2  1.4
SO SRCPARAM  JKW9Y004  0.5764403  5  144.1  1.4
SO SRCPARAM  JKW9Y005  0.5764403  5  79.9  1.4
SO SRCPARAM  JKW9Y006  0.5764403  5  69  1.4
SO SRCPARAM  JKW9Y007  0.5764403  5  86.9  1.4
SO SRCPARAM  JKW9Y008  0.5764403  5  83.7  1.4
SO SRCPARAM  E1BFL008  0.5764403  5  65.7  1.4
SO SRCPARAM  E1BFL00B  0.5764403  5  123.6  1.4
SO URBANSRC  JKW9Y003  JKW9Y004  JKW9Y005  JKW9Y006  JKW9Y007  JKW9Y008
```

```
SO URBANSRC  E1BFL008  E1BFL00B

SO CONCUNIT  857.2769  GRAMS/SEC  PPM

SO SRCGROUP  ALL

SO FINISHED


RE STARTING

RE ELEVUNIT  METERS

** BOUNDARY  3DIVB000

RE DISCCART  384813.2  3754405.1  0  0

RE DISCCART  384840.1  3754409.5  0  0

RE DISCCART  384901.6  3754429.7  0  0

RE DISCCART  384951  3754456.2  0  0

RE DISCCART  384951.7  3754514  0  0

RE DISCCART  384810.2  3754513  0  0

RE DISCCART  384810.2  3754512.7  0  0

RE FINISHED


ME STARTING

ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC

** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"

ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"

ME SURFDATA  0  2005

ME UAIRDATA  3190  2005

ME PROFBASE  87

ME FINISHED


OU STARTING

OU RECTABLE  1  FIRST

OU RECTABLE  8  FIRST

OU PLOTFILE  1  ALL  FIRST  ALL`1`FIRST.plt  10000
```

```
OU FINISHED


 *** Message Summary For AERMOD Model Setup ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           1 Warning Message(s)
A Total of           0 Informational Message(s)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565    63 OUPLOT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

***********************************
*** SETUP Finishes Successfully ***
***********************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                      ***
                         ***        15:00:30
**MODELOPTs:
                                    PAGE   1
CONC                        DFAULT ELEV


                                                  ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     8 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
           1. Stack-tip Downwash.
           2. Model Accounts for ELEVated Terrain Effects.
           3. Use Calms Processing Routine.
           4. Use Missing Data Processing Routine.
           5. No Exponential Decay for URBAN/Non-SO2

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  2 Short Term Average(s) of:   1-HR   8-HR

**This Run Includes:     8 Source(s);      1 Source Group(s); and       7
Receptor(s)

**The Model Assumes A Pollutant Type of:  CO
```

```
**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                              ;
Emission Rate Unit Factor =    857.28
                 Output Units   = PPM

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/04/10
                                   ***
                        ***        15:00:30
**MODELOPTs:
                                   PAGE   2
CONC                        DFAULT ELEV



                                                  *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                       BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
    SOURCE    PART.  (GRAMS/SEC)     X         Y      ELEV.   HEIGHT      SY       SZ
    SOURCE  SCALAR VARY
     ID       CATS.              (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - -

  JKW9Y003      0   0.57644E+00  385393.6 3754415.8     0.0     5.00   105.20
1.40     YES
  JKW9Y004      0   0.57644E+00  385380.4 3754298.5     0.0     5.00   144.10
1.40     YES
  JKW9Y005      0   0.57644E+00  385246.0 3754300.2     0.0     5.00    79.90
1.40     YES
  JKW9Y006      0   0.57644E+00  385160.6 3754272.0     0.0     5.00    69.00
1.40     YES
  JKW9Y007      0   0.57644E+00  384957.1 3754257.0     0.0     5.00    86.90
1.40     YES
  JKW9Y008      0   0.57644E+00  384872.8 3754340.5     0.0     5.00    83.70
1.40     YES
  E1BFL008      0   0.57644E+00  384969.7 3754387.0     0.0     5.00    65.70
1.40     YES
  E1BFL00B      0   0.57644E+00  385195.7 3754407.5     0.0     5.00   123.60
1.40     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/04/10
                                   ***
```

```
                          ***        15:00:30
**MODELOPTs:
                                     PAGE   3
CONC                            DFAULT ELEV



                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                        SOURCE IDs



 ALL       JKW9Y003, JKW9Y004, JKW9Y005, JKW9Y006, JKW9Y007, JKW9Y008, E1BFL008,
E1BFL00B,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                           ***        08/04/10
                                      ***
                          ***        15:00:30
**MODELOPTs:
                                     PAGE   4
CONC                            DFAULT ELEV



                                            *** DISCRETE CARTESIAN RECEPTORS ***
                                          (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                         (METERS)

    ( 384813.2, 3754405.0,       0.0,       0.0,       0.0);         ( 384840.1,
3754409.5,       0.0,       0.0,       0.0);
    ( 384901.6, 3754429.8,       0.0,       0.0,       0.0);         ( 384951.0,
3754456.2,       0.0,       0.0,       0.0);
    ( 384951.7, 3754514.0,       0.0,       0.0,       0.0);         ( 384810.2,
3754513.0,       0.0,       0.0,       0.0);
    ( 384810.2, 3754512.8,       0.0,       0.0,       0.0);

  *** AERMOD - VERSION 07026 ***    ***  MLK
                           ***        08/04/10
                                      ***
                          ***        15:00:30
**MODELOPTs:
                                     PAGE   5
CONC                            DFAULT ELEV


                        * SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT
BE PERFORMED *
                             LESS THAN 1.0 METER OR WITHIN OPEN PIT SOURCE


                                 SOURCE         - - RECEPTOR LOCATION - -
DISTANCE
                                   ID           XR (METERS)   YR (METERS)
(METERS)
                                - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- -

                                 JKW9Y007          384901.6     3754429.8
-5.39
                                 JKW9Y008          384813.2     3754405.0
-92.12
```

```
                                JKW9Y008          384840.1     3754409.5
-103.59
                                JKW9Y008          384901.6     3754429.8
-86.18
                                JKW9Y008          384951.0     3754456.2
-40.27
                                E1BFL008          384840.1     3754409.5
-9.72
                                E1BFL008          384901.6     3754429.8
-60.85
                                E1BFL008          384951.0     3754456.2
-69.53
                                E1BFL008          384951.7     3754514.0
-12.99
                                E1BFL00B          384951.0     3754456.2
-16.24
                                E1BFL00B          384951.7     3754514.0
0.49
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                    ***
                         ***        15:00:30
**MODELOPTs:
                                    PAGE   6
CONC                           DFAULT ELEV


                                              *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                                  (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                         AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.


                                    *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                              (METERS/SEC)

                                                  1.54,   3.09,   5.14,   8.23,
```

```
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/04/10
                                  ***
                       ***       15:00:30
**MODELOPTs:
                                 PAGE   7
CONC                        DFAULT ELEV



                                  *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
                Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

  Surface station no.:        0                  Upper air station no.:     3190
                 Name: UNKNOWN                                Name: UNKNOWN

                 Year:   2005                                 Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
```

```
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                     ***
                         ***        15:00:30
**MODELOPTs:
                                    PAGE   8
CONC                            DFAULT ELEV


                             *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):      JKW9Y003, JKW9Y004,
JKW9Y005, JKW9Y006, JKW9Y007, JKW9Y008, E1BFL008,
         E1BFL00B,


                                                *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                           ** CONC OF CO       IN PPM
                    **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754405.00       0.47345  (05041807)              384840.09
3754409.50        0.35897  (05041807)
       384901.59   3754429.75       0.34220  (05041807)              384951.00
3754456.25        0.31268  (05041807)
       384951.69   3754514.00       0.31020  (05041807)              384810.19
3754513.00        0.48831  (05041807)
       384810.19   3754512.75       0.48874  (05041807)

  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                     ***
                         ***        15:00:30
```

```
**MODELOPTs:
                                  PAGE   9
CONC                         DFAULT ELEV


                             *** THE   1ST HIGHEST  8-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):      JKW9Y003, JKW9Y004,
JKW9Y005, JKW9Y006, JKW9Y007, JKW9Y008, E1BFL008,
         E1BFL00B,

                                              *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                         ** CONC OF CO       IN PPM
                  **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754405.00       0.16750c (05041808)                384840.09
3754409.50        0.12755c (05041808)
       384901.59   3754429.75       0.09796c (05041808)                384951.00
3754456.25        0.11912c (05041808)
       384951.69   3754514.00       0.13969c (05041808)                384810.19
3754513.00        0.19772c (05041808)
       384810.19   3754512.75       0.19788c (05041808)

  *** AERMOD - VERSION 07026 ***    ***  MLK
                           ***       08/04/10
                                   ***
                          ***       15:00:30
**MODELOPTs:
                                  PAGE  10
CONC                         DFAULT ELEV


                                                 *** THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


                                         ** CONC OF CO       IN PPM
                  **

                                                           DATE
                                  NETWORK
GROUP ID                         AVERAGE CONC     (YYMMDDHH)            RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)     OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -


ALL      HIGH  1ST HIGH VALUE IS       0.48874  ON 05041807: AT (  384810.19,
3754512.75,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                           ***       08/04/10
                                   ***
```

```
                         ***        15:00:30
**MODELOPTs:
                                    PAGE  11
CONC                         DFAULT ELEV


                                                  *** THE SUMMARY OF HIGHEST  8-HR
RESULTS ***


                                          ** CONC OF CO       IN PPM
                    **

                                                              DATE
                                    NETWORK
GROUP ID                           AVERAGE CONC     (YYMMDDHH)             RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)       OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  1ST HIGH VALUE IS       0.19788c ON 05041808: AT (  384810.19,
3754512.75,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/04/10
                                     ***
                         ***        15:00:30
**MODELOPTs:
                                    PAGE  12
CONC                         DFAULT ELEV



*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of             0 Fatal Error Message(s)
A Total of             1 Warning Message(s)
A Total of          3086 Informational Message(s)

A Total of          2622 Calm Hours Identified

A Total of           464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565    63 OUPLOT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  DFAULT  CONC
CO RUNORNOT  RUN
CO AVERTIME  24
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  PM25
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  TIER_I    AREAPOLY  384956.1  3754345.6  0
** SRCDESCR  Tier I
SO SRCPARAM  TIER_I    3.19652E-06  0  24  1
SO AREAVERT  TIER_I    384956.1 3754345.6  384971.7 3754350.7
SO AREAVERT  TIER_I    384987.8 3754352.0  384987.8 3754356.2
SO AREAVERT  TIER_I    385012.5 3754356.2  385045.0 3754353.4
SO AREAVERT  TIER_I    385062.8 3754349.3  385078.4 3754339.9
SO AREAVERT  TIER_I    385068.3 3754308.2  385110.5 3754299.3
SO AREAVERT  TIER_I    385110.0 3754277.4  385080.9 3754277.1
SO AREAVERT  TIER_I    385082.3 3754285.3  385068.6 3754284.7
SO AREAVERT  TIER_I    385074.5 3754304.5  385067.3 3754305.8
SO AREAVERT  TIER_I    385050.3 3754305.8  385049.5 3754311.0
SO AREAVERT  TIER_I    384991.0 3754310.9  384991.0 3754334.2
SO AREAVERT  TIER_I    384987.8 3754334.1  384987.8 3754345.0
SO AREAVERT  TIER_I    384956.1 3754345.6  384975.9 3754351.0
SO URBANSRC  TIER_I
SO SRCGROUP  ALL
```

```
SO FINISHED


RE STARTING

RE ELEVUNIT  METERS

** BOUNDARY  RCPTR_1

RE DISCCART  384813.2  3754208.1  0  0

RE DISCCART  385451.6  3754204.4  0  0

RE DISCCART  385451.6  3754094.9  0  0

RE DISCCART  384813.2  3754094.9  0  0

RE FINISHED


ME STARTING

ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC

** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"

ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"

ME SURFDATA  0  2005

ME UAIRDATA  3190  2005

ME PROFBASE  87

ME FINISHED


OU STARTING

OU RECTABLE  24  EIGHTH

OU FINISHED
************************************
*** SETUP Finishes Successfully ***
************************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                      ***        08/16/10
                                  ***
                     ***        14:13:37
**MODELOPTs:
                                PAGE   1
CONC                        DFAULT ELEV

                                          ***     MODEL SETUP OPTIONS SUMMARY
```

```
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     1 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
           1. Stack-tip Downwash.
           2. Model Accounts for ELEVated Terrain Effects.
           3. Use Calms Processing Routine.
           4. Use Missing Data Processing Routine.
           5. No Exponential Decay for URBAN/Non-SO2

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:  24-HR

**This Run Includes:     1 Source(s);      1 Source Group(s); and       4
Receptor(s)

**The Model Assumes A Pollutant Type of:  PM25

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                  ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***        14:13:37
**MODELOPTs:
                                  PAGE   2
CONC                        DFAULT ELEV



                                                  *** AREAPOLY SOURCE DATA ***
```

```
             NUMBER EMISSION RATE   LOCATION OF AREA  BASE     RELEASE  NUMBER
INIT.   URBAN  EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC       X        Y      ELEV.    HEIGHT  OF VERTS.
SZ     SOURCE  SCALAR VARY
     ID       CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -

  TIER_I         0   0.31965E-05  384956.1 3754345.5     0.0     0.00      24
1.00     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/16/10
                                     ***
                         ***        14:13:37
**MODELOPTs:
                                    PAGE   3
CONC                            DFAULT ELEV



                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                          SOURCE IDs



 ALL       TIER_I   ,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/16/10
                                     ***
                         ***        14:13:37
**MODELOPTs:
                                    PAGE   4
CONC                            DFAULT ELEV



                                            *** DISCRETE CARTESIAN RECEPTORS ***
                                          (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

    ( 384813.2, 3754208.0,       0.0,       0.0,       0.0);         ( 385451.6,
3754204.5,       0.0,       0.0,       0.0);
    ( 385451.6, 3754095.0,       0.0,       0.0,       0.0);         ( 384813.2,
3754095.0,       0.0,       0.0,       0.0);
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/16/10
                                     ***
                         ***        14:13:37
**MODELOPTs:
                                    PAGE   5
CONC                            DFAULT ELEV



                                           *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                               (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
```

```
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                             AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                  *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                              (METERS/SEC)

                                                 1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                           ***       08/16/10
                                     ***
                          ***       14:13:37
**MODELOPTs:
                                    PAGE   6
CONC                            DFAULT ELEV



                                      *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
                Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

  Surface station no.:       0                Upper air station no.:     3190
                 Name: UNKNOWN                                  Name: UNKNOWN

                 Year:   2005                                   Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*      W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
```

```
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/16/10
                                     ***
                         ***        14:13:37
**MODELOPTs:
                                    PAGE   7
CONC                           DFAULT ELEV
```

```
             *** THE 8TH-HIGHEST 24-HR AVERAGE CONCENTRATION    VALUES AVERAGED OVER
  3 YEARS FOR SOURCE GROUP: ALL      ***
                                INCLUDING SOURCE(S):      TIER_I   ,

                                           *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                      ** CONC OF PM25     IN MICROGRAMS/M**3
                  **

      X-COORD (M)   Y-COORD (M)        CONC                          X-COORD (M)
Y-COORD (M)        CONC
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -
        384813.19    3754208.00        0.85311                         385451.59
3754204.50        1.07426
        385451.59    3754095.00        1.17281                         384813.19
3754095.00        0.73432
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***        14:13:37
**MODELOPTs:
                                  PAGE   8
CONC                        DFAULT ELEV


                               *** THE SUMMARY OF MAXIMUM 8TH-HIGHEST 24-HR RESULTS
AVERAGED OVER   3 YEARS ***


                                       ** CONC OF PM25     IN MICROGRAMS/M**3
                  **


                            NETWORK
GROUP ID                      AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV,
ZHILL, ZFLAG)       OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

ALL      1ST HIGHEST VALUE IS       1.17281 AT (  385451.59,  3754095.00,      0.00,
     0.00,      0.00)  DC
         2ND HIGHEST VALUE IS       1.07426 AT (  385451.59,  3754204.50,      0.00,
     0.00,      0.00)  DC
         3RD HIGHEST VALUE IS       0.85311 AT (  384813.19,  3754208.00,      0.00,
     0.00,      0.00)  DC
         4TH HIGHEST VALUE IS       0.73432 AT (  384813.19,  3754095.00,      0.00,
     0.00,      0.00)  DC
         5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
     0.00,      0.00)
         6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
     0.00,      0.00)
         7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
     0.00,      0.00)
         8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
     0.00,      0.00)
         9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
     0.00,      0.00)
        10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
     0.00,      0.00)
```

```
 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***        14:13:37
**MODELOPTS:
                                  PAGE   9
CONC                         DFAULT ELEV



*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           0 Warning Message(s)
A Total of        3086 Informational Message(s)

A Total of        2622 Calm Hours Identified

A Total of         464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  DFAULT  CONC
CO RUNORNOT  RUN
CO AVERTIME  24
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  PM25
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  TIER_I    AREAPOLY  384956.1  3754345.6  0
** SRCDESCR  Tier I
SO SRCPARAM  TIER_I    3.19652E-06  0  24  1
SO AREAVERT  TIER_I    384956.1 3754345.6  384971.7 3754350.7
SO AREAVERT  TIER_I    384987.8 3754352.0  384987.8 3754356.2
SO AREAVERT  TIER_I    385012.5 3754356.2  385045.0 3754353.4
SO AREAVERT  TIER_I    385062.8 3754349.3  385078.4 3754339.9
SO AREAVERT  TIER_I    385068.3 3754308.2  385110.5 3754299.3
SO AREAVERT  TIER_I    385110.0 3754277.4  385080.9 3754277.1
SO AREAVERT  TIER_I    385082.3 3754285.3  385068.6 3754284.7
SO AREAVERT  TIER_I    385074.5 3754304.5  385067.3 3754305.8
SO AREAVERT  TIER_I    385050.3 3754305.8  385049.5 3754311.0
SO AREAVERT  TIER_I    384991.0 3754310.9  384991.0 3754334.2
SO AREAVERT  TIER_I    384987.8 3754334.1  384987.8 3754345.0
SO AREAVERT  TIER_I    384956.1 3754345.6  384975.9 3754351.0
SO URBANSRC  TIER_I
SO SRCGROUP  ALL
```

```
SO FINISHED


RE STARTING

RE ELEVUNIT  METERS

** BOUNDARY  RCPTR_1

RE DISCCART  384813.2  3754405.1  0  0

RE DISCCART  384840.1  3754409.5  0  0

RE DISCCART  384901.6  3754429.7  0  0

RE DISCCART  384951  3754456.2  0  0

RE DISCCART  384951.7  3754514  0  0

RE DISCCART  384810.2  3754513  0  0

RE DISCCART  384810.2  3754512.7  0  0

RE FINISHED


ME STARTING

ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC

** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"

ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"

ME SURFDATA  0  2005

ME UAIRDATA  3190  2005

ME PROFBASE  87

ME FINISHED


OU STARTING

OU RECTABLE  24  EIGHTH

OU FINISHED
***********************************
*** SETUP Finishes Successfully ***
***********************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                      ***        08/16/10
                                 ***
                       ***       14:11:39
```

```
**MODELOPTs:
                                  PAGE   1
CONC                            DFAULT ELEV


                                           ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     1 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
           1. Stack-tip Downwash.
           2. Model Accounts for ELEVated Terrain Effects.
           3. Use Calms Processing Routine.
           4. Use Missing Data Processing Routine.
           5. No Exponential Decay for URBAN/Non-SO2

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:  24-HR

**This Run Includes:     1 Source(s);      1 Source Group(s); and       7
Receptor(s)

**The Model Assumes A Pollutant Type of:  PM25

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                    ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                       ***        08/16/10
                                   ***
                      ***        14:11:39
**MODELOPTs:
                                  PAGE   2
CONC                            DFAULT ELEV
```

```
                                               *** AREAPOLY SOURCE DATA ***

             NUMBER EMISSION RATE   LOCATION OF AREA  BASE     RELEASE  NUMBER
INIT.   URBAN  EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC       X        Y      ELEV.    HEIGHT  OF VERTS.
SZ     SOURCE  SCALAR VARY
     ID       CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -

  TIER_I        0   0.31965E-05  384956.1 3754345.5     0.0     0.00      24
1.00     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***       08/16/10
                                    ***
                         ***       14:11:39
**MODELOPTs:
                                   PAGE   3
CONC                            DFAULT ELEV



                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                  SOURCE IDs



 ALL       TIER_I   ,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***       08/16/10
                                    ***
                         ***       14:11:39
**MODELOPTs:
                                   PAGE   4
CONC                            DFAULT ELEV



                                            *** DISCRETE CARTESIAN RECEPTORS ***
                                          (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

    ( 384813.2, 3754405.0,       0.0,        0.0,       0.0);         ( 384840.1,
3754409.5,       0.0,       0.0,       0.0);
    ( 384901.6, 3754429.8,       0.0,        0.0,       0.0);         ( 384951.0,
3754456.2,       0.0,       0.0,       0.0);
    ( 384951.7, 3754514.0,       0.0,        0.0,       0.0);         ( 384810.2,
3754513.0,       0.0,       0.0,       0.0);
    ( 384810.2, 3754512.8,       0.0,        0.0,       0.0);

  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***       08/16/10
                                    ***
                         ***       14:11:39
**MODELOPTs:
                                   PAGE   5
```

```
CONC                            DFAULT ELEV



                                             *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                                  (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                            AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                 *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                               (METERS/SEC)

                                                   1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***        14:11:39
**MODELOPTs:
                                  PAGE   6
CONC                            DFAULT ELEV



                                   *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
                Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

  Surface station no.:       0                 Upper air station no.:     3190
```

```
                 Name: UNKNOWN                                    Name: UNKNOWN

                 Year:   2005                                     Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*      W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00
```

```
F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***        14:11:39
**MODELOPTs:
                                  PAGE   7
CONC                            DFAULT ELEV


             *** THE 8TH-HIGHEST 24-HR AVERAGE CONCENTRATION    VALUES AVERAGED OVER
  3 YEARS FOR SOURCE GROUP: ALL      ***
                                 INCLUDING SOURCE(S):      TIER_I  ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF PM25     IN MICROGRAMS/M**3
                  **

      X-COORD (M)   Y-COORD (M)        CONC                           X-COORD (M)
Y-COORD (M)        CONC
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
        384813.19   3754405.00        0.91843                           384840.09
3754409.50        1.00923
        384901.59   3754429.75        1.80992                           384951.00
3754456.25        2.28525
        384951.69   3754514.00        1.37615                           384810.19
3754513.00        0.71607
        384810.19   3754512.75        0.71510

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***        14:11:39
**MODELOPTs:
                                  PAGE   8
CONC                            DFAULT ELEV


                                *** THE SUMMARY OF MAXIMUM 8TH-HIGHEST 24-HR RESULTS
AVERAGED OVER   3 YEARS ***


                                       ** CONC OF PM25     IN MICROGRAMS/M**3
                  **


                            NETWORK
GROUP ID                      AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV,
ZHILL, ZFLAG)       OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

ALL      1ST HIGHEST VALUE IS       2.28525 AT (  384951.00,  3754456.25,      0.00,
     0.00,      0.00)  DC
         2ND HIGHEST VALUE IS       1.80992 AT (  384901.59,  3754429.75,      0.00,
     0.00,      0.00)  DC
         3RD HIGHEST VALUE IS       1.37615 AT (  384951.69,  3754514.00,      0.00,
     0.00,      0.00)  DC
         4TH HIGHEST VALUE IS       1.00923 AT (  384840.09,  3754409.50,      0.00,
```

```
    0.00,      0.00)  DC
        5TH HIGHEST VALUE IS       0.91843 AT (  384813.19,  3754405.00,      0.00,
    0.00,      0.00)  DC
        6TH HIGHEST VALUE IS       0.71607 AT (  384810.19,  3754513.00,      0.00,
    0.00,      0.00)  DC
        7TH HIGHEST VALUE IS       0.71510 AT (  384810.19,  3754512.75,      0.00,
    0.00,      0.00)  DC
        8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
    0.00,      0.00)
        9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
    0.00,      0.00)
       10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
    0.00,      0.00)

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***        14:11:39
**MODELOPTs:
                                  PAGE   9
CONC                         DFAULT ELEV


*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           0 Warning Message(s)
A Total of        3086 Informational Message(s)

A Total of        2622 Calm Hours Identified

A Total of         464 Missing Hours Identified (  1.77 Percent)

   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***

   ********   WARNING MESSAGES   ********
              ***  NONE  ***

   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

```
** BREEZE AERMOD

** Trinity Consultants

** VERSION  7.1


CO STARTING

CO TITLEONE  MLK

CO MODELOPT  DFAULT  CONC

CO RUNORNOT  RUN

CO AVERTIME  24

CO URBANOPT  9862049  AREA1  1

CO POLLUTID  PM25

CO FINISHED


SO STARTING

SO ELEVUNIT  METERS

SO LOCATION  8         AREAPOLY  384898.7  3754401.8  0

** SRCDESCR  Tier II_Phase 8

SO LOCATION  7         AREAPOLY  384811.2  3754292.4  0

** SRCDESCR  Tier II_Phase 7

SO LOCATION  5         AREAPOLY  385206.9  3754359.3  0

** SRCDESCR  Tier II_Phase 5

SO LOCATION  3         AREAPOLY  385252.1  3754470.3  0

** SRCDESCR  Tier II_Phase 3

SO LOCATION  4         AREAPOLY  385269  3754211.7  0

** SRCDESCR  Tier II_Phase 4

SO LOCATION  6         AREAPOLY  385206.8  3754358.9  0

** SRCDESCR  Tier II_Phase 6

SO LOCATION  2         AREAPOLY  385103.7  3754470.1  0

** SRCDESCR  Tier II_Phase 2

SO LOCATION  1         AREAPOLY  384898.5  3754402.3  0

SO SRCPARAM  8         1.82351E-06  0  14  1

SO SRCPARAM  7         2.47911E-06  0  13  1
```

```
SO SRCPARAM  5         3.82744E-06  0  14  1
SO SRCPARAM  3         2.04257E-06  0  4  1
SO SRCPARAM  4         1.70226E-06  0  18  1
SO SRCPARAM  6         2.85119E-06  0  16  1
SO SRCPARAM  2         2.83408E-06  0  10  1
SO SRCPARAM  1         2.44723E-06  0  15  1
SO AREAVERT  8         384898.7 3754401.8  384925.5 3754345.8
SO AREAVERT  8         384955.8 3754345.4  384987.6 3754344.9
SO AREAVERT  8         384988.3 3754293.1  384817.9 3754293.3
SO AREAVERT  8         384818.6 3754304.0  384811.6 3754304.4
SO AREAVERT  8         384810.7 3754370.9  384818.3 3754380.7
SO AREAVERT  8         384898.9 3754401.4  384898.7 3754400.9
SO AREAVERT  8         384898.5 3754400.9  384898.9 3754400.9
SO AREAVERT  7         384811.2 3754292.4  384812.2 3754224.3
SO AREAVERT  7         384815.7 3754222.7  385053.4 3754220.6
SO AREAVERT  7         385051.0 3754293.5  385049.9 3754311.4
SO AREAVERT  7         384988.5 3754311.6  384988.9 3754293.3
SO AREAVERT  7         384817.5 3754293.3  384818.8 3754303.8
SO AREAVERT  7         384810.9 3754304.2  384810.9 3754293.3
SO AREAVERT  7         384810.7 3754293.7
SO AREAVERT  5         385206.9 3754359.3  385206.9 3754310.9
SO AREAVERT  5         385150.7 3754309.4  385149.9 3754298.0
SO AREAVERT  5         385153.1 3754297.6  385153.9 3754259.8
SO AREAVERT  5         385214.0 3754259.4  385210.8 3754211.9
SO AREAVERT  5         385269.0 3754211.5  385268.6 3754263.4
SO AREAVERT  5         385272.5 3754303.1  385272.5 3754320.0
SO AREAVERT  5         385275.3 3754359.3  385207.3 3754358.9
SO AREAVERT  3         385252.1 3754470.3  385251.8 3754359.4
SO AREAVERT  3         385452.8 3754359.4  385453.1 3754471.3
SO AREAVERT  4         385269.0 3754211.7  385454.8 3754210.5
SO AREAVERT  4         385455.2 3754252.8  385448.5 3754261.4
```

```
SO AREAVERT  4         385448.9 3754303.8  385454.4 3754309.3
SO AREAVERT  4         385454.8 3754316.7  385450.1 3754320.6
SO AREAVERT  4         385446.6 3754319.8  385448.5 3754339.8
SO AREAVERT  4         385453.2 3754343.8  385452.8 3754359.4
SO AREAVERT  4         385274.9 3754359.8  385271.4 3754294.0
SO AREAVERT  4         385268.6 3754270.1  385268.6 3754211.3
SO AREAVERT  4         385269.4 3754210.9  385269.0 3754211.3
SO AREAVERT  6         385206.8 3754358.9  385106.7 3754359.9
SO AREAVERT  6         385078.4 3754339.9  385068.1 3754308.6
SO AREAVERT  6         385110.4 3754299.6  385110.2 3754276.8
SO AREAVERT  6         385051.6 3754277.3  385053.6 3754220.5
SO AREAVERT  6         385211.6 3754218.7  385214.6 3754259.0
SO AREAVERT  6         385154.0 3754260.0  385153.2 3754297.3
SO AREAVERT  6         385149.7 3754297.8  385150.2 3754309.9
SO AREAVERT  6         385207.0 3754310.9  385207.0 3754358.9
SO AREAVERT  2         385103.7 3754470.1  385103.2 3754357.7
SO AREAVERT  2         385106.9 3754360.7  385251.9 3754359.7
SO AREAVERT  2         385252.1 3754470.6  385196.0 3754470.6
SO AREAVERT  2         385183.5 3754467.1  385129.7 3754466.6
SO AREAVERT  2         385115.7 3754469.8  385103.4 3754469.8
SO AREAVERT  1         384898.5 3754402.3  384931.5 3754416.4
SO AREAVERT  1         384960.9 3754435.0  384984.5 3754445.1
SO AREAVERT  1         385035.1 3754460.6  385103.5 3754470.7
SO AREAVERT  1         385103.2 3754358.1  385077.9 3754340.2
SO AREAVERT  1         385063.7 3754348.7  385044.5 3754354.1
SO AREAVERT  1         384987.8 3754356.4  384987.5 3754352.0
SO AREAVERT  1         384974.0 3754351.0  384956.1 3754346.0
SO AREAVERT  1         384925.8 3754345.3
SO URBANSRC  8  7  5  3  4  6  2  1
SO SRCGROUP  ALL
SO FINISHED
```

```
RE STARTING
RE ELEVUNIT  METERS
** BOUNDARY  RCPTR_1
RE DISCCART  384813.2  3754208.1  0  0
RE DISCCART  385451.6  3754204.4  0  0
RE DISCCART  385451.6  3754094.9  0  0
RE DISCCART  384813.2  3754094.9  0  0
RE FINISHED

ME STARTING
ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"
ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL
** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"
ME SURFDATA  0  2005
ME UAIRDATA  3190  2005
ME PROFBASE  87
ME FINISHED

OU STARTING
OU RECTABLE  24  EIGHTH
OU FINISHED
************************************
*** SETUP Finishes Successfully ***
************************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/16/10
                                   ***
                        ***       14:15:16
**MODELOPTs:
                                  PAGE   1
CONC                         DFAULT ELEV

                                            ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -
```

```
**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     8 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
           1. Stack-tip Downwash.
           2. Model Accounts for ELEVated Terrain Effects.
           3. Use Calms Processing Routine.
           4. Use Missing Data Processing Routine.
           5. No Exponential Decay for URBAN/Non-SO2

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:  24-HR

**This Run Includes:     8 Source(s);      1 Source Group(s); and       4
Receptor(s)

**The Model Assumes A Pollutant Type of:  PM25

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                               ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***       08/16/10
                                    ***
                         ***       14:15:16
**MODELOPTs:
                                   PAGE   2
CONC                        DFAULT ELEV



                                                  *** AREAPOLY SOURCE DATA ***


             NUMBER EMISSION RATE   LOCATION OF AREA  BASE     RELEASE  NUMBER
INIT.   URBAN  EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC       X        Y      ELEV.    HEIGHT  OF VERTS.
SZ      SOURCE  SCALAR VARY
```

```
     ID       CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -

  8              0   0.18235E-05  384898.7 3754401.8     0.0     0.00      14
1.00     YES
  7              0   0.24791E-05  384811.2 3754292.5     0.0     0.00      13
1.00     YES
  5              0   0.38274E-05  385206.9 3754359.2     0.0     0.00      14
1.00     YES
  3              0   0.20426E-05  385252.1 3754470.2     0.0     0.00       4
1.00     YES
  4              0   0.17023E-05  385269.0 3754211.8     0.0     0.00      18
1.00     YES
  6              0   0.28512E-05  385206.8 3754359.0     0.0     0.00      16
1.00     YES
  2              0   0.28341E-05  385103.7 3754470.0     0.0     0.00      10
1.00     YES
  1              0   0.24472E-05  384898.5 3754402.2     0.0     0.00      15
1.00     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/16/10
                                   ***
                        ***       14:15:16
**MODELOPTs:
                                  PAGE   3
CONC                        DFAULT ELEV



                                                    *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                          SOURCE IDs



 ALL       8       , 7       , 5       , 3       , 4       , 6       , 2       , 1
    ,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/16/10
                                   ***
                        ***       14:15:16
**MODELOPTs:
                                  PAGE   4
CONC                        DFAULT ELEV



                                                      *** DISCRETE CARTESIAN RECEPTORS ***
                                                    (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                                    (METERS)

    ( 384813.2, 3754208.0,       0.0,       0.0,       0.0);         ( 385451.6,
3754204.5,       0.0,       0.0,       0.0);
    ( 385451.6, 3754095.0,       0.0,       0.0,       0.0);         ( 384813.2,
3754095.0,       0.0,       0.0,       0.0);
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/16/10
                                   ***
                        ***       14:15:16
**MODELOPTs:
```

```
                                        PAGE   5
CONC                            DFAULT ELEV



                                                *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                                   (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                                AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                              *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                                 (METERS/SEC)

                                                     1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/16/10
                                   ***
                       ***       14:15:16
**MODELOPTs:
                                        PAGE   6
CONC                            DFAULT ELEV



                                            *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
                Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)
```

```
  Surface station no.:       0                  Upper air station no.:     3190
                Name: UNKNOWN                                 Name: UNKNOWN

                Year:   2005                                  Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
```

```
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                                 ***        08/16/10
                                            ***
                                ***        14:15:16
**MODELOPTs:
                                           PAGE   7
CONC                            DFAULT ELEV


             *** THE 8TH-HIGHEST 24-HR AVERAGE CONCENTRATION    VALUES AVERAGED OVER
  3 YEARS FOR SOURCE GROUP: ALL      ***
                                          INCLUDING SOURCE(S):      8       , 7       , 5
  , 3       , 4       , 6       , 2       ,
       1       ,

                                                     *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                                ** CONC OF PM25     IN MICROGRAMS/M**3
                  **

      X-COORD (M)   Y-COORD (M)        CONC                         X-COORD (M)
Y-COORD (M)        CONC
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -
        384813.19    3754208.00       23.88909                        385451.59
3754204.50       49.83408
        385451.59    3754095.00       23.23612                        384813.19
3754095.00       11.40770
  *** AERMOD - VERSION 07026 ***    ***  MLK
                                 ***        08/16/10
                                            ***
                                ***        14:15:16
**MODELOPTs:
                                           PAGE   8
CONC                            DFAULT ELEV


                                        *** THE SUMMARY OF MAXIMUM 8TH-HIGHEST 24-HR RESULTS
AVERAGED OVER   3 YEARS ***


                                                ** CONC OF PM25     IN MICROGRAMS/M**3
                  **


                            NETWORK
GROUP ID                      AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV,
ZHILL, ZFLAG)       OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -


ALL       1ST HIGHEST VALUE IS      49.83408 AT (  385451.59,  3754204.50,      0.00,
     0.00,      0.00)  DC
          2ND HIGHEST VALUE IS      23.88909 AT (  384813.19,  3754208.00,      0.00,
     0.00,      0.00)  DC
          3RD HIGHEST VALUE IS      23.23612 AT (  385451.59,  3754095.00,      0.00,
     0.00,      0.00)  DC
          4TH HIGHEST VALUE IS      11.40770 AT (  384813.19,  3754095.00,      0.00,
     0.00,      0.00)  DC
```

```
      5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
    0.00,      0.00)
      6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
    0.00,      0.00)
      7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
    0.00,      0.00)
      8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
    0.00,      0.00)
      9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
    0.00,      0.00)
     10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
    0.00,      0.00)


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/16/10
                                   ***
                       ***       14:15:16
**MODELOPTs:
                                 PAGE   9
CONC                         DFAULT ELEV



*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            0 Warning Message(s)
A Total of         3086 Informational Message(s)

A Total of         2622 Calm Hours Identified

A Total of          464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  DFAULT  CONC
CO RUNORNOT  RUN
CO AVERTIME  24
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  PM25
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  8         AREAPOLY  384898.7  3754401.8  0
** SRCDESCR  Tier II_Phase 8
SO LOCATION  7         AREAPOLY  384811.2  3754292.4  0
** SRCDESCR  Tier II_Phase 7
SO LOCATION  5         AREAPOLY  385206.9  3754359.3  0
** SRCDESCR  Tier II_Phase 5
SO LOCATION  3         AREAPOLY  385252.1  3754470.3  0
** SRCDESCR  Tier II_Phase 3
SO LOCATION  4         AREAPOLY  385269  3754211.7  0
** SRCDESCR  Tier II_Phase 4
SO LOCATION  6         AREAPOLY  385206.8  3754358.9  0
** SRCDESCR  Tier II_Phase 6
SO LOCATION  2         AREAPOLY  385103.7  3754470.1  0
** SRCDESCR  Tier II_Phase 2
SO LOCATION  1         AREAPOLY  384898.5  3754402.3  0
SO SRCPARAM  8         1.10171E-06  0  14  1
SO SRCPARAM  7         2.47911E-06  0  13  1
```

```
SO SRCPARAM  5         3.82744E-06  0  14  1
SO SRCPARAM  3         2.04257E-06  0  4  1
SO SRCPARAM  4         1.70226E-06  0  18  1
SO SRCPARAM  6         2.85119E-06  0  16  1
SO SRCPARAM  2         2.83408E-06  0  10  1
SO SRCPARAM  1         2.44723E-06  0  15  1
SO AREAVERT  8         384898.7 3754401.8  384925.5 3754345.8
SO AREAVERT  8         384955.8 3754345.4  384987.6 3754344.9
SO AREAVERT  8         384988.3 3754293.1  384817.9 3754293.3
SO AREAVERT  8         384818.6 3754304.0  384811.6 3754304.4
SO AREAVERT  8         384810.7 3754370.9  384818.3 3754380.7
SO AREAVERT  8         384898.9 3754401.4  384898.7 3754400.9
SO AREAVERT  8         384898.5 3754400.9  384898.9 3754400.9
SO AREAVERT  7         384811.2 3754292.4  384812.2 3754224.3
SO AREAVERT  7         384815.7 3754222.7  385053.4 3754220.6
SO AREAVERT  7         385051.0 3754293.5  385049.9 3754311.4
SO AREAVERT  7         384988.5 3754311.6  384988.9 3754293.3
SO AREAVERT  7         384817.5 3754293.3  384818.8 3754303.8
SO AREAVERT  7         384810.9 3754304.2  384810.9 3754293.3
SO AREAVERT  7         384810.7 3754293.7
SO AREAVERT  5         385206.9 3754359.3  385206.9 3754310.9
SO AREAVERT  5         385150.7 3754309.4  385149.9 3754298.0
SO AREAVERT  5         385153.1 3754297.6  385153.9 3754259.8
SO AREAVERT  5         385214.0 3754259.4  385210.8 3754211.9
SO AREAVERT  5         385269.0 3754211.5  385268.6 3754263.4
SO AREAVERT  5         385272.5 3754303.1  385272.5 3754320.0
SO AREAVERT  5         385275.3 3754359.3  385207.3 3754358.9
SO AREAVERT  3         385252.1 3754470.3  385251.8 3754359.4
SO AREAVERT  3         385452.8 3754359.4  385453.1 3754471.3
SO AREAVERT  4         385269.0 3754211.7  385454.8 3754210.5
SO AREAVERT  4         385455.2 3754252.8  385448.5 3754261.4
```

```
SO AREAVERT  4         385448.9 3754303.8  385454.4 3754309.3

SO AREAVERT  4         385454.8 3754316.7  385450.1 3754320.6

SO AREAVERT  4         385446.6 3754319.8  385448.5 3754339.8

SO AREAVERT  4         385453.2 3754343.8  385452.8 3754359.4

SO AREAVERT  4         385274.9 3754359.8  385271.4 3754294.0

SO AREAVERT  4         385268.6 3754270.1  385268.6 3754211.3

SO AREAVERT  4         385269.4 3754210.9  385269.0 3754211.3

SO AREAVERT  6         385206.8 3754358.9  385106.7 3754359.9

SO AREAVERT  6         385078.4 3754339.9  385068.1 3754308.6

SO AREAVERT  6         385110.4 3754299.6  385110.2 3754276.8

SO AREAVERT  6         385051.6 3754277.3  385053.6 3754220.5

SO AREAVERT  6         385211.6 3754218.7  385214.6 3754259.0

SO AREAVERT  6         385154.0 3754260.0  385153.2 3754297.3

SO AREAVERT  6         385149.7 3754297.8  385150.2 3754309.9

SO AREAVERT  6         385207.0 3754310.9  385207.0 3754358.9

SO AREAVERT  2         385103.7 3754470.1  385103.2 3754357.7

SO AREAVERT  2         385106.9 3754360.7  385251.9 3754359.7

SO AREAVERT  2         385252.1 3754470.6  385196.0 3754470.6

SO AREAVERT  2         385183.5 3754467.1  385129.7 3754466.6

SO AREAVERT  2         385115.7 3754469.8  385103.4 3754469.8

SO AREAVERT  1         384898.5 3754402.3  384931.5 3754416.4

SO AREAVERT  1         384960.9 3754435.0  384984.5 3754445.1

SO AREAVERT  1         385035.1 3754460.6  385103.5 3754470.7

SO AREAVERT  1         385103.2 3754358.1  385077.9 3754340.2

SO AREAVERT  1         385063.7 3754348.7  385044.5 3754354.1

SO AREAVERT  1         384987.8 3754356.4  384987.5 3754352.0

SO AREAVERT  1         384974.0 3754351.0  384956.1 3754346.0

SO AREAVERT  1         384925.8 3754345.3

SO URBANSRC  8  7  5  3  4  6  2  1

SO SRCGROUP  ALL

SO FINISHED
```

```
RE STARTING
RE ELEVUNIT  METERS
** BOUNDARY  RCPTR_1
RE DISCCART  384813.2  3754405.1  0  0
RE DISCCART  384840.1  3754409.5  0  0
RE DISCCART  384901.6  3754429.7  0  0
RE DISCCART  384951  3754456.2  0  0
RE DISCCART  384951.7  3754514  0  0
RE DISCCART  384810.2  3754513  0  0
RE DISCCART  384810.2  3754512.7  0  0
RE FINISHED

ME STARTING
ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"
ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL
** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"
ME SURFDATA  0  2005
ME UAIRDATA  3190  2005
ME PROFBASE  87
ME FINISHED

OU STARTING
OU RECTABLE  24  EIGHTH
OU FINISHED
***********************************
*** SETUP Finishes Successfully ***
***********************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***       14:21:10
**MODELOPTs:
                                 PAGE   1
CONC                        DFAULT ELEV
```

```
                                           ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     8 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
           1. Stack-tip Downwash.
           2. Model Accounts for ELEVated Terrain Effects.
           3. Use Calms Processing Routine.
           4. Use Missing Data Processing Routine.
           5. No Exponential Decay for URBAN/Non-SO2

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:  24-HR

**This Run Includes:     8 Source(s);      1 Source Group(s); and       7
Receptor(s)

**The Model Assumes A Pollutant Type of:  PM25

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                  ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***        14:21:10
**MODELOPTs:
                                  PAGE   2
CONC                            DFAULT ELEV
```

```
                              *** AREAPOLY SOURCE DATA ***

             NUMBER EMISSION RATE   LOCATION OF AREA  BASE     RELEASE  NUMBER
INIT.   URBAN  EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC       X         Y      ELEV.    HEIGHT  OF VERTS.
SZ     SOURCE  SCALAR VARY
     ID       CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

  8             0   0.11017E-05  384898.7 3754401.8     0.0     0.00      14
1.00     YES
  7             0   0.24791E-05  384811.2 3754292.5     0.0     0.00      13
1.00     YES
  5             0   0.38274E-05  385206.9 3754359.2     0.0     0.00      14
1.00     YES
  3             0   0.20426E-05  385252.1 3754470.2     0.0     0.00       4
1.00     YES
  4             0   0.17023E-05  385269.0 3754211.8     0.0     0.00      18
1.00     YES
  6             0   0.28512E-05  385206.8 3754359.0     0.0     0.00      16
1.00     YES
  2             0   0.28341E-05  385103.7 3754470.0     0.0     0.00      10
1.00     YES
  1             0   0.24472E-05  384898.5 3754402.2     0.0     0.00      15
1.00     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***      08/16/10
                                   ***
                        ***      14:21:10
**MODELOPTs:
                                 PAGE   3
CONC                          DFAULT ELEV



                                        *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                  SOURCE IDs



 ALL       8       , 7       , 5       , 3       , 4       , 6       , 2       , 1
   ,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***      08/16/10
                                   ***
                        ***      14:21:10
**MODELOPTs:
                                 PAGE   4
CONC                          DFAULT ELEV


                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                        (METERS)

    ( 384813.2, 3754405.0,       0.0,       0.0,       0.0);         ( 384840.1,
3754409.5,       0.0,       0.0,       0.0);
    ( 384901.6, 3754429.8,       0.0,       0.0,       0.0);         ( 384951.0,
```

```
3754456.2,        0.0,        0.0,        0.0);
    ( 384951.7, 3754514.0,        0.0,        0.0,        0.0);         ( 384810.2,
3754513.0,        0.0,        0.0,        0.0);
    ( 384810.2, 3754512.8,        0.0,        0.0,        0.0);

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/16/10
                                  ***
                       ***       14:21:10
**MODELOPTs:
                                 PAGE   5
CONC                           DFAULT ELEV



                                           *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                            (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                         AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                 *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                         (METERS/SEC)

                                               1.54,    3.09,    5.14,    8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/16/10
                                  ***
                       ***       14:21:10
**MODELOPTs:
                                 PAGE   6
CONC                           DFAULT ELEV



                                   *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***
```

```
  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
                Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

  Surface station no.:        0                Upper air station no.:     3190
                 Name: UNKNOWN                                  Name: UNKNOWN

                 Year:   2005                                   Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 - - - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
```

```
    0.00    0.    9.1  283.1    5.5
05 01 01    1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
    0.00    0.    9.1  283.1    5.5
05 01 01    1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
    0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***        08/16/10
                                    ***
                        ***        14:21:10
**MODELOPTs:
                                   PAGE   7
CONC                           DFAULT ELEV


             *** THE 8TH-HIGHEST 24-HR AVERAGE CONCENTRATION    VALUES AVERAGED OVER
  3 YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):      8        , 7        , 5
  , 3        , 4        , 6        , 2        ,
       1        ,

                                                *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                           ** CONC OF PM25     IN MICROGRAMS/M**3
                  **

      X-COORD (M)   Y-COORD (M)        CONC                           X-COORD (M)
Y-COORD (M)        CONC
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
        384813.19    3754405.00       11.83226                          384840.09
3754409.50       13.32771
        384901.59    3754429.75       18.45042                          384951.00
3754456.25       20.90245
        384951.69    3754514.00       13.23932                          384810.19
3754513.00        7.77451
        384810.19    3754512.75        7.77667

  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***        08/16/10
                                    ***
                        ***        14:21:10
**MODELOPTs:
                                   PAGE   8
CONC                           DFAULT ELEV


                               *** THE SUMMARY OF MAXIMUM 8TH-HIGHEST 24-HR RESULTS
AVERAGED OVER   3 YEARS ***


                                           ** CONC OF PM25     IN MICROGRAMS/M**3
                  **
```

```
                            NETWORK
GROUP ID                      AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV,
ZHILL, ZFLAG)       OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

ALL      1ST HIGHEST VALUE IS      20.90245 AT (  384951.00,  3754456.25,      0.00,
     0.00,      0.00)  DC
         2ND HIGHEST VALUE IS      18.45042 AT (  384901.59,  3754429.75,      0.00,
     0.00,      0.00)  DC
         3RD HIGHEST VALUE IS      13.32771 AT (  384840.09,  3754409.50,      0.00,
     0.00,      0.00)  DC
         4TH HIGHEST VALUE IS      13.23932 AT (  384951.69,  3754514.00,      0.00,
     0.00,      0.00)  DC
         5TH HIGHEST VALUE IS      11.83226 AT (  384813.19,  3754405.00,      0.00,
     0.00,      0.00)  DC
         6TH HIGHEST VALUE IS       7.77667 AT (  384810.19,  3754512.75,      0.00,
     0.00,      0.00)  DC
         7TH HIGHEST VALUE IS       7.77451 AT (  384810.19,  3754513.00,      0.00,
     0.00,      0.00)  DC
         8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
     0.00,      0.00)
         9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
     0.00,      0.00)
        10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,
     0.00,      0.00)

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/16/10
                                  ***
                       ***       14:21:10
**MODELOPTs:
                                 PAGE   9
CONC                         DFAULT ELEV



*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           0 Warning Message(s)
A Total of        3086 Informational Message(s)

A Total of        2622 Calm Hours Identified

A Total of         464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***
```

```
*************************************
*** AERMOD Finishes Successfully ***
*************************************
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  DFAULT  CONC
CO RUNORNOT  RUN
CO AVERTIME  24
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  PM10
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  TIER_I    AREAPOLY  384956.1  3754345.6  0
** SRCDESCR  Tier I
SO SRCPARAM  TIER_I    5.29079E-06  0  24  1
SO AREAVERT  TIER_I    384956.1 3754345.6  384971.7 3754350.7
SO AREAVERT  TIER_I    384987.8 3754352.0  384987.8 3754356.2
SO AREAVERT  TIER_I    385012.5 3754356.2  385045.0 3754353.4
SO AREAVERT  TIER_I    385062.8 3754349.3  385078.4 3754339.9
SO AREAVERT  TIER_I    385068.3 3754308.2  385110.5 3754299.3
SO AREAVERT  TIER_I    385110.0 3754277.4  385080.9 3754277.1
SO AREAVERT  TIER_I    385082.3 3754285.3  385068.6 3754284.7
SO AREAVERT  TIER_I    385074.5 3754304.5  385067.3 3754305.8
SO AREAVERT  TIER_I    385050.3 3754305.8  385049.5 3754311.0
SO AREAVERT  TIER_I    384991.0 3754310.9  384991.0 3754334.2
SO AREAVERT  TIER_I    384987.8 3754334.1  384987.8 3754345.0
SO AREAVERT  TIER_I    384956.1 3754345.6  384975.9 3754351.0
SO URBANSRC  TIER_I
SO SRCGROUP  ALL
```

```
SO FINISHED


RE STARTING

RE ELEVUNIT  METERS

** BOUNDARY  RCPTR_1

RE DISCCART  384813.2  3754208.1  0  0

RE DISCCART  385451.6  3754204.4  0  0

RE DISCCART  385451.6  3754094.9  0  0

RE DISCCART  384813.2  3754094.9  0  0

RE FINISHED


ME STARTING

ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC

** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"

ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"

ME SURFDATA  0  2005

ME UAIRDATA  3190  2005

ME PROFBASE  87

ME FINISHED


OU STARTING

OU RECTABLE  24  FOURTH

OU FINISHED
************************************
*** SETUP Finishes Successfully ***
************************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                       ***        08/16/10
                                   ***
                      ***        14:30:36
**MODELOPTs:
                                 PAGE   1
CONC                        DFAULT ELEV

                                           ***     MODEL SETUP OPTIONS SUMMARY
```

```
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     1 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
           1. Stack-tip Downwash.
           2. Model Accounts for ELEVated Terrain Effects.
           3. Use Calms Processing Routine.
           4. Use Missing Data Processing Routine.
           5. No Exponential Decay for URBAN/Non-SO2

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:  24-HR

**This Run Includes:     1 Source(s);      1 Source Group(s); and       4
Receptor(s)

**The Model Assumes A Pollutant Type of:  PM10

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***       08/16/10
                                     ***
                         ***       14:30:36
**MODELOPTs:
                                  PAGE   2
CONC                        DFAULT ELEV



                                                        *** AREAPOLY SOURCE DATA ***
```

```
             NUMBER EMISSION RATE   LOCATION OF AREA  BASE     RELEASE  NUMBER
INIT.   URBAN  EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC       X        Y      ELEV.    HEIGHT  OF VERTS.
SZ     SOURCE  SCALAR VARY
     ID       CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -


  TIER_I         0   0.52908E-05  384956.1 3754345.5     0.0     0.00      24
1.00     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/16/10
                                   ***
                        ***       14:30:36
**MODELOPTs:
                                  PAGE   3
CONC                         DFAULT ELEV



                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                  SOURCE IDs



 ALL       TIER_I   ,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/16/10
                                   ***
                        ***       14:30:36
**MODELOPTs:
                                  PAGE   4
CONC                         DFAULT ELEV



                                            *** DISCRETE CARTESIAN RECEPTORS ***
                                          (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

    ( 384813.2, 3754208.0,       0.0,       0.0,       0.0);         ( 385451.6,
3754204.5,       0.0,       0.0,       0.0);
    ( 385451.6, 3754095.0,       0.0,       0.0,       0.0);         ( 384813.2,
3754095.0,       0.0,       0.0,       0.0);
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***       08/16/10
                                   ***
                        ***       14:30:36
**MODELOPTs:
                                  PAGE   5
CONC                         DFAULT ELEV



                                           *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                               (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
```

```
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                           AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                 *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                               (METERS/SEC)

                                                  1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/16/10
                                     ***
                         ***        14:30:36
**MODELOPTs:
                                    PAGE   6
CONC                            DFAULT ELEV



                                   *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
              Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

  Surface station no.:       0                Upper air station no.:     3190
              Name: UNKNOWN                                 Name: UNKNOWN

              Year:   2005                                  Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
```

```
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/16/10
                                     ***
                         ***        14:30:36
**MODELOPTs:
                                    PAGE   7
CONC                           DFAULT ELEV
```

```
                             *** THE   4TH HIGHEST 24-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):      TIER_I   ,
                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF PM10     IN MICROGRAMS/M**3
                  **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)             X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754208.00        2.44162  (07011924)               385451.59
3754204.50        2.44380c (05101224)
       385451.59   3754095.00        2.67857  (05081424)               384813.19
3754095.00        1.73503c (06110924)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***       08/16/10
                                     ***
                         ***       14:30:36
**MODELOPTs:
                                  PAGE   8
CONC                        DFAULT ELEV


                                                *** THE SUMMARY OF HIGHEST 24-HR
RESULTS ***


                                       ** CONC OF PM10     IN MICROGRAMS/M**3
                  **

                                                     DATE
                                  NETWORK
GROUP ID                         AVERAGE CONC     (YYMMDDHH)            RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)     OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  4TH HIGH VALUE IS       2.67857  ON 05081424: AT (  385451.59,
3754095.00,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***       08/16/10
                                     ***
                         ***       14:30:36
**MODELOPTs:
                                  PAGE   9
CONC                        DFAULT ELEV


*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------
```

```
A Total of           0 Fatal Error Message(s)
A Total of           0 Warning Message(s)
A Total of        3086 Informational Message(s)

A Total of        2622 Calm Hours Identified

A Total of         464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  DFAULT  CONC
CO RUNORNOT  RUN
CO AVERTIME  24
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  PM10
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  TIER_I    AREAPOLY  384956.1  3754345.6  0
** SRCDESCR  Tier I
SO SRCPARAM  TIER_I    5.29079E-06  0  24  1
SO AREAVERT  TIER_I    384956.1 3754345.6  384971.7 3754350.7
SO AREAVERT  TIER_I    384987.8 3754352.0  384987.8 3754356.2
SO AREAVERT  TIER_I    385012.5 3754356.2  385045.0 3754353.4
SO AREAVERT  TIER_I    385062.8 3754349.3  385078.4 3754339.9
SO AREAVERT  TIER_I    385068.3 3754308.2  385110.5 3754299.3
SO AREAVERT  TIER_I    385110.0 3754277.4  385080.9 3754277.1
SO AREAVERT  TIER_I    385082.3 3754285.3  385068.6 3754284.7
SO AREAVERT  TIER_I    385074.5 3754304.5  385067.3 3754305.8
SO AREAVERT  TIER_I    385050.3 3754305.8  385049.5 3754311.0
SO AREAVERT  TIER_I    384991.0 3754310.9  384991.0 3754334.2
SO AREAVERT  TIER_I    384987.8 3754334.1  384987.8 3754345.0
SO AREAVERT  TIER_I    384956.1 3754345.6  384975.9 3754351.0
SO URBANSRC  TIER_I
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
** BOUNDARY  RCPTR_1
RE DISCCART  384813.2  3754405.1  0  0
RE DISCCART  384840.1  3754409.5  0  0
RE DISCCART  384901.6  3754429.7  0  0
RE DISCCART  384951  3754456.2  0  0
RE DISCCART  384951.7  3754514  0  0
RE DISCCART  384810.2  3754513  0  0
RE DISCCART  384810.2  3754512.7  0  0
RE FINISHED

ME STARTING
ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"
ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL
** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"
ME SURFDATA  0  2005
ME UAIRDATA  3190  2005
ME PROFBASE  87
ME FINISHED

OU STARTING
OU RECTABLE  24  FOURTH
OU FINISHED

** ****************************************************************************
** It is recommended that the user not edit any data below this line
** ****************************************************************************
```

```
** AMPTYPE
** AMPDATUM  -1
** AMPZONE  -1
** AMPHEMISPHERE

** PROJECTION  UTM
** DATUM  WGE
** UNITS  METER
** ZONE  2
** HEMISPHERE  N
** ORIGINLON  0
** ORIGINLAT  0
** PARALLEL1  0
** PARALLEL2  0
** AZIMUTH  0
** SCALEFACT  0
** FALSEEAST  0
** FALSENORTH  0

** POSTFMT  UNFORM

** AERMODEXE  AERMOD_EPA_07026.EXE
** AERMAPEXE
```

```
** BREEZE AERMOD
** Trinity Consultants
** VERSION  7.1

CO STARTING
CO TITLEONE  MLK
CO MODELOPT  DFAULT  CONC
CO RUNORNOT  RUN
CO AVERTIME  24
CO URBANOPT  9862049  AREA1  1
CO POLLUTID  PM10
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  8         AREAPOLY  384898.7  3754401.8  0
** SRCDESCR  Tier II_Phase 8
SO LOCATION  7         AREAPOLY  384811.2  3754292.4  0
** SRCDESCR  Tier II_Phase 7
SO LOCATION  5         AREAPOLY  385206.9  3754359.3  0
** SRCDESCR  Tier II_Phase 5
SO LOCATION  3         AREAPOLY  385252.1  3754470.3  0
** SRCDESCR  Tier II_Phase 3
SO LOCATION  4         AREAPOLY  385269  3754211.7  0
** SRCDESCR  Tier II_Phase 4
SO LOCATION  6         AREAPOLY  385206.8  3754358.9  0
** SRCDESCR  Tier II_Phase 6
SO LOCATION  2         AREAPOLY  385103.7  3754470.1  0
** SRCDESCR  Tier II_Phase 2
SO LOCATION  1         AREAPOLY  384898.5  3754402.3  0
SO SRCPARAM  8         1.82351E-06  0  14  1
SO SRCPARAM  7         4.10335E-06  0  13  1
SO SRCPARAM  5         6.33507E-06  0  14  1
SO SRCPARAM  3         3.38081E-06  0  4  1
SO SRCPARAM  4         2.81754E-06  0  18  1
SO SRCPARAM  6         4.7192E-06  0  16  1
SO SRCPARAM  2         4.69089E-06  0  10  1
SO SRCPARAM  1         4.05059E-06  0  15  1
SO AREAVERT  8         384898.7 3754401.8  384925.5 3754345.8
SO AREAVERT  8         384955.8 3754345.4  384987.6 3754344.9
SO AREAVERT  8         384988.3 3754293.1  384817.9 3754293.3
SO AREAVERT  8         384818.6 3754304.0  384811.6 3754304.4
SO AREAVERT  8         384810.7 3754370.9  384818.3 3754380.7
SO AREAVERT  8         384898.9 3754401.4  384898.7 3754400.9
SO AREAVERT  8         384898.5 3754400.9  384898.9 3754400.9
SO AREAVERT  7         384811.2 3754292.4  384812.2 3754224.3
SO AREAVERT  7         384815.7 3754222.7  385053.4 3754220.6
SO AREAVERT  7         385051.0 3754293.5  385049.9 3754311.4
SO AREAVERT  7         384988.5 3754311.6  384988.9 3754293.3
SO AREAVERT  7         384817.5 3754293.3  384818.8 3754303.8
SO AREAVERT  7         384810.9 3754304.2  384810.9 3754293.3
SO AREAVERT  7         384810.7 3754293.7
SO AREAVERT  5         385206.9 3754359.3  385206.9 3754310.9
SO AREAVERT  5         385150.7 3754309.4  385149.9 3754298.0
SO AREAVERT  5         385153.1 3754297.6  385153.9 3754259.8
SO AREAVERT  5         385214.0 3754259.4  385210.8 3754211.9
SO AREAVERT  5         385269.0 3754211.5  385268.6 3754263.4
SO AREAVERT  5         385272.5 3754303.1  385272.5 3754320.0
SO AREAVERT  5         385275.3 3754359.3  385207.3 3754358.9
SO AREAVERT  3         385252.1 3754470.3  385251.8 3754359.4
SO AREAVERT  3         385452.8 3754359.4  385453.1 3754471.3
SO AREAVERT  4         385269.0 3754211.7  385454.8 3754210.5
SO AREAVERT  4         385455.2 3754252.8  385448.5 3754261.4
```

```
SO AREAVERT  4         385448.9 3754303.8  385454.4 3754309.3
SO AREAVERT  4         385454.8 3754316.7  385450.1 3754320.6
SO AREAVERT  4         385446.6 3754319.8  385448.5 3754339.8
SO AREAVERT  4         385453.2 3754343.8  385452.8 3754359.4
SO AREAVERT  4         385274.9 3754359.8  385271.4 3754294.0
SO AREAVERT  4         385268.6 3754270.1  385268.6 3754211.3
SO AREAVERT  4         385269.4 3754210.9  385269.0 3754211.3
SO AREAVERT  6         385206.8 3754358.9  385106.7 3754359.9
SO AREAVERT  6         385078.4 3754339.9  385068.1 3754308.6
SO AREAVERT  6         385110.4 3754299.6  385110.2 3754276.8
SO AREAVERT  6         385051.6 3754277.3  385053.6 3754220.5
SO AREAVERT  6         385211.6 3754218.7  385214.6 3754259.0
SO AREAVERT  6         385154.0 3754260.0  385153.2 3754297.3
SO AREAVERT  6         385149.7 3754297.8  385150.2 3754309.9
SO AREAVERT  6         385207.0 3754310.9  385207.0 3754358.9
SO AREAVERT  2         385103.7 3754470.1  385103.2 3754357.7
SO AREAVERT  2         385106.9 3754360.7  385251.9 3754359.7
SO AREAVERT  2         385252.1 3754470.6  385196.0 3754470.6
SO AREAVERT  2         385183.5 3754467.1  385129.7 3754466.6
SO AREAVERT  2         385115.7 3754469.8  385103.4 3754469.8
SO AREAVERT  1         384898.5 3754402.3  384931.5 3754416.4
SO AREAVERT  1         384960.9 3754435.0  384984.5 3754445.1
SO AREAVERT  1         385035.1 3754460.6  385103.5 3754470.7
SO AREAVERT  1         385103.2 3754358.1  385077.9 3754340.2
SO AREAVERT  1         385063.7 3754348.7  385044.5 3754354.1
SO AREAVERT  1         384987.8 3754356.4  384987.5 3754352.0
SO AREAVERT  1         384974.0 3754351.0  384956.1 3754346.0
SO AREAVERT  1         384925.8 3754345.3
SO URBANSRC  8  7  5  3  4  6  2  1
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
** BOUNDARY  RCPTR_1
RE DISCCART  384813.2  3754208.1  0  0
RE DISCCART  385451.6  3754204.4  0  0
RE DISCCART  385451.6  3754094.9  0  0
RE DISCCART  384813.2  3754094.9  0  0
RE FINISHED

ME STARTING
ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"
ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL
** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"
ME SURFDATA  0  2005
ME UAIRDATA  3190  2005
ME PROFBASE  87
ME FINISHED

OU STARTING
OU RECTABLE  24  FOURTH
OU FINISHED

** ********************************************************************************
** It is recommended that the user not edit any data below this line
** ********************************************************************************


** AMPTYPE
** AMPDATUM  -1
** AMPZONE  -1
```

```
** AMPHEMISPHERE

** PROJECTION  UTM
** DATUM  WGE
** UNITS  METER
** ZONE  2
** HEMISPHERE  N
** ORIGINLON  0
** ORIGINLAT  0
** PARALLEL1  0
** PARALLEL2  0
** AZIMUTH  0
** SCALEFACT  0
** FALSEEAST  0
** FALSENORTH  0

** POSTFMT  UNFORM

** AERMODEXE  AERMOD_EPA_07026.EXE
** AERMAPEXE
```

```
** BREEZE AERMOD

** Trinity Consultants

** VERSION  7.1


CO STARTING

CO TITLEONE  MLK

CO MODELOPT  DFAULT  CONC

CO RUNORNOT  RUN

CO AVERTIME  24

CO URBANOPT  9862049  AREA1  1

CO POLLUTID  PM10

CO FINISHED


SO STARTING

SO ELEVUNIT  METERS

SO LOCATION  8         AREAPOLY  384898.7  3754401.8  0

** SRCDESCR  Tier II_Phase 8

SO LOCATION  7         AREAPOLY  384811.2  3754292.4  0

** SRCDESCR  Tier II_Phase 7

SO LOCATION  5         AREAPOLY  385206.9  3754359.3  0

** SRCDESCR  Tier II_Phase 5

SO LOCATION  3         AREAPOLY  385252.1  3754470.3  0

** SRCDESCR  Tier II_Phase 3

SO LOCATION  4         AREAPOLY  385269  3754211.7  0

** SRCDESCR  Tier II_Phase 4

SO LOCATION  6         AREAPOLY  385206.8  3754358.9  0

** SRCDESCR  Tier II_Phase 6

SO LOCATION  2         AREAPOLY  385103.7  3754470.1  0

** SRCDESCR  Tier II_Phase 2

SO LOCATION  1         AREAPOLY  384898.5  3754402.3  0

SO SRCPARAM  8         1.82351E-06  0  14  1

SO SRCPARAM  7         4.10335E-06  0  13  1
```

```
SO SRCPARAM  5         6.33507E-06  0  14  1
SO SRCPARAM  3         3.38081E-06  0  4  1
SO SRCPARAM  4         2.81754E-06  0  18  1
SO SRCPARAM  6         4.7192E-06  0  16  1
SO SRCPARAM  2         4.69089E-06  0  10  1
SO SRCPARAM  1         4.05059E-06  0  15  1
SO AREAVERT  8         384898.7 3754401.8  384925.5 3754345.8
SO AREAVERT  8         384955.8 3754345.4  384987.6 3754344.9
SO AREAVERT  8         384988.3 3754293.1  384817.9 3754293.3
SO AREAVERT  8         384818.6 3754304.0  384811.6 3754304.4
SO AREAVERT  8         384810.7 3754370.9  384818.3 3754380.7
SO AREAVERT  8         384898.9 3754401.4  384898.7 3754400.9
SO AREAVERT  8         384898.5 3754400.9  384898.9 3754400.9
SO AREAVERT  7         384811.2 3754292.4  384812.2 3754224.3
SO AREAVERT  7         384815.7 3754222.7  385053.4 3754220.6
SO AREAVERT  7         385051.0 3754293.5  385049.9 3754311.4
SO AREAVERT  7         384988.5 3754311.6  384988.9 3754293.3
SO AREAVERT  7         384817.5 3754293.3  384818.8 3754303.8
SO AREAVERT  7         384810.9 3754304.2  384810.9 3754293.3
SO AREAVERT  7         384810.7 3754293.7
SO AREAVERT  5         385206.9 3754359.3  385206.9 3754310.9
SO AREAVERT  5         385150.7 3754309.4  385149.9 3754298.0
SO AREAVERT  5         385153.1 3754297.6  385153.9 3754259.8
SO AREAVERT  5         385214.0 3754259.4  385210.8 3754211.9
SO AREAVERT  5         385269.0 3754211.5  385268.6 3754263.4
SO AREAVERT  5         385272.5 3754303.1  385272.5 3754320.0
SO AREAVERT  5         385275.3 3754359.3  385207.3 3754358.9
SO AREAVERT  3         385252.1 3754470.3  385251.8 3754359.4
SO AREAVERT  3         385452.8 3754359.4  385453.1 3754471.3
SO AREAVERT  4         385269.0 3754211.7  385454.8 3754210.5
SO AREAVERT  4         385455.2 3754252.8  385448.5 3754261.4
```

```
SO AREAVERT  4         385448.9 3754303.8  385454.4 3754309.3
SO AREAVERT  4         385454.8 3754316.7  385450.1 3754320.6
SO AREAVERT  4         385446.6 3754319.8  385448.5 3754339.8
SO AREAVERT  4         385453.2 3754343.8  385452.8 3754359.4
SO AREAVERT  4         385274.9 3754359.8  385271.4 3754294.0
SO AREAVERT  4         385268.6 3754270.1  385268.6 3754211.3
SO AREAVERT  4         385269.4 3754210.9  385269.0 3754211.3
SO AREAVERT  6         385206.8 3754358.9  385106.7 3754359.9
SO AREAVERT  6         385078.4 3754339.9  385068.1 3754308.6
SO AREAVERT  6         385110.4 3754299.6  385110.2 3754276.8
SO AREAVERT  6         385051.6 3754277.3  385053.6 3754220.5
SO AREAVERT  6         385211.6 3754218.7  385214.6 3754259.0
SO AREAVERT  6         385154.0 3754260.0  385153.2 3754297.3
SO AREAVERT  6         385149.7 3754297.8  385150.2 3754309.9
SO AREAVERT  6         385207.0 3754310.9  385207.0 3754358.9
SO AREAVERT  2         385103.7 3754470.1  385103.2 3754357.7
SO AREAVERT  2         385106.9 3754360.7  385251.9 3754359.7
SO AREAVERT  2         385252.1 3754470.6  385196.0 3754470.6
SO AREAVERT  2         385183.5 3754467.1  385129.7 3754466.6
SO AREAVERT  2         385115.7 3754469.8  385103.4 3754469.8
SO AREAVERT  1         384898.5 3754402.3  384931.5 3754416.4
SO AREAVERT  1         384960.9 3754435.0  384984.5 3754445.1
SO AREAVERT  1         385035.1 3754460.6  385103.5 3754470.7
SO AREAVERT  1         385103.2 3754358.1  385077.9 3754340.2
SO AREAVERT  1         385063.7 3754348.7  385044.5 3754354.1
SO AREAVERT  1         384987.8 3754356.4  384987.5 3754352.0
SO AREAVERT  1         384974.0 3754351.0  384956.1 3754346.0
SO AREAVERT  1         384925.8 3754345.3
SO URBANSRC  8  7  5  3  4  6  2  1
SO SRCGROUP  ALL
SO FINISHED
```

```
RE STARTING
RE ELEVUNIT  METERS
** BOUNDARY  RCPTR_1
RE DISCCART  384813.2  3754405.1  0  0
RE DISCCART  384840.1  3754409.5  0  0
RE DISCCART  384901.6  3754429.7  0  0
RE DISCCART  384951  3754456.2  0  0
RE DISCCART  384951.7  3754514  0  0
RE DISCCART  384810.2  3754513  0  0
RE DISCCART  384810.2  3754512.7  0  0
RE FINISHED

ME STARTING
ME SURFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
** SURFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.SFC"
ME PROFFILE  C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL
** PROFFILE  "C:\Program Files\Lakes\WRPLOT View\lynn.PFL"
ME SURFDATA  0  2005
ME UAIRDATA  3190  2005
ME PROFBASE  87
ME FINISHED

OU STARTING
OU RECTABLE  24  FOURTH
OU FINISHED
***********************************
*** SETUP Finishes Successfully ***
***********************************

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***        14:35:32
**MODELOPTs:
                                  PAGE   1
CONC                        DFAULT ELEV
```

```
                                           ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses URBAN Dispersion Algorithm for the SBL for     8 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   9862049.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
           1. Stack-tip Downwash.
           2. Model Accounts for ELEVated Terrain Effects.
           3. Use Calms Processing Routine.
           4. Use Missing Data Processing Routine.
           5. No Exponential Decay for URBAN/Non-SO2

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:  24-HR

**This Run Includes:     8 Source(s);      1 Source Group(s); and       7
Receptor(s)

**The Model Assumes A Pollutant Type of:  PM10

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    87.00 ;  Decay Coef.
=    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                     ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

  *** AERMOD - VERSION 07026 ***    ***  MLK
                          ***        08/16/10
                                     ***
                         ***        14:35:32
**MODELOPTs:
                                    PAGE   2
CONC                        DFAULT ELEV
```

```
                                            *** AREAPOLY SOURCE DATA ***

             NUMBER EMISSION RATE   LOCATION OF AREA  BASE     RELEASE  NUMBER
INIT.   URBAN  EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC       X        Y      ELEV.    HEIGHT  OF VERTS.
SZ     SOURCE  SCALAR VARY
     ID       CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

  8             0   0.18235E-05  384898.7 3754401.8     0.0     0.00      14
1.00     YES
  7             0   0.41033E-05  384811.2 3754292.5     0.0     0.00      13
1.00     YES
  5             0   0.63351E-05  385206.9 3754359.2     0.0     0.00      14
1.00     YES
  3             0   0.33808E-05  385252.1 3754470.2     0.0     0.00       4
1.00     YES
  4             0   0.28175E-05  385269.0 3754211.8     0.0     0.00      18
1.00     YES
  6             0   0.47192E-05  385206.8 3754359.0     0.0     0.00      16
1.00     YES
  2             0   0.46909E-05  385103.7 3754470.0     0.0     0.00      10
1.00     YES
  1             0   0.40506E-05  384898.5 3754402.2     0.0     0.00      15
1.00     YES
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/16/10
                                  ***
                       ***       14:35:32
**MODELOPTs:
                                 PAGE   3
CONC                            DFAULT ELEV



                                                     *** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID                                                          SOURCE IDs



 ALL       8       , 7       , 5       , 3       , 4       , 6       , 2       , 1
    ,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/16/10
                                  ***
                       ***       14:35:32
**MODELOPTs:
                                 PAGE   4
CONC                            DFAULT ELEV


                                                       *** DISCRETE CARTESIAN RECEPTORS ***
                                                     (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                                    (METERS)

    ( 384813.2, 3754405.0,       0.0,       0.0,       0.0);         ( 384840.1,
3754409.5,       0.0,       0.0,       0.0);
    ( 384901.6, 3754429.8,       0.0,       0.0,       0.0);         ( 384951.0,
```

```
3754456.2,       0.0,       0.0,       0.0);
    ( 384951.7, 3754514.0,       0.0,       0.0,       0.0);        ( 384810.2,
3754513.0,       0.0,       0.0,       0.0);
    ( 384810.2, 3754512.8,       0.0,       0.0,       0.0);

  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***        14:35:32
**MODELOPTs:
                                  PAGE   5
CONC                            DFAULT ELEV



                                            *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                             (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1
1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE:    0   0  0
0
                                                         AND END DATE: 9999  99 99
24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                 *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                          (METERS/SEC)

                                               1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***        08/16/10
                                   ***
                       ***        14:35:32
**MODELOPTs:
                                  PAGE   6
CONC                            DFAULT ELEV



                                   *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***
```

```
  Surface file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.SFC
                Met Version:  06341
  Profile file:   C:\PROGRA~1\Lakes\WRPLOT~1\lynn.PFL

  Surface format:
(3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,
1X,F5.0,3(1X,F6.1))
  Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)

  Surface station no.:        0                Upper air station no.:     3190
                 Name: UNKNOWN                                   Name: UNKNOWN

                 Year:   2005                                    Year:   2005

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO
 REF WS   WD     HT  REF TA     HT
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - -
05 01 01   1 01   -0.3  0.021 -9.000 -9.000 -999.    7.      2.8  0.51   1.00   1.00
   0.30  337.    9.1  281.4    5.5
05 01 01   1 02   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  317.    9.1  281.4    5.5
05 01 01   1 03   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  338.    9.1  280.9    5.5
05 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  280.4    5.5
05 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  279.9    5.5
05 01 01   1 06   -0.3  0.020 -9.000 -9.000 -999.    6.      2.2  0.51   1.00   1.00
   0.28  313.    9.1  279.9    5.5
05 01 01   1 07   -0.3  0.020 -9.000 -9.000 -999.    6.      2.3  0.51   1.00   1.00
   0.28  328.    9.1  279.2    5.5
05 01 01   1 08   21.4 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   0.54
   0.00    0.    9.1  279.9    5.5
05 01 01   1 09   43.1  0.107  0.924  0.005  661.   80.     -2.5  0.51   1.00   0.32
   0.40    9.    9.1  282.5    5.5
05 01 01   1 10  110.9  0.238  1.400  0.006  895.  266.    -10.9  0.51   1.00   0.24
   1.20   58.    9.1  285.4    5.5
05 01 01   1 11  135.8  0.203  1.658  0.010 1214.  211.     -5.6  0.51   1.00   0.21
   0.90   45.    9.1  287.5    5.5
05 01 01   1 12   14.0  0.119  0.779  0.010 1217.   96.    -10.8  0.51   1.00   0.20
   0.60  204.    9.1  285.9    5.5
05 01 01   1 13   27.0  0.205  0.970  0.009 1223.  213.    -28.8  0.51   1.00   0.20
   1.20  154.    9.1  286.4    5.5
05 01 01   1 14   17.0  0.160  0.833  0.009 1227.  147.    -21.7  0.51   1.00   0.21
   0.90  203.    9.1  286.4    5.5
05 01 01   1 15    3.8  0.063  0.504  0.009 1227.   41.     -6.0  0.51   1.00   0.24
   0.28  231.    9.1  286.4    5.5
05 01 01   1 16    0.1  0.085  0.151  0.009 1227.   57.   -549.9  0.51   1.00   0.33
   0.60  222.    9.1  285.9    5.5
05 01 01   1 17   -0.3  0.021 -9.000 -9.000 -999.   10.      2.5  0.51   1.00   0.60
   0.30  197.    9.1  285.9    5.5
05 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  285.4    5.5
05 01 01   1 19   -0.2  0.020 -9.000 -9.000 -999.    6.      3.1  0.51   1.00   1.00
   0.28  264.    9.1  284.9    5.5
05 01 01   1 20   -0.3  0.021 -9.000 -9.000 -999.    7.      2.3  0.51   1.00   1.00
   0.30  256.    9.1  284.2    5.5
05 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
   0.00    0.    9.1  283.8    5.5
05 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
```

```
    0.00    0.    9.1  283.1    5.5
05 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
    0.00    0.    9.1  283.1    5.5
05 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.51   1.00   1.00
    0.00    0.    9.1  282.0    5.5


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
05 01 01 01    5.5 0 -999.  -99.00   281.5   99.0  -99.00  -99.00
05 01 01 01    9.1 1  337.    0.30  -999.0   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***        08/16/10
                                    ***
                        ***        14:35:32
**MODELOPTs:
                                   PAGE   7
CONC                          DFAULT ELEV


                              *** THE   4TH HIGHEST 24-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL       ***
                                  INCLUDING SOURCE(S):      8       , 7       , 5
  , 3       , 4       , 6       , 2       ,
        1       ,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF PM10     IN MICROGRAMS/M**3
                  **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       384813.19   3754405.00       27.23118m (05010924)                384840.09
3754409.50       31.96004  (05030424)
       384901.59   3754429.75       41.81390  (05030424)                384951.00
3754456.25       43.68299  (05030424)
       384951.69   3754514.00       29.44655c (05052224)                384810.19
3754513.00       17.66918m (05010924)
       384810.19   3754512.75       17.67817m (05010924)

  *** AERMOD - VERSION 07026 ***    ***  MLK
                         ***        08/16/10
                                    ***
                        ***        14:35:32
**MODELOPTs:
                                   PAGE   8
CONC                          DFAULT ELEV


                                                *** THE SUMMARY OF HIGHEST 24-HR
RESULTS ***


                                        ** CONC OF PM10     IN MICROGRAMS/M**3
                  **

                                                               DATE
```

```
                                  NETWORK
GROUP ID                         AVERAGE CONC     (YYMMDDHH)             RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)     OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  4TH HIGH VALUE IS      43.68299  ON 05030424: AT (  384951.00,
3754456.25,      0.00,      0.00,      0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
  *** AERMOD - VERSION 07026 ***    ***  MLK
                        ***       08/16/10
                                   ***
                       ***       14:35:32
**MODELOPTs:
                                  PAGE   9
CONC                         DFAULT ELEV



*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           0 Warning Message(s)
A Total of        3086 Informational Message(s)

A Total of        2622 Calm Hours Identified

A Total of         464 Missing Hours Identified (  1.77 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

APPENDIX E
OPERATIONAL GHG EMISSIONS

GHG EMISSION CALCULATIONS

CCAR WECC Emission Factors: Jan 2009 (lbs/MWh)					
CO2	724.12	**CH4**	0.0302	**N2O**	0.0081
SAR Global Warming Potentials recommended by CCAR					
CO2	1	**CH4**	21	**N2O**	310

Tier I Square Footage: -338,686

	MWh	CO2 in tons	CH4 in tons	CH4 in CO2e	N2O in tons	N2O in CO2e	Total CO2e in tons
2008-present	-4385.98	-1440.60	-0.06	-1.26	-0.02	-5.00	-1,447
							Total CO2e in pounds
							-8,739
							Metric tons per capita
							-0.0001

Tier II Square Footage: 1,814,696

	MWh	CO2 in tons	CH4 in tons	CH4 in CO2e	N2O in tons	N2O in CO2e	Total CO2e in tons
2008-present	23500.31	7718.80	0.32	6.76	0.09	26.77	7,752
							Total CO2e in pounds
							46,825
							Metric tons per capita
							0.0007

Net Square Footage: 1,476,010

	MWh	CO2 in tons	CH4 in tons	CH4 in CO2e	N2O in tons	N2O in CO2e	Total CO2e in tons
2008-present	19114.33	6278.20	0.26	5.50	0.07	21.77	6,305
							Total CO2e in pounds
							38,085
							Metric tons per capita
							0.0006

Population

2010	2015	2020	2025	2030
10,615,700	10,971,589	11,329,802	11,678,528	12,015,892

APPENDIX F
CALINE4 CALCULATIONS

Background one hour CO concentration is 8.0 ppm.
Background eight hour CO concentration is 6.4 ppm.
Receptor points were assumed to be located at edge of roadway.

Tier I Calculations: Analysis year = 2014
Using EMFAC2007, a 2014 vehicle fleet would emit 3.6 grams CO per mile
Therefore, the Tier I emission factor used was 3.6 g/mi

Tier II Calculations: Analysis year = 2020
Using EMFAC2007, a 2020 vehicle fleet would emit 2.4 grams CO per mile
Therefore, the Tier II emission factor used was 2.4 g/mi

Intersection 25: Compton Avenue/Imperial Highway

Intersection of 4-lane road and a 2-lane road at grade level.

Existing (Baseline) with Ambient Growth (2014) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,385	1,202
Equation:	$\frac{(11.9)(2,385)(3.6)}{100,000}$	$\frac{(3.7)(1,202)(3.6)}{100,000}$

1-Hr Local Concentration: 1.0 + 0.2 = 1.2 ppm

1-Hr Total Concentration: 1.2 (intersection) + 8.0 (1-hr background) = 9.2 ppm

8-Hr Local Concentration: (1.2) x (.7) = 0.8 ppm

8-Hr Total Concentration: 0.8 (intersection) + 6.4 (8-hr background) = 7.2 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,378	1,187
Equation:	$\frac{(11.9)(2,378)(3.6)}{100,000}$	$\frac{(3.7)(1,187)(3.6)}{100,000}$

1-Hr Local Concentration: 1.0 + 0.2 = 1.2 ppm

1-Hr Total Concentration: 1.2 (intersection) + 8.0 (1-hr background) = 9.2 ppm

8-Hr Local Concentration: (1.2) x (.7) = 0.8 ppm

8-Hr Total Concentration: 0.8 (intersection) + 6.4 (8-hr background) = 7.2 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,445	1,220
Equation:	$\frac{(11.9)(2{,}445)(3.6)}{100{,}000}$	$\frac{(3.7)(1{,}220)(3.6)}{100{,}000}$

1-Hr Local Concentration: 1.0 + 0.2 = 1.2 ppm

1-Hr Total Concentration: 1.2 (intersection) + 8.0 (1-hr background) = 9.2 ppm

8-Hr Local Concentration: (1.2) x (.7) = 0.8 ppm

8-Hr Total Concentration: 0.8 (intersection) + 6.4 (8-hr background) = 7.2 ppm

Existing (Baseline) with Ambient Growth (2020) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,484	1,255
Equation:	$\frac{(11.9)(2{,}484)(2.4)}{100{,}000}$	$\frac{(3.7)(1{,}255)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.7 + 0.1 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,512	1,306
Equation:	$\frac{(11.9)(2{,}512)(2.4)}{100{,}000}$	$\frac{(3.7)(1{,}306)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.7 + 0.1 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,596	1,339
Equation:	$\frac{(11.9)(2{,}512)(2.4)}{100{,}000}$	$\frac{(3.7)(1{,}306)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.7 + 0.1 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Intersection 34: Wilmington Avenue/I-105 Eastbound Ramps

Intersection of 5-lane highway and 2-lane eastbound ramps at grade level.

Existing (Baseline) with Ambient Growth (2014) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,616	1,045
Equation:	$\frac{(9)(2{,}616)(3.6)}{100{,}000}$	$\frac{(3.7)(1{,}045)(3.6)}{100{,}000}$

1-Hr Local Concentration: 0.8 + 0.1 = 0.9 ppm

1-Hr Total Concentration: 0.9 (intersection) + 8.0 (1-hr background) = 8.9 ppm

8-Hr Local Concentration: (0.9) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,505	613
Equation:	$\frac{(9)(2{,}505)(3.6)}{100{,}000}$	$\frac{(3.7)(613)(3.6)}{100{,}000}$

1-Hr Local Concentration: 0.8 + 0.1 = 0.9 ppm

1-Hr Total Concentration: 0.9 (intersection) + 8.0 (1-hr background) = 8.9 ppm

8-Hr Local Concentration: (0.9) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,639	637
Equation:	$\frac{(9)(2,639)(3.6)}{100,000}$	$\frac{(3.7)(637)(3.6)}{100,000}$

1-Hr Local Concentration: 0.9 + 0.1 = 1.0 ppm

1-Hr Total Concentration: 1.0 (intersection) + 8.0 (1-hr background) = 9.0 ppm

8-Hr Local Concentration: (1.0) x (.7) = 0.7 ppm

8-Hr Total Concentration: 0.7 (intersection) + 6.4 (8-hr background) = 7.1 ppm

Existing (Baseline) with Ambient Growth (2020) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,378	1,088
Equation:	$\frac{(9)(2,378)(2.4)}{100,000}$	$\frac{(3.7)(1,088)(2.4)}{100,000}$

1-Hr Local Concentration: 0.5 + 0.1 = 0.6 ppm

1-Hr Total Concentration: 0.6 (intersection) + 8.0 (1-hr background) = 8.6 ppm

8-Hr Local Concentration: (0.6) x (.7) = 0.4 ppm

8-Hr Total Concentration: 0.4 (intersection) + 6.4 (8-hr background) = 6.8 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	3,295	701
Equation:	$\underline{(9)(3,295)(2.4)}$	$\underline{(3.7)(701)(2.4)}$

100,000 100,000

1-Hr Local Concentration: 0.7 + 0.1 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	3,489	773
Equation:	$\frac{(9)(3,489)(2.4)}{100,000}$	$\frac{(3.7)(773)(2.4)}{100,000}$

1-Hr Local Concentration: 0.8 + 0.1 = 0.9 ppm

1-Hr Total Concentration: 0.9 (intersection) + 8.0 (1-hr background) = 8.9 ppm

8-Hr Local Concentration: (0.9) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Intersection 35: Wilmington Avenue/118th Street

Intersection of 5-lane road and a 2-lane road at grade level.

Existing (Baseline) with Ambient Growth (2014) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,495	371
Equation:	$\frac{(9)(2,495)(3.6)}{100,000}$	$\frac{(3.7)(371)(3.6)}{100,000}$

1-Hr Local Concentration: 0.8+ 0.0 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,375	371
Equation:	$\frac{(9)(2,375)(3.6)}{100,000}$	$\frac{(3.7)(371)(3.6)}{100,000}$

1-Hr Local Concentration: 0.8 + 0.0 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,515	388
Equation:	$\frac{(9)(2,515)(3.6)}{100,000}$	$\frac{(3.7)(388)(3.6)}{100,000}$

1-Hr Local Concentration: 0.8 + 0.1 = 0.9 ppm

1-Hr Total Concentration: 0.9 (intersection) + 8.0 (1-hr background) = 8.9 ppm

8-Hr Local Concentration: (0.9) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2020) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,592	386
Equation:	$\frac{(9)(2,592)(2.4)}{100,000}$	$\frac{(3.7)(386)(2.4)}{100,000}$

1-Hr Local Concentration: 0.6 + 0.0 = 0.6 ppm

1-Hr Total Concentration: 0.6 (intersection) + 8.0 (1-hr background) = 8.6 ppm

8-Hr Local Concentration: (0.6) x (.7) = 0.4 ppm

8-Hr Total Concentration: 0.4 (intersection) + 6.4 (8-hr background) = 6.8 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	3,036	386
Equation:	$\frac{(9)(3{,}036)(2.4)}{100{,}000}$	$\frac{(3.7)(386)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.7+ 0.0 = 0.7 ppm

1-Hr Total Concentration: 0.7 (intersection) + 8.0 (1-hr background) = 8.7 ppm

8-Hr Local Concentration: (0.7) x (.7) = 0.5 ppm

8-Hr Total Concentration: 0.5 (intersection) + 6.4 (8-hr background) = 6.9 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	3,196	403
Equation:	$\frac{(9)(3{,}196)(2.4)}{100{,}000}$	$\frac{(3.7)(403)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.7+ 0.0 = 0.7 ppm

1-Hr Total Concentration: 0.7 (intersection) + 8.0 (1-hr background) = 8.7 ppm

8-Hr Local Concentration: (0.7) x (.7) = 0.5 ppm

8-Hr Total Concentration: 0.5 (intersection) + 6.4 (8-hr background) = 6.9 ppm

Intersection 36: Wilmington Avenue/120th Street-119th Street

Intersection of 4-lane road and a 3-lane road at grade level.

Existing (Baseline) with Ambient Growth (2014) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,341	855
Equation:	$\frac{(11.9)(2{,}341)(3.6)}{100{,}000}$	$\frac{(3.5)(855)(3.6)}{100{,}000}$

1-Hr Local Concentration: 1.0 + 0.1 = 1.1 ppm

1-Hr Total Concentration: 1.1 (intersection) + 8.0 (1-hr background) = 9.1 ppm

8-Hr Local Concentration: (1.1) x (.7) = 0.8 ppm

8-Hr Total Concentration: 0.8 (intersection) + 6.4 (8-hr background) = 7.2 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,235	833
Equation:	$\frac{(11.9)(2,235)(3.6)}{100,000}$	$\frac{(3.5)(833)(3.6)}{100,000}$

1-Hr Local Concentration: 1.0 + 0.1 = 1.1 ppm

1-Hr Total Concentration: 1.1 (intersection) + 8.0 (1-hr background) = 9.1 ppm

8-Hr Local Concentration: (1.1) x (.7) = 0.8 ppm

8-Hr Total Concentration: 0.8 (intersection) + 6.4 (8-hr background) = 7.2 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,309	861
Equation:	$\frac{(11.9)(2,309)(3.6)}{100,000}$	$\frac{(3.5)(861)(3.6)}{100,000}$

1-Hr Local Concentration: 1.0 + 0.1 = 1.1 ppm

1-Hr Total Concentration: 1.1 (intersection) + 8.0 (1-hr background) = 9.1 ppm

8-Hr Local Concentration: (1.1) x (.7) = 0.8 ppm

8-Hr Total Concentration: 0.8 (intersection) + 6.4 (8-hr background) = 7.2 ppm

Existing (Baseline) with Ambient Growth (2020) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,434	889
Equation:	$\frac{(11.9)(2,434)(2.4)}{100,000}$	$\frac{(3.5)(889)(2.4)}{100,000}$

1-Hr Local Concentration: 0.7 + 0.1 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,681	1,387
Equation:	$\frac{(11.9)(2,681)(2.4)}{100,000}$	$\frac{(3.5)(1,387)(2.4)}{100,000}$

1-Hr Local Concentration: 0.8 + 0.1 = 0.9 ppm

1-Hr Total Concentration: 0.9 (intersection) + 8.0 (1-hr background) = 8.9 ppm

8-Hr Local Concentration: (0.9) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,804	1,404
Equation:	$\frac{(11.9)(2,804)(2.4)}{100,000}$	$\frac{(3.5)(1,404)(2.4)}{100,000}$

1-Hr Local Concentration: 0.8 + 0.1 = 0.9 ppm

1-Hr Total Concentration: 0.9 (intersection) + 8.0 (1-hr background) = 8.9 ppm

8-Hr Local Concentration: (0.9) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Intersection 37: Wilmington Avenue/MLK Hospital Driveway – 120th Street

Intersection of 4-lane road and a 2-lane road at grade level.

Existing (Baseline) with Ambient Growth (2014) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	1,899	289
Equation:	$\frac{(11.9)(1,899)(3.6)}{100,000}$	$\frac{(3.7)(289)(3.6)}{100,000}$

1-Hr Local Concentration: 0.8 + 0.0 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,039	175
Equation:	$\frac{(11.9)(2,039)(3.6)}{100,000}$	$\frac{(3.7)(175)(3.6)}{100,000}$

1-Hr Local Concentration: 0.9 + 0.0 = 0.9 ppm

1-Hr Total Concentration: 0.9 (intersection) + 8.0 (1-hr background) = 8.9 ppm

8-Hr Local Concentration: (0.9) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,116	175
Equation:	$\frac{(11.9)(2,116)(3.6)}{100,000}$	$\frac{(3.7)(175)(3.6)}{100,000}$

1-Hr Local Concentration: 0.9 + 0.0 = 0.9 ppm

1-Hr Total Concentration: 0.9 (intersection) + 8.0 (1-hr background) = 8.9 ppm

8-Hr Local Concentration: (0.9) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2020) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	1,969	292
Equation:	$\frac{(11.9)(1{,}969)(2.4)}{100{,}000}$	$\frac{(3.7)(292)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.6 + 0.0 = 0.6 ppm

1-Hr Total Concentration: 0.6 (intersection) + 8.0 (1-hr background) = 8.6 ppm

8-Hr Local Concentration: (0.6) x (.7) = 0.4 ppm

8-Hr Total Concentration: 0.4 (intersection) + 6.4 (8-hr background) = 6.8 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,401	941
Equation:	$\frac{(11.9)(2{,}401)(2.4)}{100{,}000}$	$\frac{(3.7)(941)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.7 + 0.1 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,505	941
Equation:	$\frac{(11.9)(2{,}505)(2.4)}{100{,}000}$	$\frac{(3.7)(941)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.7 + 0.1 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Intersection 39: Wilmington Avenue/El Segundo Boulevard

Intersection of 4-lane road and a 4-lane road at grade level.

Existing (Baseline) with Ambient Growth (2014) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	1,860	1,771
Equation:	$\frac{(11.9)(1,860)(3.6)}{100,000}$	$\frac{(3.3)(1,771)(3.6)}{100,000}$

1-Hr Local Concentration: 0.8 + 0.2 = 1.0 ppm

1-Hr Total Concentration: 1.0 (intersection) + 8.0 (1-hr background) = 9.0 ppm

8-Hr Local Concentration: (1.0) x (.7) = 0.7 ppm

8-Hr Total Concentration: 0.7 (intersection) + 6.4 (8-hr background) = 7.1 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	1,811	1,767
Equation:	$\frac{(11.9)(1,811)(3.6)}{100,000}$	$\frac{(3.3)(1,767)(3.6)}{100,000}$

1-Hr Local Concentration: 0.8 + 0.2 = 1.0 ppm

1-Hr Total Concentration: 1.0 (intersection) + 8.0 (1-hr background) = 9.0 ppm

8-Hr Local Concentration: (1.0) x (.7) = 0.7 ppm

8-Hr Total Concentration: 0.7 (intersection) + 6.4 (8-hr background) = 7.1 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	1,875	1,811
Equation:	$\frac{(11.9)(1,875)(3.6)}{100,000}$	$\frac{(3.3)(1,811)(3.6)}{100,000}$

1-Hr Local Concentration: 0.8 + 0.2 = 1.0 ppm

1-Hr Total Concentration: 1.0 (intersection) + 8.0 (1-hr background) = 9.0 ppm

8-Hr Local Concentration: (1.0) x (.7) = 0.7 ppm

8-Hr Total Concentration: 0.7 (intersection) + 6.4 (8-hr background) = 7.1 ppm

Existing (Baseline) with Ambient Growth (2020) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	1,934	1,844
Equation:	$\frac{(11.9)(1{,}934)(2.4)}{100{,}000}$	$\frac{(3.3)(1{,}844)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.6 + 0.1 = 0.7 ppm

1-Hr Total Concentration: 0.7 (intersection) + 8.0 (1-hr background) = 8.7 ppm

8-Hr Local Concentration: (0.7) x (.7) = 0.5 ppm

8-Hr Total Concentration: 0.5 (intersection) + 6.4 (8-hr background) = 6.9 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,184	1,861
Equation:	$\frac{(11.9)(2{,}184)(2.4)}{100{,}000}$	$\frac{(3.3)(1{,}861)(2.4)}{100{,}000}$

-Hr Local Concentration: 0.6 + 0.1 = 0.7 ppm

1-Hr Total Concentration: 0.7 (intersection) + 8.0 (1-hr background) = 8.7 ppm

8-Hr Local Concentration: (0.7) x (.7) = 0.5 ppm

8-Hr Total Concentration: 0.5 (intersection) + 6.4 (8-hr background) = 6.9 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,272	1,909
Equation:	$\underline{(11.9)(2{,}272)(2.4)}$	$\underline{(3.3)(1{,}909)(2.4)}$

100,000 100,000

-Hr Local Concentration: 0.6 + 0.2 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Intersection 49: I-105 Westbound Ramps/Imperial Highway

Intersection of 7-lane highway and a 2-lane road at grade level.

Existing (Baseline) with Ambient Growth (2014) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	3,275	875
Equation:	$\frac{(9)(3,275)(3.6)}{100,000}$	$\frac{(3.7)(875)(3.6)}{100,000}$

1-Hr Local Concentration: 1.1 + 0.1 = 1.2 ppm

1-Hr Total Concentration: 1.2 (intersection) + 8.0 (1-hr background) = 9.2 ppm

8-Hr Local Concentration: (1.2) x (.7) = 0.8 ppm

8-Hr Total Concentration: 0.8 (intersection) + 6.4 (8-hr background) = 7.2 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	3,246	847
Equation:	$\frac{(9)(3,246)(3.6)}{100,000}$	$\frac{(3.7)(847)(3.6)}{100,000}$

1-Hr Local Concentration: 1.1 + 0.1 = 1.2 ppm

1-Hr Total Concentration: 1.2 (intersection) + 8.0 (1-hr background) = 9.2 ppm

8-Hr Local Concentration: (1.2) x (.7) = 0.8 ppm

8-Hr Total Concentration: 0.8 (intersection) + 6.4 (8-hr background) = 7.2 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	3,318	893
Equation:	$\frac{(9)(3{,}318)(3.6)}{100{,}000}$	$\frac{(3.7)(893)(3.6)}{100{,}000}$

1-Hr Local Concentration: 1.1 + 0.1 = 1.2 ppm

1-Hr Total Concentration: 1.2 (intersection) + 8.0 (1-hr background) = 9.2 ppm

8-Hr Local Concentration: (1.2) x (.7) = 0.8 ppm

8-Hr Total Concentration: 0.8 (intersection) + 6.4 (8-hr background) = 7.2 ppm

Existing (Baseline) with Ambient Growth (2020) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	3,409	912
Equation:	$\frac{(9)(3{,}409)(2.4)}{100{,}000}$	$\frac{(3.7)(912)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.7 + 0.1 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II Project Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	3,503	1,054
Equation:	$\frac{(9)(3{,}503)(2.4)}{100{,}000}$	$\frac{(3.7)(1{,}054)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.8 + 0.1 = 0.9 ppm

1-Hr Total Concentration: 0.9 (intersection) + 8.0 (1-hr background) = 8.9 ppm

8-Hr Local Concentration: (0.9) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	3,618	1,114
Equation:	$\frac{(9)(3{,}618)(2.4)}{100{,}000}$	$\frac{(3.7)(1{,}114)(2.4)}{100{,}000}$

1-Hr Local Concentration: 0.8 + 0.1 = 0.9 ppm

1-Hr Total Concentration: 0.9 (intersection) + 8.0 (1-hr background) = 8.9 ppm

8-Hr Local Concentration: (0.9) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

Intersection 18: Central Avenue/120th Street

Intersection of 4-lane road and a 4-lane road at grade level.

Cumulative (2014) Base Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,031	1,383
Equation:	$\frac{(11.9)(2{,}031)(3.6)}{100{,}000}$	$\frac{(3.3)(1{,}383)(3.6)}{100{,}000}$

1-Hr Local Concentration: 0.9 + 0.2 = 1.1 ppm

1-Hr Total Concentration: 1.1 (intersection) + 8.0 (1-hr background) = 9.1 ppm

8-Hr Local Concentration: (1.1) x (.7) = 0.8 ppm

8-Hr Total Concentration: 0.8 (intersection) + 6.4 (8-hr background) = 7.2 ppm

Existing (Baseline) with Ambient Growth (2014) Plus Tier I Project and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	1,997	1,333
Equation:	$\frac{(11.9)(1{,}997)(3.6)}{100{,}000}$	$\frac{(3.3)(1{,}333)(3.6)}{100{,}000}$

1-Hr Local Concentration: 0.9 + 0.2 = 1.1 ppm

1-Hr Total Concentration: 1.1 (intersection) + 8.0 (1-hr background) = 9.1 ppm

8-Hr Local Concentration: (1.1) x (.7) = 0.8 ppm

8-Hr Total Concentration: 0.8 (intersection) + 6.4 (8-hr background) = 7.2 ppm

Existing (Baseline) with Ambient Growth (2020) Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,118	1,440
Equation:	$\frac{(11.9)(2,118)(2.4)}{100,000}$	$\frac{(3.3)(1,440)(2.4)}{100,000}$

1-Hr Local Concentration: 0.6 + 0.1 = 0.7 ppm

1-Hr Total Concentration: 0.7 (intersection) + 8.0 (1-hr background) = 8.7 ppm

8-Hr Local Concentration: (0.7) x (.7) = 0.5 ppm

8-Hr Total Concentration: 0.5 (intersection) + 6.4 (8-hr background) = 6.9 ppm

Existing (Baseline) with Ambient Growth (2020) Plus Tier I and Tier II and Related Project/Cumulative Conditions

	Primary Road	Secondary Road
Peak-hour Traffic Volume:	2,464	1,654
Equation:	$\frac{(11.9)(2,464)(2.4)}{100,000}$	$\frac{(3.3)(1,654)(2.4)}{100,000}$

1-Hr Local Concentration: 0.7 + 0.1 = 0.8 ppm

1-Hr Total Concentration: 0.8 (intersection) + 8.0 (1-hr background) = 8.8 ppm

8-Hr Local Concentration: (0.8) x (.7) = 0.6 ppm

8-Hr Total Concentration: 0.6 (intersection) + 6.4 (8-hr background) = 7.0 ppm

APPENDIX D
BIOLOGICAL RESOURCES TECHNICAL REPORT

MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

BIOLOGICAL RESOURCES TECHNICAL REPORT

PREPARED FOR:

COUNTY OF LOS ANGELES
CHIEF EXECUTIVE OFFICE
KENNETH HAHN HALL OF ADMINISTRATION
500 WEST TEMPLE STREET, ROOM 754
LOS ANGELES, CALIFORNIA 90012

PREPARED BY:

SAPPHOS ENVIRONMENTAL, INC.
430 NORTH HALSTEAD STREET
PASADENA, CA 91107

AUGUST 2010

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SECTION ES
EXECUTIVE SUMMARY

This Biological Resources Technical Report documents information regarding the biological resources for the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project). An evaluation of the biotic resources was conducted at the proposed project location. The site assessment entailed a thorough investigation of the biotic populations and community of the proposed project location with consideration of adjacent areas. As a result of the site assessment, Sapphos Environmental, Inc. has determined that no Significant Ecological Areas (SEA),[1] federally state-listed species by the California Department of fish and Game or by the United States Fish and Wildlife Services, or any state or local species of concern are present on the project location or in any adjacent areas.

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[1] County of Los Angeles, Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

SECTION 1
INTRODUCTION

Sapphos Environmental, Inc. conducted a literature review and database query for biological resources to assist the County of Los Angeles in identifying the scope and magnitude of potential environmental constraints associated with the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment project (proposed project). The information provided in this report is based on field efforts and a review of readily available databases, public records, maps, web sites, and in-house records covering the California Environmental Quality Act (CEQA) biological resources environmental issue areas. The site assessment and analysis is undertaken to determine if the proposed project may have a significant impact to any sensitive populations or communities in accordance with, but not limited to, federal, state, and local laws, regulations, and ordinances. Biological resources at the proposed project site were evaluated with regard to the County of Los Angeles General Plan;[2] a query of the California Natural Diversity Database (CNDDB)[3] for the U.S. Geological Survey (USGS) 7.5-minute series, South Gate, California, topographic quadrangle,[4] where the proposed project is located; a query of all surrounding USGS 7.5-minute series topographic quadrangles, including Inglewood,[5] Long Beach,[6] Whittier,[7] Torrance,[8] Los Alamitos,[9] El Monte,[10] Hollywood,[11] and Los Angeles;[12] and a review of published and unpublished literature. A site visit was conducted on October 27, 2009, to evaluate the potential presence of significant biological resources at the proposed project site. As a result of the above, with an adherence to the State CEQA Guidelines, there would be no impacts of biotic significance with regard to any federal, state, and local statutes, ordinances, or policies that govern the conservation and protection of biological resources at the proposed project or adjacent areas due to the proposed project.

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[2] County of Los Angeles, Department of Regional Planning. 2007. *Los Angeles County Draft Preliminary General Plan*. Available at: http://planning.co.la.ca.us/doc/gp/gp_draft.pdf

[3] California Department of Fish and Game. 2002. Rarefind 2: A Database Application for the Use of the California Department of Fish and Game Natural Diversity Data Base. Sacramento, CA.

[4] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[5] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Inglewood, California, Topographic Quadrangle. Reston, VA.

[6] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Long Beach, California, Topographic Quadrangle. Reston, VA.

[7] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Whittier, California, Topographic Quadrangle. Reston, VA.

[8] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Torrance, California, Topographic Quadrangle. Reston, VA.

[9] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Los Alamitos, California, Topographic Quadrangle. Reston, VA.

[10] . 8 9 U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, El Monte, California, Topographic Quadrangle. Reston, VA.

[11] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Hollywood, California, Topographic Quadrangle. Reston, VA.

[12] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Los Angeles, California, Topographic Quadrangle. Reston, VA.

SECTION 2
PROJECT DESCRIPTION

The proposed project site is situated within the existing 38-acre Martin Luther King, Jr. Medical Center Campus, located at 12021 Wilmington Avenue in the unincorporated area of Willowbrook, in Los Angeles County, California (Figure 2-1, *Project Location Map*). The proposed Martin Luther King, Jr. Medical Center Campus Redevelopment project (proposed project) site is located within a highly urbanized area, with developed areas surrounding the site. The proposed project site is a hospital facility, characterized by roughly 38 acres of hospital and medical functions. The proposed project is intended to revitalize the campus, enhance patient and staff safety, and improve efficiency and quality of services. The revitalized campus would be designed to improve medical service for the County of Los Angeles and to allow for new, mixed-use development at the proposed project campus. The proposed project would include environmentally sustainable design features to be efficient in the use of energy, water, and other resources.

The proposed project would be implemented in two phases, or tiers. Tier I would involve development of a new Multi-service Ambulatory Care Center (MACC) and the Ancillary Building. Tier I would also include tenant improvements to the North Support Building, South Support Building, and the Plant Management Building; site improvements; and the potential relocation of the MRI Building.

Tier II of the proposed project would entail the reuse or replacement of the existing MACC Building (which will be vacant following construction of the new MACC Building in Tier I) and subsequent demolition of the Emergency Room, MRI Modular Building, and Cooling Towers. Tier II construction would entail additional master-planned mixed-use development, which may include the potential for medical offices, general offices, commercial and retail space, residential units, recreational areas, and other development in support of the campus. The maximum programmed development for Tier II is currently estimated at approximately 1.8 million (1,814,696) square feet.

SOURCE: ESRI, SEI

FIGURE 2.1-1

Project Location Map

SECTION 3
REGULATORY FRAMEWORK

This regulatory framework identifies the federal, state, and local statutes, ordinances, or policies that govern the conservation and protection of biological resources that must be considered by the County of Los Angeles during the decision-making process for projects that have the potential to impact biological resources.

3.1 FEDERAL

3.1.1 Federal Endangered Species Act

The purposes of the federal Endangered Species Act (ESA) are to provide a means to conserve the ecosystems that endangered and threatened species depend on and to provide a program for conservation and recovery of these species. The federal ESA designates species as "endangered" or "threatened" and provides regulatory protection for any species thus designated. Section 9 of the federal ESA prohibits the take of species listed by the U.S. Fish and Wildlife Service (USFWS) as threatened or endangered. As defined in the federal ESA, *take* means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in such conduct." In recognition that take cannot always be avoided, Section 10(a) of the federal ESA includes provisions for take that is incidental to, but not the purpose of, otherwise lawful activities. Section 10(a)(1)(B) permits (incidental take permits) may be issued if taking is incidental and does not jeopardize the survival and recovery of the species in the wild. This regulation was considered applicable to the proposed project site due to the potential presence of two avian and two plant species listed as endangered under the federal ESA.

Section 7(a)(2) of the federal ESA requires all federal agencies, including the USFWS, to evaluate the proposed project with respect to any species proposed for listing or already listed as endangered or threatened and their critical habitat, if any is proposed or designated. Federal agencies must undertake programs for the conservation of endangered and threatened species and are prohibited from authorizing, funding, or carrying out any action that will jeopardize a listed species or destroy or modify its "critical habitat."

As defined in the federal ESA, "Individuals, organizations, states, local governments, and other non-Federal entities are affected by the designation of critical habitat only if their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding."

Listed species are those species provided special legal protection under the federal ESA. A federally or state-listed endangered species is a species that is in danger of extinction throughout all or a significant portion of its range. A federally threatened species is one that is likely to become endangered in the absence of special protection or management efforts provided by the listing. A candidate species is one that is proposed by the federal government for listing as endangered or threatened.

Sensitive species are those not listed by the federal government as endangered, threatened, or candidate species but categorized by the federal government as a federal species of concern. *Federal species of concern* is a term-of-art that describes a taxon whose conservation status may be of concern to the USFWS but does not have official status. In addition, the sensitive species include those designated as such by the Bureau of Land Management and the U.S. Forest Service.

3.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) makes it unlawful to pursue, capture, kill, or possess or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union. As with the federal ESA, the MBTA authorizes the Secretary of the Interior to issue permits for incidental take. Nesting birds and the contents of the nest within the construction area of the proposed project are protected pursuant to the MBTA.

3.2 STATE

3.2.1 California Endangered Species Act

The California ESA prohibits the taking of listed species except as otherwise provided in state law. Unlike the federal ESA, the California ESA applies the take prohibitions to species petitioned for listing (state candidates). State lead agencies are required to consult with the California Department of Fish and Game (CDFG) to ensure that any actions undertaken by that lead agency are not likely to jeopardize the continued existence of any state-listed species or result in destruction or degradation of required habitat. CDFG is authorized to enter into memoranda of understanding with individuals, public agencies, universities, zoological gardens, and scientific or educational institutions to import, export, take, or possess listed species for scientific, educational, or management purposes. The California ESA was considered due to the potential for state-listed rare, threatened, or endangered species to be present. This regulation was considered applicable to the proposed project site due to the potential presence of two avian and one plant species listed as endangered under the California ESA.

3.2.2 Native Plant Protection Act

The Native Plant Protection Act includes measures to preserve, protect, and enhance rare and endangered native plants. The definitions of "rare and endangered" differ from those contained in the California ESA. However, the list of native plants afforded protection pursuant to this Act includes those listed as rare and endangered under the California ESA. The Native Plant Protection Act provides limitations on take as follows: "No person will import into this State, or take, possess, or sell within this State" any rare or endangered native plant, except in compliance with provisions of the Act. Individual landowners are required to notify CDFG at least 10 days in advance of changing land uses to allow the CDFG to salvage any rare or endangered native plant material. The Native Plant Protection Act was considered due to the potential for state-listed rare, threatened, or endangered plant species to be present.

Species that are not monitored by the resource agencies but are monitored by private organizations or local municipal governments are considered to be locally important species. For the purposes of this report, locally important species include plants recognized by the California Native Plant Society, a private organization dedicated to the conservation of native plants.

3.3 COUNTY

3.3.1 County of Los Angeles Oak Tree Ordinance

The County Oak Tree Ordinance (Sections 22.56.2020 and 22.56.2070 of the Los Angeles County Zoning Ordinance) stipulates the protection of all oak trees (genus *Quercus*) with an 8-inch diameter at breast height (DBH), or a 12-inch combined DBH for multiple trunks, within the County of Los Angeles. All areas of the County of Los Angeles that are defined as unincorporated or county-owned are subject to the County Oak Tree Ordinance. This regulation was considered applicable to the proposed project site due to the potential presence of native tree species, specifically oak trees.

3.3.2 County of Los Angeles Significant Ecological Areas

The design of the proposed project and the proposed improvements will not cause environmental damage or substantial and avoidable injury to fish or wildlife or their habitat, since the project is not located in a significant ecological area and the initial study for the project shows that the proposed development will not have a significant effect on the environment.[13]

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[13] County of Los Angeles, Chief Executive Office. March 2010. *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*. Sapphos Environmental, Inc., Pasadena, CA.

SECTION 4
METHODS

This section of the Biological Resources Technical Report employed in the characterization and evaluation of the proposed project site's potential to have any biologically significant resources of concern by federal, state, and local statutes, ordinances, or policies for the conservation and protection of these resources at the proposed project or adjacent areas.

4.1 LITERATURE REVIEW

A query of the California Natural Diversity Database (CNDDB) identified 18 listed species that are known from the region, including 8 plant species and 10 wildlife species. Of the 18 species listed as rare, threatened, or endangered pursuant to the federal and State ESAs that were identified as having the potential to occur in the region of southwestern county of Los Angeles, none were determined to have the potential to occur within the proposed project area due to lack of suitable habitat. Therefore, there would be no expected impacts to biological resources related to species listed as rare, threatened, or endangered pursuant to the federal and state Endangered Species Acts. The City of Los Angeles Native Tree Ordinance (2006) protects all native Oak tree species (*Quercus* sp.), California Sycamore (*Platanus racemosa*), California Bay (*Umbellularia californica*), and California Black Walnut (*Juglans californica*) trees 4" or greater in diameter at 4.5' above ground and trees on any lot size are protected. Protected tree removal requires a removal permit by the Board of Public Works. Any act that may cause the failure or death of a protected tree requires inspection by the Urban Forestry Division. Therefore, no further analysis is warranted.

4.2 SITE VISIT

A site visit was conducted on October 27, 2009, to evaluate the potential presence of significant biological resources at the proposed project site with respect to the CNDDB. The 38-acre site was walked, and all populations and communities were noted (Appendix A, Avifaunal *Compendium*; Appendix B, *Botanical Compendium*). Included during the site assessment were 56 pictures taken throughout the site, documenting the lack of significant communities or populations (Appendix C, *Site Photographs*).

This section of the Biological Resources Technical Report presents the results of the investigations of biological resources. The scope of the analysis includes the six potential biological effects that could impact biological resources as specified in Appendix G of the California Environmental Quality Act (CEQA) Guidelines.

Habitat Modification or Any Species Identified as a Candidate, Sensitive, or Special Status Species in Local or Regional Plans, Policies, or Regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service

Listed species

As a result of database searches, literature reviews, contact with California Department of Fish and Game (CDFG), and a site assessment conducted by Sapphos Environmental, Inc. on October 27, 2009, no listed species or designated habitats occur on the proposed project site. A query of the California Natural Diversity Database (CNDDB) identified 17 listed species that are known from the region, including 7 plant species and 10 wildlife species. Of the 17 species listed as rare, threatened, or endangered pursuant to the federal and state Endangered Species Acts (ESAs) that were identified as having the potential to occur in the region of southwestern County of Los Angeles (Table 5-1, *Listed Plant and Wildlife Species with the Potential to Occur in the Region of the Proposed Project Site*), none of the species were determined to have the potential to occur within the proposed project area due to lack of suitable habitat; the site assessment supported these findings.

TABLE 5-1
LISTED PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE

Species	Status	Habitat Requirements	Habitat Assessment
Plants			
Lyon's pentachaeta (*Pentachaeta lyonii*)	FE, SE, CNPS 1B.1	Chaparral, coastal scrub, and valley and foothill grassland. Occurs between 30 and 630 meters above mean sea level (MSL). Blooms from March to August.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
marsh sandwort (*Arenaria paludicola*)	FE, SE, CNPS 1B.1	Marshes and swamps, dense mats of typha, juncus, scirpus in freshwater marshes. Occurs between 10 and 170 meters above MSL.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Braunton'smilk-vetch (*Astragalus brauntonii*)	FE, SE, CNPS 1B.1	Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland. Occurs in distressed or recently burned areas between 4 and 620 meters above MSL.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
coastal dunes milk-vetch (*Astragalus tener* var. *titi*)	FE, SE, CNPS 1B.1	Coastal bluff scrub, coastal dunes, and coastal prairie. Occurs between 1 and 50 meters above MSL. Blooms from March to May.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.

TABLE 5-1
LISTED PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, *Continued*

Species	Status	Habitat Requirements	Habitat Assessment
Moran's spreading navarretia (*Navarretia fossalis*)	FT, SE, CNPS 1B.1	Chenopod scrub, marshes and swamps, playas, and vernal pools. Occurs between 30 and 1,300 meters above MSL. Blooms from April to June.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*)	FE, SE, CNPS 1B.2	Coastal dunes, marshes, and swamps. Occurs between 0 and 30 meters above MSL. Blooms from May to October.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
California Orcutt grass (*Orcuttia californica*)	FE, SE, CNPS 1B.1	Vernal pools. Occurs between 15 and 660 meters above MSL. Blooms from April to August.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Wildlife			
Palos Verde blue butterfly (*Glaucopsyche lygdamus palosverdesensis*)	FE	Occurs in coastal sage scrub on the Palos Verdes Peninsula and requires either deerweed or locoweed as a host plant.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Mohave tui chub (*Gila bicolor mohavensis*)	FE, SE	Found in deep pools and slough-like areas of the Mojave River, but now only occurs in highly modified refuge sites in San Bernardino County.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
California brown pelican (*Pelecanus occidentalis californicus*)	FE, SE	Nest on islands in the Gulf of California and along the coast to West Anacapa and Santa Barbara Islands. They rarely occur inland.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
California least tern (*Sternula antillarum browni*)	FE, SE	Nest in colonies on bare or sparsely vegetated flat substrates near the coast.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	SE	Found in association with riparian forest, along lower flood-bottom of larger river systems.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
southwestern willow flycatcher (*Empidonax traillii extimus*)	FE, SE	Found in association with riparian habitat where willow, cottonwoods, and stinging nettles are dense.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Coastal California gnatcatcher (*Polioptila californica californica*)	FT, CSC	Occurs in or near sage scrub habitat, which includes the following plant communities: Venturan coastal sage scrub, Diegan coastal sage scrub, maritime succulent scrub, Riversidean sage scrub, Riversidean alluvial fan scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.

TABLE 5-1
LISTED PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, *Continued*

Species	Status	Habitat Requirements	Habitat Assessment
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	SE	Resides year-round in coastal salt marshes from Goleta Slough in Santa Barbara County to northern Baja California. Primarily nests in pickleweed habitat.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
least Bell's vireo *(Vireo bellii pusillus)*	FE, SE	Summer resident in low riparian habitat in vicinity of water or in dry river bottoms below 2,000 feet. Nests along margins of bushes or on twigs projecting into pathways, usually willow, baccharis, mesquite.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Pacific pocket mouse (*Perognathus longimembris pacificus*)	FE, CSC	Found on soils of fine, alluvial sands near the ocean. Open spaces in otherwise dense, weedy areas.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.

KEY:
CSC = California Department of Fish and Game species of special concern
CNPS 1B = Listed as rare, threatened, or endangered in California and elsewhere by the California Native Plant Society
FE = Listed as endangered under the federal Endangered Species Act
FT = Listed as threatened under the federal Endangered Species Act
FC= Federal candidate species
SE = Listed as endangered by the State of California
ST = Listed as threatened by the State of California
Rare = Listed as rare by the State of California

Sensitive species

The proposed project would not be expected to result in impacts to biological resources in relation to sensitive species recognized by USFWS as federal species of concern or by the CDFG as California species of special concern. Sensitive wildlife species are those not listed pursuant to the state and federal ESAs, but listed as federal species of concern, proposed for listing, or identified by the CDFG as California species of special concern. This analysis is based on the habitat requirements and historical occurrences of the sensitive species with the potential to occur in the area. A query of the CNDDB identified no plant species and 14 sensitive wildlife species that are known from the region. Of the 14 sensitive species that were identified as having the potential to occur in the region of southwestern County of Los Angeles (Table 5-2, *Sensitive Plant and Wildlife Species with the Potential to Occur in the Region of the Proposed Project Site*), none of the species was determined to have the potential to occur within the proposed project area due to lack of suitable habitat.

TABLE 5-2
SENSITIVE PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE

Species	Status	Habitat	On-site Potential
Amphibians			
western spadefoot (*Spea hammondii*)	CSC	Require temporary rain pools, with water temperatures between 9 and 30 degrees Celsius for reproducing. Soil characteristics of burrow refuge sites have not been studied. Occurs between near sea level and 1,363 meters above MSL.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Reptiles			
southwestern pond turtle (*Actinemys marmorata pallida*)	CSC, BLM	Require some slack- or slow-water aquatic habitat. Reach higher densities where many aerial and aquatic basking sites are available. Nests are located on unshaded slopes usually within 200 meters of the aquatic site.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
coast (San Diego) horned lizard (*Phrynosoma coronatum blainvillii*)	CSC	Coastal sage, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Birds			
Coastal California gnatcatcher (*Polioptila californica californica*)	CSC	Obligate, permanent resident of coastal sage scrub below 2,500 feet in southern California. Low, coastal sage scrub in arid washes, on mesas and slopes.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
burrowing owl (*Athene cunicularia*)	CSC	Found in open grasslands, agricultural and range lands, and desert habitats and are often associated with burrowing animals, specifically the California ground squirrel. They can also inhabit grass, forbs, and shrub stages of pinyon and ponderosa pine habitats.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
tricolored blackbird (*Agelaius tricolor*)	CSC	Freshwater marshes and croplands.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Mammals			
Southern California saltmarsh shrew (*Sorex ornatus salicornicus*)	CSC	No information other than coastal marshes. Likely requires dense ground cover and nesting sites above mean high tide and free from inundation.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.

TABLE 5-2
SENSITIVE PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, *Continued*

Species	Status	Habitat	On-site Potential
Pacific pocket mouse (*Perognathus longimembris pacificus*)	CSC	Inhabits the narrow coastal plains from the Mexican border north to El Segundo. Prefers soils of fine alluvial sands near the ocean.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
greater western mastiff bat (*Eumops perotis californicus*)	CSC, BLM	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, and desert scrub. Also occurs in urban habitats.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
pocketed free-tailed bat (*Nyctinomops femorosaccus*)	CSC	Associated with rocky, desert areas with relatively high cliffs.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
big free-tailed bat (*Nyctinomops macrotis*)	CSC	Rocky areas in the arid southwest, roosting primarily in crevices in cliffs.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
pallid bat (*Antrozous pallidus)*	CSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
American badger (*Taxidea taxus*)	CSC	Found in arid, open habitats, particularly grasslands, savannahs, mountain meadows, and desert scrub openings. Needs friable soils for digging and open, uncultivated ground. Occurs at low to moderate slopes. Has been associated with Joshua tree woodland and pinyon-juniper habitats.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
south coast marsh vole (*Microtus californicus stephensi*)	CSC	Marshland habitat (generally restricted to this habitat type)	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.

KEY:
CSC = California Department of Fish and Game Species of Special Concern
BLM = Sensitive species under Bureau of Land Management

As a result of a site reconnaissance to evaluate environmental issue areas conducted by Sapphos Environmental, Inc. on October 27, 2009, a review of an aerial photograph for the proposed project property and surrounding areas, and a review of the habitat requirements of the 14 sensitive species, it was determined that none of the species have the potential to occur on the proposed project site. The proposed project is located in an urban setting lacking the native plant communities needed to support the subject species. Therefore, there would be no expected impacts to biological resources related to sensitive species recognized by USFWS as federal species of concern or by CDFG as California special concern species.

Locally Important Species

The proposed project would not be expected to result in impacts to biological resources that are considered locally important species afforded protection by the CNPS. Locally important plant species are those not listed pursuant to the State or federal ESA, but identified by CNPS as sensitive species that should be considered in assessing the potential effects of proposed projects. A query of the CNDDB identified 23 locally important plant species that are known from the region. Of the 23 locally important species that were identified as having the potential to occur in the region of southwestern County of Los Angeles (Table 5-3, *Locally Important Plant and Wildlife Species with the Potential to Occur in the Region of the Proposed Project Site*), none of the species were determined to have the potential to occur within the proposed project area due to lack of suitable habitat.

TABLE 5-3
LOCALLY IMPORTANT PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE

Species	Status	Habitat	On-site Potential
Plants			
Southern tarplant (*Centromadia parryi* ssp. *Australis*)	CNPS 1B.1	Marshes and swamps, valley and foothill grassland, and vernal pools. Occurs between 0 and 425 meters above MSL. Blooms from May to November.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*)	CNPS 1A	Coastal salt and freshwater marshes and swamps. Occurs between 5 and 1675 meters above MSL. Blooms from April to June.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	CNPS 1B.1	Marshes and swamps, playas, and vernal pools. Occurs between 1 and 1,220 meters above MSL. Blooms from February to June.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
white rabbit-tobacco (*Pseudognaphalium leucocephalum*)	CNPS 2.2	Riparian woodland, cismontane woodland, coastal scrub, chaparral. Occurs between 0 and 2100 meters above MSL. Blooms from July to December.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
San Bernardino aster (*Symphyotrichum defoliatum*)	CNPS 1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grassland. Occurs between 2 and 2,040 meters above MSL. Blooms from July to November.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site

TABLE 5-3
LOCALLY IMPORTANT PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, *Continued*

Species	Status	Habitat	On-site Potential
Greata's aster (*Symphyotrichum greatae*)	CNPA 1B.3	Chaparral, cismontane woodland, mesic canyons. Occurs between 800 and 1500 meters above MSL. Blooms from June to October.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
south coast saltscale (*Atriplex pacifica*)	CNPS 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, and playas. Occurs between 0 and 140 meters above MSL. Blooms from March to October.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Parish's brittlescale (*Atriplex parishii*)	CNPS 1B.1	Chenopod scrub, playas, and vernal pools. Occurs between 25 and 1,900 meters above MSL. Blooms from June to October.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Davidson's saltscale (*Atriplex serenana* var. *davidsonii*)	CNPS 1B.2	Coastal bluff scrub and coastal scrub. Occurs between 10 and 200 meters above MSL. Blooms from April to October.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
estuary seablite (*Suaeda esteroa*)	CNPS 1B.2	Marshes and swamps. Occurs between 0 and 5 meters above MSL. Blooms from May to October.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Santa Barbara morning-glory (*Calystegia sepium* ssp. *bingamiae*)	CNPS 1A	Marshes and swamps. Occurs between 0 and 20 meters above MSL. Blooms from April to May.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
many-stemmed dudleya (*Dudleya multicaulis*)	CNPS 1B.2	Chaparral, coastal scrub, valley and foothill grassland. Occurs in heavy, often clayey soils or grassy slopes between 0 and 790 meters above MSL. Blooms from April to June.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
round-leaved filaree (*California macrophylla*)	CNPS 1B.1	Cismontane woodland, valley and foothill grassland. Occurs in clay soils between 15 and 1200 meters above MSL. Blooms from March to May.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Parish's gooseberry (*Ribes divaricatum* var. *parishii*)	CNPS 1A	Riparian woodland, salix swales. Occurs between 65 and 100 meters above MSL. Blooms from February to April.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
mud nama (*Nama stenocarpum*)	CNPS 2.2	Marshes and swamps. Occurs between 5 and 500 meters above MSL. Blooms from January to July.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Brand's star phacelia (*Phacelia stellaris*)	CNPS 1B.1	Coastal dunes and coastal scrub. Occurs between 1 and 400 meters above MSL. Blooms from March to June.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
southern mountains skullcap (*Scutellaria bolanderi* ssp.	CNPA 1B.2	Chaparral, cismontane woodland, lower montane coniferous forests,	Not observed on the proposed project study area. No suitable

TABLE 5-3
LOCALLY IMPORTANT PLANT AND WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE REGION OF THE PROPOSED PROJECT SITE, *Continued*

Species	Status	Habitat	On-site Potential
austromontana)		gravely soils on streambanks or in mesic sites in oak or pine woodland. Occurs between 425 and 2000 meters above MSL. Blooms from June to July.	habitat occurs within the proposed project site.
Salt Spring checkerbloom (*Sidalcea neomexicana*)	CNPS 2.2	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and playas. Occurs between 15 and 1,530 meters above MSL. Blooms from March to June.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Orcutt's linanthus (*Linanthus orcuttii*)	CNPS 1B.3	Chaparral, lower montane coniferous forest. Occurs between 1060 to 2000 meters above MSL. Blooms from May to June.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
prostrate vernal pool navarretia (*Navarretia prostrate*)	CNPS 1B.1	Coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Occurs between 15 and 700 meters above MSL. Blooms from April to July.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
coast woolly-heads (*Nemacaulis denudata* var. *denudate*)	CNPS 1B.2	Coastal dunes. Occurs between 0 and 100 meters above MSL. Blooms from April to September.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
mesa horkelia (*Horkelia cuneata* ssp. *puberula*)	CNPS 1B.1	Chaparral, cismontane woodland, coastal scrub. Occurs between 70 and 810 meters above MSL in sandy or gravelly sites. Blooms from February to July.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.
Plummer's mariposa-lily (*Calochortus plummerae*)	CNPS 1B.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites between 90 and 1610 meters above MSL. Blooms from June to August.	Not observed on the proposed project study area. No suitable habitat occurs within the proposed project site.

KEY:

CNPS = California Native Plant Society (as List 1, List 2, List 3, or List 4 species). Listed as rare, threatened, or endangered in California and elsewhere by the California Native Plant Society

CNPS2 = CNPS listings from its January 2000 edition of *Inventory of Rare and Endangered Vascular Plants of California*. List 2 (CNPS2) indicates that plants are rare, threatened, or endangered in California, but are common elsewhere (Skinner and Pavlik, 1994).

CNPS 3 = Plants about which we need more information.

CNPS1A = Plant presumed extinct in California by the CNPS

CNPS1B = Plants considered rare, threatened, or endangered in California and elsewhere by the CNPS

Threat ranks:
0.1: Seriously threatened in California.
0.2: Fairly threatened in California.
0.3: Not very threatened in California.

As a result of a site assessment to evaluate environmental issue areas conducted by Sapphos Environmental, Inc. on October 27, 2009, a review of an aerial photograph for the proposed project property and surrounding areas, and a review of the habitat requirements for the subject species, it was determined that the proposed project lacked suitable habitat to support the 23 locally important species with the potential to be present in the region of the proposed project. As described above, the proposed project is in an urban setting lacking the native plant communities needed to support the subject species. Therefore, there would be no expected impacts to biological resources related to species listed as rare, threatened, or endangered pursuant to the federal and State ESAs.

Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, or Regulations, or by the CDFG or USFWS

Sensitive Natural Communities

The proposed project would not be expected to result in impacts to riparian habitat or other sensitive natural communities. Based on the results of the review of the USGS 7.5-minute series South Gate topographic quadrangle[14] and the National Wetlands Inventory map,[15] no natural communities exist within the proposed project area. The proposed project site is an urbanized area with no riparian areas or sensitive natural communities, and consists of existing buildings, paved and landscaped areas. No natural plant communities or habitats exist within the proposed project site. Therefore, there would be no expected impacts to biological resources related to riparian habitat or other sensitive natural communities.

Federally Protected Wetlands as Defined by Section 404 of the Clean Water Act

The proposed project would not be expected to result in impacts to federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means. Based on the results of the review of the USGS 7.5-minute series South Gate topographic quadrangle[16] and the National Wetlands Inventory map,[17] wetlands or waters under the jurisdiction of the U.S. Army Corps of Engineers pursuant to the Section 404 of the Clean Water Act do not exist at the proposed project site. The proposed project site has been previously developed and includes multiple buildings, paved areas, and landscaped gardens. Therefore, there would be no expected impacts to biological resources related to federally protected wetlands as defined by Section 404 of the Clean Water Act.

Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident, Migratory Wildlife Corridors, or Native Wildlife Nursery Sites

Wildlife Movement/Corridors

The proposed project would not be expected to result in impacts to, or impede the movement of, any migratory fish or wildlife species or with an established wildlife corridor. The entire proposed

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[14] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[15] U.S. Fish and Wildlife Service. June 1976. *National Wetland Inventory, Pasadena, California*. Washington, DC.

[16] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[17] U.S. Fish and Wildlife Service. June 1976. *National Wetland Inventory, Pasadena, California*. Washington, DC.

project area is set within an urbanized section of Los Angeles County with developed areas surrounding each of its borders.[18] No suitable habitat exists to encourage wildlife movement.[19] Therefore, there would be no expected impacts to biological resources related to movement of any migratory fish or wildlife species or with an established wildlife corridor.

Nursery Site

The proposed project would not be expected to result in impacts to biological resources in relation to impeding the use of native wildlife nursery sites. Based on site visits, the entire proposed project area is set within an urbanized section of Los Angeles County with development surrounding all sides of the proposed project site. The proposed project site has some landscaping and large trees that may be suitable for nesting birds, such as American crow, rock pigeon, and house finch, that surround the proposed project site; however, even with these common species the project site appears to be a sink for their populations, and would not be expected to have an effect on nesting birds in the area. Therefore, there would be no expected impacts to biological resources related to impeding the use of native wildlife nursery sites.

Local Policies or Ordinances Protecting Biological Resources, such as a Tree Preservation Policy or Ordinance

Local Ordinances

The proposed project would not be expected to result in impacts to biological resources in relation to conflicts with any local policies or ordinances, such as Los Angeles County's Oak Tree Ordinance,[20] as no Oaks (*Quercus* sp.) are present on the site. Therefore, there would be no expected impacts to biological resources related to conflicts with any local policies or ordinances protecting biological resources.

Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or Other Approved Local, Regional, or State Habitat Conservation Plan

Based on review of all currently proposed and adopted HCPs, NCCPs, and other approved local, regional, and State conservation plans, it was determined that the proposed project area was not subject to the jurisdiction of a proposed or adopted conservation plan.[21,22] Thus the proposed project would not result in significant impacts to biological resources including, but not limited to, any adopted HCP or NCCP. Further review of local, regional, and state habitat conservation plans not presently listed as an HCP or NCCP determined no proposed or adopted plans with jurisdictional boundaries containing the proposed project site.

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[18] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[19] U.S. Fish and Wildlife Service. June 1976. *National Wetland Inventory, Pasadena, California*. Washington, DC.

[20] *Oak Tree Permit Regulations*. 13 September 1988. Section 22.56.2050. County of Los Angeles, CA.

[21] California Department of Fish and Game. 6 January 2009. *Natural Community Conservation Plans*. Available at: http://www.dfg.ca.gov/habcon/nccp/images/region.gif

[22] U.S. Fish and Wildlife Service. 6 January 2009. *Habitat Conservation Plans*. Available at: http://www.fws.gov/carlsbad/HCPs/hcp_map%20area%20plans%200507.pdf

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U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, El Monte, California, Topographic Quadrangle. Reston, VA.

U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Hollywood, California, Topographic Quadrangle. Reston, VA.

U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Los Angeles, California, Topographic Quadrangle. Reston, VA.

U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Whittier, California, Topographic Quadrangle. Reston, VA.

APPENDIX A
AVIFAUNAL COMPENDIUM

APPENDIX A
AVIFAUNAL COMPENDIUM

TABLE A-1
AVIAN SPECIES OBSERVED IN THE PROPOSED PROJECT AREA

Family	Species	Year-round Resident	Over-wintering Species	Migrant
Accipitridae: hawks	Cooper's hawk (*Accipiter cooperii*)		+	
	Red-tailed hawk (*Buteo jamaicensis)*		+	
Laridae: gulls	Western gull (*Larus occidentalis*)		+	
	California gull (*larus californicus*)		+	
Columbidae: Pigeons, doves	Rock pigeon (*Columba livia*)	+		
	Eurasian collared-dove (*Streptopelia decaocto*)	+		
	Mourning dove *(Zenaida macroura)*	+		
Trochilidae: hummingbirds	*Selasphorus* spp. hummingbird	+		
Tyrannidae: tyrant flycatchers	black phoebe (*Sayornis nigricans)*	+		
Corvidae: jays, crows	Common raven (*Corvus corax)*	+		
Aegithalidae bushtits	bushtit (*Psaltriparus minimus*)	+		
Mimidae: thrashers	Northern mockingbird *(Mimus polyglottos)*	+		
Sturnidae: starlings	European starling (*Sturnus vulgaris)*	+		
Parulidae: warblers	Orange-crowned warbler (*Vermivora celata*)		+	
	Yellow-rumped warbler (*Dendroica coronata*)		+	
Emberizidae: buntings, sparrows	White-crowned sparrow (*Zonotrichia leucophrys*)		+	
	Dark-eyed junco (*Junco hyemalis*)		+	
Icteridae: blackbirds	Brewer's blackbird (*Euphagus cyanocephalus)*	+		
Fringillidae: finches	House finch *(Carpodacus mexicanus)*	+		
Passeridae	house sparrow (*Passer domesticus*)	+		

APPENDIX B
BOTANICAL COMPENDIUM

APPENDIX B
BOTANICAL COMPENDIUM

TABLE B-1
BOTANICAL COMPENDIUM OBSERVED IN THE PROPOSED PROJECT AREA

Family	Species	Nonnative	Native
Polypodiaceae: Ferns	tree fern (*Dicksonia antarctica*)	+	
Pinaceae: Pines	columnar pines, (*Araucaria columnaris*)	+	
Cupressaceae: Cypresses	Coast Redwood (*Sequoia sempervirens)*	+	
Arecaceae: Palms	Queen Palm (*Syagrus romanzoffiana*)	+	
	California fan palm (*Washingtonia filifera*)	+	
	Mexican fan palm (*Washingtonia robusta*)	+	
	Canary Island date palm (*Phoenix Canariensis*)	+	
Myrtaceae: Eucalyptus	Bottlebrush Sp (*Callistemon* sp.*)*	+	
	Blue Gum, *(Eucalyptus globulus)*	+	
Bombacaceae: Bombax	Silk Floss Tree (*Chorisia speciosa)*	+	
Moraceae: Drumstick trees	Creeping Ficus (*Ficus pumila)*	+	
	Laural fig (*Ficus elastica*)	+	
Sapindaceae: Soapberry	Carrotwood (*Cupaniopsis anacardioides*)	+	
Bignoniaceae: Catalpa	Blue jacaranda (jacaranda *mimosifolia)*	+	
Platanaceae: Sycamore	American sycamore (*Platanus occidentalis)*	+	
Fabaceae: Bean, pea	Flowering Redbud Tree (Cercis Canadensis)	+	
	Coral tree *(Erythrina* sp.)	+	
Oleaceae: Olive	Ash sp *(Fraxinus* sp.*)*	+	
Altingiaceae: Witch hazel	Liquidambar (*Liquidambar styraciflua*)	+	
Ulmaceae: Elm	Chinese Elm (*Ulmus parvifolia)*	+	
Rosaceae: Rose	Bradford Pear (*Pyrus calleryana)*	+	
	Indian Hawthorn (*Rhaphiolepis indica*)	+	
Agapanthaceae: Lily	Afican lily (Agapanthus africanus)	+	
Iridaceae: Iris	Iris sp	+	
Pittosporaceae: Araliales	mock orange (*Pittosporum tobira)*	+	
Araliaceae: Ginseng	English ivy (*Hedera helix*)	+	

APPENDIX C
SITE PHOTOGRAPHS

PHOTO 1
Landscaping and Vegetation
Campus Entrance Towards Claude Hudson Auditorium, Off Wilmington Avenue

PHOTO 2
Landscaping and Vegetation
Campus Entrance Toward Existing Multiservice Ambulatory Care Center,
Off Wilmington Avenue

PHOTO 3
Landscaping and Vegetation
Campus Entrance Towards Existing Multiservice Ambulatory Care Center and Registration Building, Off Wilmington Avenue

PHOTO 4
Landscaping and Botanical Overlay
Campus Surface Parking Lot

PHOTO 5
Landscaping and Botanical Overlay
Campus Surface Parking Lot

PHOTO 6
Landscaping and Botanical Overlay
Campus Surface Parking Lot

PHOTO 7
Landscaping and Botanical Overlay
Alley Behind Interns and Physicians Building

PHOTO 8
Landscaping and Botanical Overlay
Toward Campus Off 120th Street

APPENDIX E
CULTURAL RESOURCES TECHNICAL REPORT

MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

CULTURAL RESOURCES TECHNICAL REPORT

The location data for the archaeological resources will not be circulated for public review. To protect the sites from unauthorized excavation, looting, and/or vandalism, the County of Los Angeles has been notified of the need to keep confidential the location of known archaeological resources beyond what is necessary. Records in the information centers are exempt from the California Public Records Act (Government Code Section 6250 et seq.). Government Code Section 6254.19 states, "Nothing in this chapter requires disclosure of records that relate to archaeological sites information maintained by the Department of Parks and Recreation, the State Historical Resources Commission, or the State Lands Commission." Government Code Section 6254 explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Due to the sensitive nature of cultural resources described herein, this report is confidential and meant for the exclusive use of the County of Los Angeles and other trustee and responsible agencies related to planning, construction, operation, maintenance, and management of the Martin Luther King, Jr. Medical Center Campus Redevelopment Project.

PREPARED FOR:

COUNTY OF LOS ANGELES
CHIEF EXECUTIVE OFFICE
KENNETH HAHN HALL OF ADMINISTRATION
500 WEST TEMPLE STREET, ROOM 754
LOS ANGELES, CALIFORNIA 90012

PREPARED BY:

SAPPHOS ENVIRONMENTAL, INC.
430 NORTH HALSTEAD STREET
PASADENA, CA 91107

AUGUST 2010

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B California Historic Resources Inventory DPR 523 Forms
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SECTION ES
EXECUTIVE SUMMARY

Sapphos Environmental, Inc. was contracted by the County of Los Angeles Chief Executive Office, (County) to prepare a Cultural Resources Technical Report, in compliance with the California Environmental Quality Act (CEQA), in support of the proposed Martin Luther King, Jr. (MLK) Medical Center Campus Redevelopment project (proposed project) located in the community of Willowbrook, in the unincorporated territory of the County of Los Angeles, California. The proposed project site encompasses the existing 38-acre Martin Luther King, Jr. Medical Center Campus, which is occupied by 15 buildings and several ancillary buildings and facilities that were constructed from 1968 to the early 1990s. The proposed project consists of potential demolition, new construction, potential relocation of a building, tenant improvements in existing buildings, and site improvements. The objective of the cultural resources analysis was to identify any significant cultural resources that may be affected by the implementation of the proposed project, to propose mitigation for any adverse impacts, and to document the findings of significance and nonsignificance. Categories of cultural resources are specified in Appendix G of the California Environmental Quality Act (CEQA) Guidelines as paleontological resources, archaeological resources, historical resources, and human remains.

This technical report presents the results of the investigation. Mitigation measures are recommended to address paleontological resources, historical resources, and human remains. Due to the level of disturbance that has occurred within the proposed project area in conjunction with construction of the Martin Luther King, Jr. Medical Center in 1972, extant archaeological resources would not be likely to be present and no mitigation for archaeological resources is recommended.

ES.1 PALEONTOLOGICAL RESOURCES

Regarding paleontological resources, the proposed project site is underlain by older Quaternary Alluvium, which has the potential to contain significant fossil vertebrates.[1] The proposed project therefore has the potential to result in significant impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource. The following paleontological mitigation measure is recommended:

ES.1.1 Mitigation Measure Cultural-1

The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the proposed project shall be reduced to below the level of significance through the salvage and disposition of paleontological resources that result from ground-disturbing activities in areas located 20 feet below the ground surface that would have the potential to contact extant older Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology:

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[1] McLeod, Samuel A. 21 November 2009. "Vertebrate Paleontology Section, Natural History Museum of Los Angeles County, Los Angeles, California." Letter response to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

- Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found.

- Prior to any ground-disturbing activities, the County of Los Angeles shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium.

- A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources.

- Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find.

- If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing.

- Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored, the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered, fossil specimens recovered, and associated specimen data.

- All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository, regarding the final disposition, permanent storage, and maintenance of any significant fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written agreement shall specify the level of treatment (i.e., preparation, identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed.

- Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended, itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, signify the completion of the program to mitigate impacts to paleontological resources.

ES.2 HISTORICAL RESOURCES

Sapphos Environmental, Inc. identified five historical resources that would be impacted by the proposed project: the Martin Luther King, Jr. Medical Center Campus Historic District and the four contributing buildings that comprise the district: Multi-Service Ambulatory Care Center (MACC; formerly known as the Main Hospital Building); Augustus F. Hawkins Comprehensive Mental Health Center; Interns and Physicians Building; and Dr. H. Claude Hudson Auditorium. The historic district was evaluated as eligible under NRHP and CRHR Criteria A/1 for its exceptional importance in relation to the history and development of the Willowbrook area and direct linkage with the McCone Commission's recommendation for a new hospital in South Los Angeles in the wake of the 1965 civil unrest centered in the Watts community. The historic district and the four NRHP/CRHR-eligible buildings were recorded on California Historic Resources Inventory forms.

The proposed project may result in demolition of the MACC building. Demolition of an historic resource would result in a significant adverse change in the significance of the historic resource, therefore requiring the consideration of mitigation measures. Two mitigation measures are recommended for historical resources:

ES.2.1 Mitigation Measure Cultural-2

Tier II impacts to four significant historical resources (Multi-Service Ambulatory Care Center [MACC], Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium) and the integrity of the Martin Luther King, Jr. Medical Center Campus Historic District shall be reduced to below the level of significance through utilization of the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines of Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* for any proposed alterations, including all site work, structural upgrades, architectural, and mechanical systems improvements and repairs. The work shall conform to the standards and guidelines for "rehabilitation." Conformance with the Secretary of the Interior's Standards shall be monitored by an architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualification Standards. Completion of this mitigation measure shall be monitored and enforced by the County of Los Angeles.

ES.2.2 Mitigation Measure Cultural-3

Tier II impacts resulting from demolition or substantial alteration of significant historical resources not in conformance with the Secretary of the Interior's Standards shall be reduced to the maximum extent feasible through archival documentation of as-found condition. Prior to the initiation of construction activities, the County of Los Angeles shall ensure that documentation of the Martin Luther King, Jr. Medical Center Campus Historic District, Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and/or Dr. H. Claude Hudson Auditorium is completed in accordance with Historic American Buildings Survey (HABS) requirements for donated material. The documentation shall be in the form of a Historic American Building Survey and shall comply with the *Secretary of the Interior's Standards for Architectural and Engineering Documentation*. The documentation shall include large-format photographic recordation, detailed historic narrative report, measured architectural drawings, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be offered as donated material to Historic American Building

Survey for inclusion in the Library of Congress. Archival copies of the documentation also would be available at the Martin Luther King, Jr. Medical Center campus and maintained by the County of Los Angeles.

ES.2.3 Mitigation Measure Cultural-4

Impacts resulting from the loss of integrity of the Martin Luther King, Jr. Medical Center Campus Historic District such that its significance is materially impaired will be reduced to the maximum extent feasible through the development of a retrospective exhibit detailing the history of the Martin Luther King, Jr. Medical Center Campus Historic District, its significance, and its important details and features. The retrospective exhibit shall be in the form of a physical exhibit installed on the Martin Luther King, Jr. Medical Center Campus, which is located either within a building or on a freestanding kiosk or comparable structure or installation on the property. The exhibit should commemorate the historic appearance of the district and provide the public with sufficient information to understand its historic significance.

The exhibit shall be prepared by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The exhibit should be completed within a period of no more than two years from the date of completion of Tier II of the proposed project.

ES.3 HUMAN REMAINS

ES.3.1 Mitigation Measure Cultural-5

Although the discovery of human remains is not anticipated during ground-disturbing activities for the proposed project, a process has been delineated for addressing the unanticipated discovery of human remains:

- Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met:

- The Los Angeles County Coroner has determined that no investigation of the cause of death is required, and

- Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

ES.3.2 Level of Significance after Mitigation

Implementation of mitigation measure Cultural-1 would reduce any potential significant impacts to cultural resources related to an adverse change in the significance of a unique paleontological resource discovered under Tier I and Tier II to below the level of significance.

Implementation of mitigation measure Cultural-2 would reduce Tier II impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium as a result of Tier II of the proposed project to below the level of significance.

Implementation of mitigation measures Cultural-3 and Cultural-4 would reduce Tier II impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium as a result of Tier II of the proposed project to the maximum extent feasible. However, the demolition of a historical resource still would remain a significant adverse impact.

Implementation of mitigation measure Cultural-5 would reduce any potential significant impacts to human remains discovered under Tier I or Tier II to below the level of significance.

SECTION 1
INTRODUCTION

1.1 STATEMENT OF PROBLEM

This Cultural Resources Technical Report was prepared to assess the potential effects of construction, operation, and maintenance of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment (proposed project) on cultural resources and the ability to avoid or resolve adverse effects of the proposed project. The objectives of the cultural resources analysis were to identify any significant historic resources that may be affected by the implementation of the proposed project, to propose mitigation for any adverse impacts, and to document the findings of significance and non-significance. The project is located within the community of Willowbrook, an unincorporated area of the County of Los Angeles (County), California. Land use decisions required to accommodate the proposed project would be subject to discretionary approvals by the County Board of Supervisors. Acting in their capacity as lead agency under the California Environmental Quality Act (CEQA), the County would need to determine the potential for the proposed project to result in significant impacts, consider mitigation measures and alternatives capable of avoiding significant impacts, and take the environmental effects of the proposed action into consideration as part of their decision-making process.

1.2 PURPOSE

This Cultural Resources Technical Report provides the substantial evidence on which the required evaluation of feasibility, environmental analysis, and findings of fact in relation to cultural resources can be made. The Cultural Resources Technical Report documents the presence or absence of cultural resources that are afforded protection pursuant to CEQA and other relevant federal, state, and local statues and regulations. This Cultural Resources Technical Report was prepared as an aid to support project-planning efforts to minimize impacts to cultural resources and to provide the County Board of Supervisors with data regarding the potential effects of the proposed project on cultural resources, as well as feasible avoidance and minimization measures to reduce impacts to the maximum extent practicable.

1.3 INTENDED AUDIENCE

This Cultural Resources Technical Report presents the results of the cultural resources assessment for consideration by the Los Angeles County Board of Supervisors, as the lead agency, in their decision-making process related to the proposed project. In addition, the Cultural Resources Technical Report serves as a disclosing document for other trustee and responsible agencies, including the State Historic Preservation Officer and the Native American Heritage Commission. The information contained in this report will be summarized in the enclosed environmental impact report for consideration by the public. However, specific locations of significant archaeological sites will be on file at the County and the South Central Coastal Information Center) located at California State University, Fullerton for review on an "as need to know" basis only, to protect Native American artifacts from vandalism.

1.4 SCOPE OF THE INVESTIGATION

The analysis of cultural resources consists of a summary of the regulatory framework that guides the decision-making process to be undertaken by the County Board of Supervisors, a description of the methods employed to support the characterization and evaluation of cultural resources within the proposed project site, the analysis of baseline conditions for cultural resources, the potential for the proposed project to affect cultural resources, and opportunities to avoid, minimize, or mitigate the potential effects of the proposed project. The report addresses each of the environmental issues considered in Appendix G of the State CEQA Guidelines for cultural resources:[2]

- Unique paleontological resources or sites or unique geologic features
- Archaeological resources
- Historical resources
- Human remains

1.5 SOURCES OF RELEVANT INFORMATION

Information used in the preparation of this Cultural Resources Technical Report was derived from extensive research and literature review, including published and gray literature, consultation with experts knowledgeable of the cultural resources identified as having the potential to occur within the proposed project study area, and field investigation. Sources of relevant information are cited in footnotes and compiled in the References section of this document.

1.6 WORKING DEFINITIONS

There are a number of technical terms that are used in the characterization of baseline conditions and assessment of the potential for the proposed project to result in effects to cultural resources. A glossary of terms used in this report is provided as Appendix A, *Glossary of Terms*.

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[2] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Section 15000-15387, Appendix G.

SECTION 2
PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed Martin Luther King, Jr. Medical Center Campus Redevelopment Project (proposed project) site is located on the existing 38-acre Martin Luther King, Jr. Medical Center Campus, at 12021 Wilmington Avenue in the community of Willowbrook, in the unincorporated territory of the County of Los Angeles (County), California (Figure 2.1-1, *Regional Vicinity Map*; and Figure 2.1-2, *Local Vicinity Map*).

The proposed project site is located approximately 3 miles north of State Route 91 (SR-91; Artesia Freeway), approximately 3 miles northeast of Interstate 710 (I-710; Long Beach Freeway), approximately 2 miles east of I-110 (Harbor Freeway), less than 1 mile south of SR-90 (East Imperial Highway), and less than 1 mile south of I-105 (Glen Anderson Freeway). The proposed project site can be accessed from East 120th Street or from Wilmington Avenue.

The proposed project site is bounded on the north by East 120th Street, on the east by Wilmington Avenue, on the south by a narrow alley which separates the proposed project site from the residential neighborhood which is largely located north of East 122nd Street, and on the west by Compton Avenue of Los Angeles (Figure 2.1-3, *Project Location Map*). The proposed project site is less than 1 mile north of the City of Compton and less than 1 mile west of the City of Lynwood. The proposed project site is also less than 1 mile south of the City of Los Angeles.

The proposed project site appears on the U.S. Geological Survey (USGS) 7.5-minute series South Gate topographic quadrangle (Figure 2.1-4, *Topographic Map*).[3] Elevations at the proposed project site range from 86 feet above mean sea level (MSL) to 88 feet above MSL. The topography of the site can be generally characterized as flat.

2.2 BACKGROUND AND EXISTING CONDITIONS

2.2.1 Background

The Martin Luther King, Jr. Medical Center Campus began operations in 1972. The Martin Luther King, Jr. Medical Center Campus was developed to address a need for local community services in south Los Angeles. Following the 1965 Watts Civil Unrest/Riots, a commission appointed by the Governor reported a lack of healthcare access as one of the contributing factors to the unrest.[4]

The hospital was operational from 1972 to August 2007, when the license was suspended for the provision of inpatient services at the Martin Luther King, Jr. Medical Center Campus due to concerns over levels of service. Currently, the existing Martin Luther King, Jr. Medical Center Campus (existing campus) is not fully operational; however, the proposed project site provides various outpatient and administrative support services. In 2009, the County initiated improvements to the existing campus to provide community-based inpatient hospital functions and support spaces

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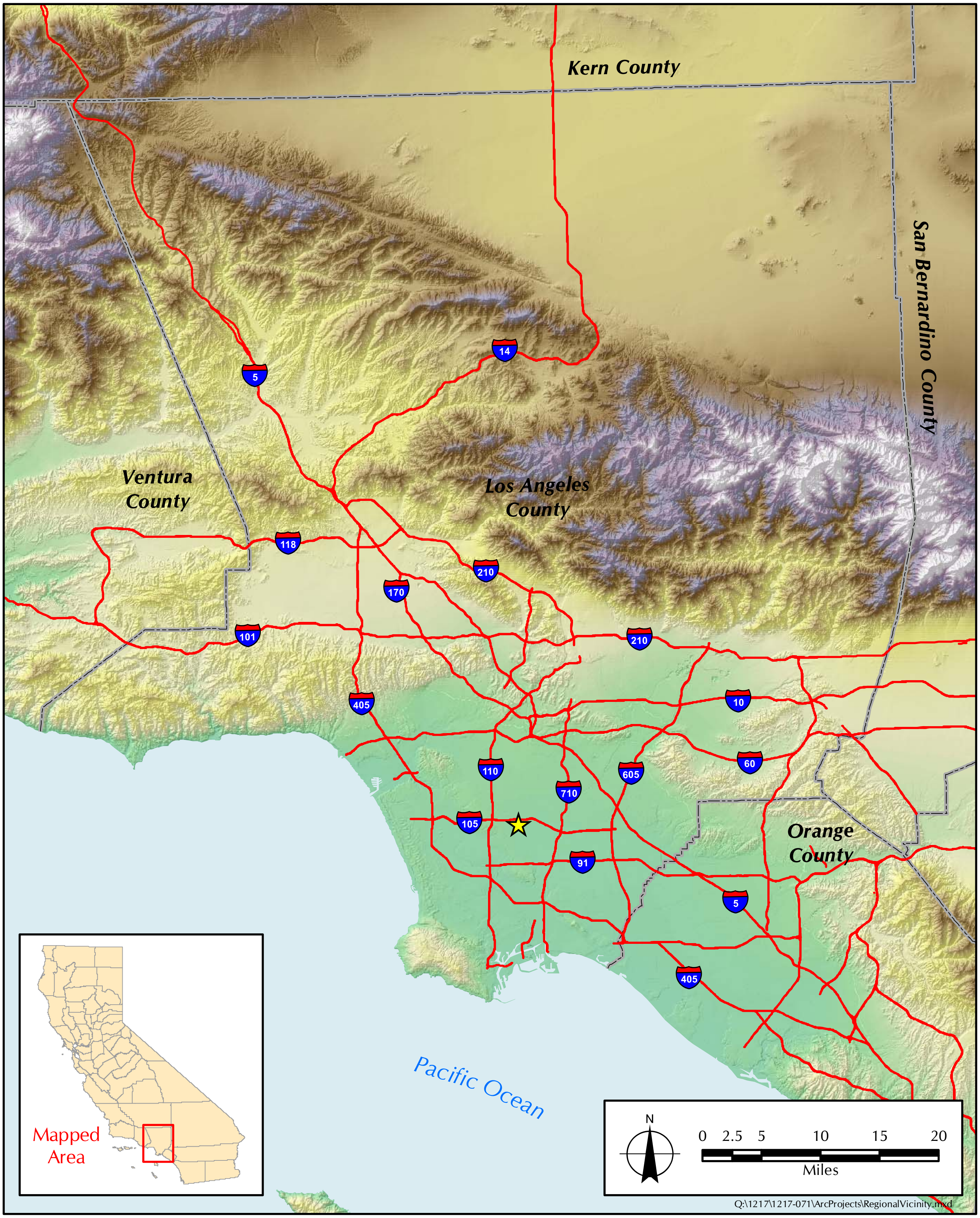
[3] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[4] County of Los Angeles. Accessed 9 October 2009. Los Angeles County Health Services, MLK-MACC. Available at: http://www.ladhs.org/wps/portal/KingHomepage



☆ Proposed Project Location

FIGURE 2.1-1

Regional Vicinity Map

SOURCE: SEI, GlobeXplorer

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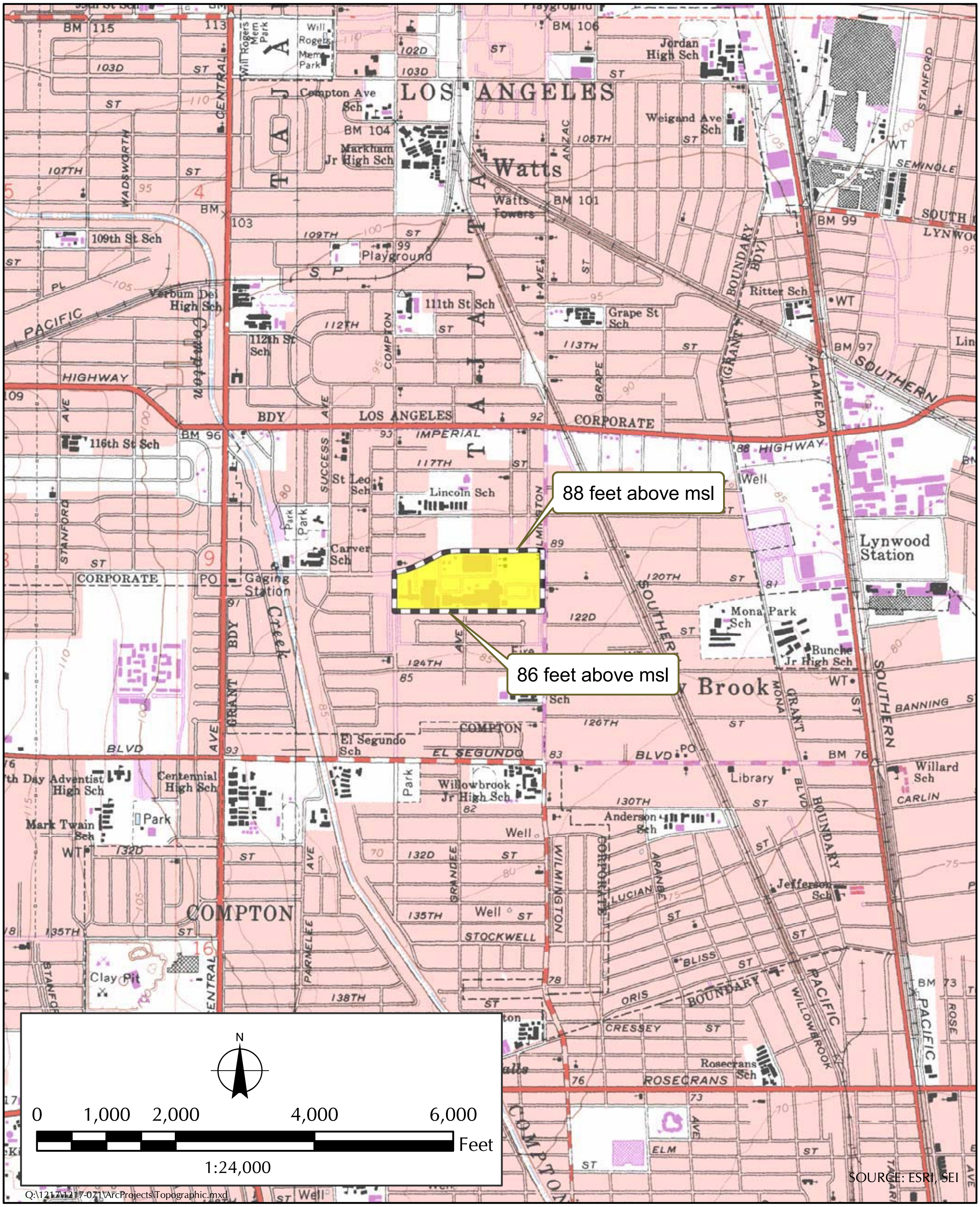
FIGURE 2.1-2

Local Vicinity Map

FIGURE 2.1-3

Project Location Map



Proposed Project Boundary

FIGURE 2.1-4

Topographic Map

that would be seismically compliant beyond 2030 seismic standards established by the Office of Statewide Health and Planning Development (OSHPD). These improvements to the existing campus would be an adjacent and ongoing project.

In 2009, a Categorical Exemption was approved by the County Board of Supervisors for minor renovations and improvements to the existing campus. This process allowed the minor renovations and improvements to the campus to be exempt from the State California Environmental Quality Act (CEQA) process under Class 1, "Existing Facilities"; Class 2, "Replacement or reconstruction of existing schools and hospitals to provide earthquake resistant structures which do not increase capacity more than 50 percent"; and Class 3, "New Construction or Conversion of Small Facilities;"[5] Categorical Exemption [Sections 15301, 15302, and 15303 of the Guidelines], pursuant to the requirements specified in Section 15300.2 of the State CEQA Guidelines.

The upgrades that will be completed as part of project approved in 2009 on the campus include renovation and improvements of up to 172,591 square feet within the Inpatient Tower to include hospital beds and other hospital functions, including the placement of the Emergency Department (ED) on the first floor of the Inpatient Tower, renovation to the basement and second floor, and build-out of three unused upper floors to accommodate the hospital functions use. In addition, the improvements include necessary renovations within other buildings on the existing campus to accommodate various hospital support functions, hospital administration support, and other outpatient services. Renovations to house the hospital support functions and hospital administration support will be placed in the Pediatric Acute Care, Medical Records and Laundry, North Support, South Support, Central Plant, and Plant Management buildings. Renovations to house the outpatient services will be placed in the existing MACC building. The Pediatric Acute Care building will be renovated to serve as the hospital entry and lobby area. Finally, a Pneumatic Tube System (PTS) will be installed in the penthouse to the roof of the Medical Records building. The PTS will serve the Inpatient Tower and Augustus F. Hawkins Comprehensive Mental Health Center buildings. The work described above will operate with the capacity of up to 120 licensed beds; the 120 beds will be located on the first through fifth floors of the Inpatient Tower. These adjacent and ongoing CEQA-exempt improvements to the campus serve as a related project for the proposed project.

The renovations and improvements to the campus as described above will allow the County to regain the hospital license and quickly and cost-effectively meet the unmet inpatient needs for the community, while also allowing the County to reopen a fully functional medical campus that more accurately reflects community needs.

2.2.2 Existing Structures

The existing buildings, structures, and features within the proposed project site are described in this section. These descriptions are based on information provided by the County Chief Executive Office and County Department of Public Works, as well as from information described in a Martin Luther King, Jr. Medical Center Campus Planning Programming Report that was prepared by HMC Architects.[6]

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[5] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Sections 15301–3.

[6] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

The proposed project site consists of 15 buildings: Genesis Clinic, Oasis Clinic (old), Oasis Clinic (new), Registration Building, Augustus F. Hawkins Comprehensive Mental Health Center, Inpatient Tower, MACC building, Pediatric Acute Care Building, Medical Records and Laundry Building, Central Plant, Plant Management Building, North Support Building, South Support Building, Interns and Physicians Building, and Hub Clinic. There is also a multilevel parking structure available for parking and several support and ancillary buildings and facilities including: an Emergency Room, Magnetic Resonance Imaging (MRI) Building, Claude Hudson Auditorium, Cooling Towers, and Storage Building on the proposed project site (Table 2.2.2-1, *Existing Buildings and Structures*; and Figure 2.2.2-1, *MLK Existing Campus Plan*). Below are structural descriptions and status of the existing buildings and other structural components. The developed floor area (not including the parking structure) is approximately 1.2 million square feet. The existing conditions on the campus are described based on the conditions as they occurred on the day that the Notice of Preparation for the EIR was published on March 8, 2010.

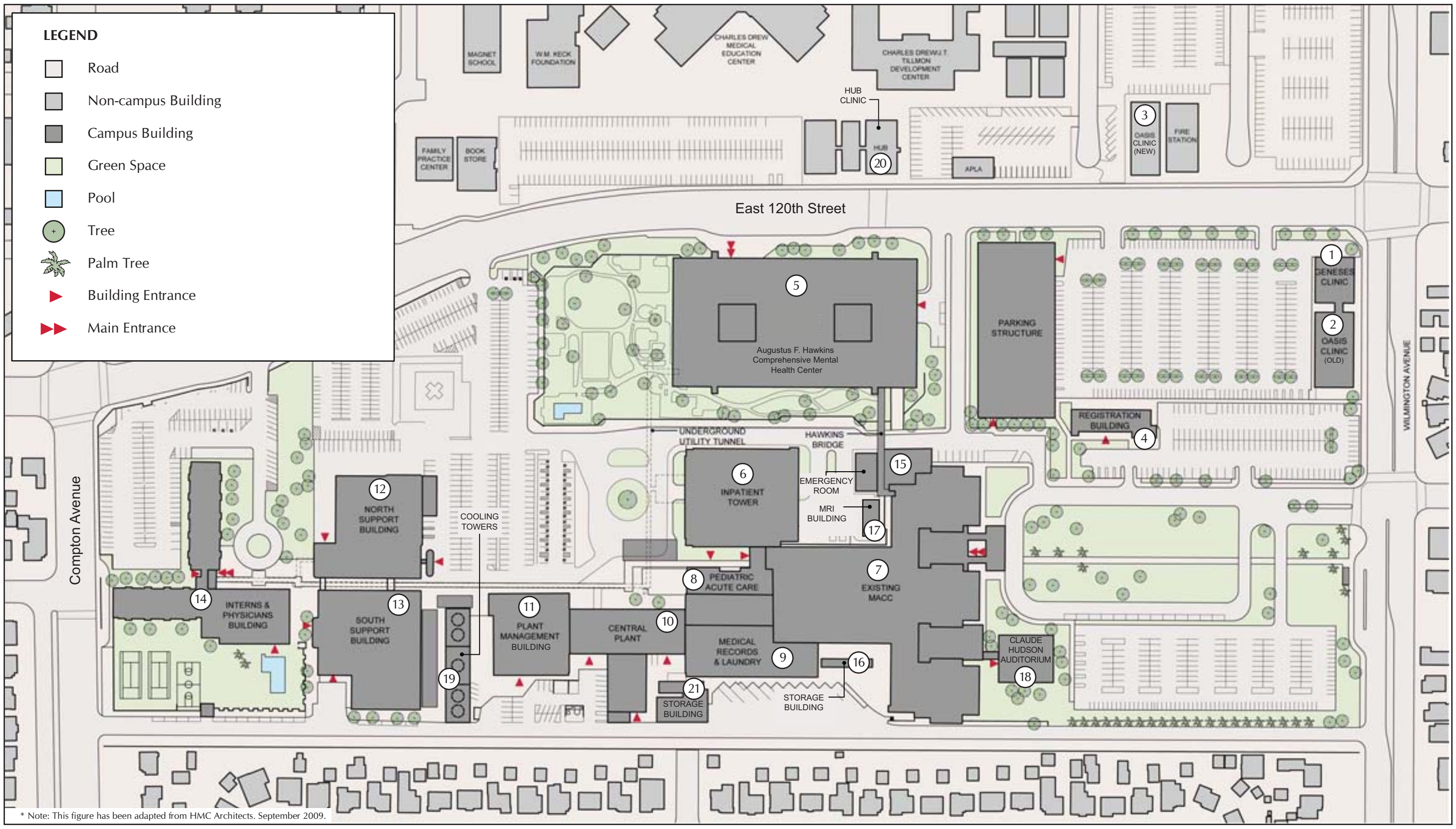
TABLE 2.2.2-1
EXISTING BUILDINGS AND STRUCTURES

	Building/Structure Name	Floor Area (square feet)	Would Buildings/ Structures Remain Following the Development of the Proposed Project? (Y/N)	Floors	Currently Operational	Footprint of Campus Buildings / Structures (square feet)
1	Genesis Clinic	2,100	Y	1	N	2,100
2	Oasis Clinic (old)	2,580	Y	1	N	2,580
3	Oasis Clinic (new)	1,850	Y	1	Y	1,850
4	Registration Building	10,950	Y	2	Y	5,475
5	Augustus F. Hawkins Comprehensive Mental Health Center	226,818	Y	3 (and a basement)	Y	75,606
6	Inpatient Tower	187,676	Y	5 (and a basement)	Y	37,535
7	Multi-Service Ambulatory Care Center (MACC)	495,335	N	5 (and a basement)	Y (not fully operational)	99,067
8	Pediatric Acute Care	7,878	Y	1	Y	7,878
9	Medical Records and Laundry	26,355	Y	1	Y	26,355
10	Central Plant (I and II)	24,103	Y	1	Y	24,103
11	Plant Management Building	15,648	Y	1	Y	15,648
12	North Support Building	52,276	Y	2	Y	26,138
13	South Support Building	34,762	Y	2	Y	17,381
14	Interns and Physicians Building	124,391	Y	6	Y (not fully operational)	20,731
15	Emergency Room	3,300	N	1	Y	3,300
16	Storage Building	1,060	N	1	Y	1,060
17	MRI Building	1,100	Y	1	Y	1,100
18	Claude Hudson Auditorium	3,922	Y	1	Y	3,922
19	Cooling Towers[a]	6,790	N	1	Y	6,790
20	Hub Clinic	12,265	Y	1	Y	12,265
21	Storage Building[b]	2,533	Y	1	Y	2,533
	EXISTING CAMPUS TOTAL	**1,243,692**				**393,417**

NOTES:

a. These structures would likely be reused or replaced following the reuse or replacement of the existing MACC building.

b. This building is in the footprint of the Central Plant expansion, but may just be incorporated during design and remain.



* Note: This figure has been adapted from HMC Architects. September 2009.

FIGURE 2.2.2-1
MLK Existing Campus Plan

2.2.2.1 Genesis Clinic

The Genesis Clinic is a 2,100-square-foot outpatient clinic located on the north-eastern portion of the proposed project site. The Geneses Clinic is attached by a walkway to the Oasis Clinic. This clinic is currently not operational.

2.2.2.2 Oasis Clinic (Old)

The Oasis Clinic is a 2,580-square-foot HIV/AIDS clinic that provided comprehensive HIV/AIDS medical care to patients, while it was operational. The services of this clinic included nutritional counseling; treatment education; women's services; mental health; on-site case management; Aids Drug Assistance Program enrollment, orientation, and education for patients diagnosed with HIV; hormone therapy; and adolescent services. This clinic is currently not operational.

2.2.2.3 Oasis Clinic (New)

The Oasis Clinic, located to the north of East 120th Street, is a 1,850-square-foot HIV/AIDS clinic that provides comprehensive HIV/AIDS medical care to patients. The services of this clinic include nutritional counseling; treatment education; women's services; mental health; on-site case management; Aids Drug Assistance Program enrollment, orientation, and education for patients diagnosed with HIV; hormone therapy; and adolescent services.

2.2.2.4 Registration Building

The 10,950-square-foot Registration Building is a two-story building, which provides office space in support of the campus. The registration building is located off the existing main entrance of the proposed project site, off Wilmington Avenue.

2.2.2.5 Augustus F. Hawkins Comprehensive Mental Health Center

The existing 226,818-square-foot Augustus F. Hawkins Comprehensive Mental Health Center is a three-story building with a partial one-level basement and was constructed in 1979. The building provides inpatient and outpatient mental healthcare. This building is composed of reinforced-concrete construction. The lateral-force-resisting system is composed of reinforced-concrete shear walls. The foundation system is composed of reinforced-concrete piles. The building is categorized by the OSHPD as Structural Performance Category–4 (SPC-4), which means that the building can remain functional to beyond the year 2030.

2.2.2.6 Inpatient Tower

The 187,676-square-foot Inpatient Tower was constructed in 1993. This building consists of a five-floor facility with a one-level basement that provides outpatient services. The roof of the Inpatient Tower contains a helipad that is used for hospital specific emergency use. The building is base isolated, utilizing rubber-bearing isolators and sliders to reduce the seismic forces or accelerations experienced by the building in a seismic event. The building superstructure is composed of structural steel construction. The gravity system utilizes a concrete-filled metal deck supported by structural steel beams, girders, and columns. Special concentric-braced frames are used for the building's lateral-force-resisting system. The foundation system is composed of cast-in-place concrete-drilled piles. The SPC of the building is categorized by California OSHPD as SPC-5, which is the highest SPC rating and permits the building to be used for hospital functions beyond the year 2030.

The CEQA-exempt, ongoing project includes installation of a pneumatic tube blower room on the roof of the existing building. This would probably require strengthening of the building as well as localized strengthening of the framing to support the added weight.

2.2.2.7 Multi-Service Ambulatory Care Center (MACC)

The existing 495,335-square-foot MACC was constructed in the late 1960s. This building is a six-story building with a penthouse constructed in the late 1960s. The building consists of three structurally independent buildings: Central Tower, North Tower, and South Tower. This building was formerly used as a 437-bed inpatient, outpatient, and emergency facility. All components of the MACC building are composed of reinforced concrete construction. The gravity system utilizes two-way reinforced concrete slabs supported by reinforced concrete beams and columns. The lateral-force-resisting system is composed of reinforced concrete shear walls. The foundation system is composed of cast-in-place concrete drilled piles. The SPC of the building is categorized by OSHPD as SPC-1.

2.2.2.8 Pediatric Acute Care Building

The existing 7,878-square-foot Pediatric Acute Care Building is a one-story building with a mezzanine level and was constructed in 1992. The building is composed of structural steel construction. The gravity system utilizes a concrete-filled metal deck supported by structural steel beams, girders, and columns. Special concentric braced frames are used for the building's lateral-force-resisting system. The foundation system is composed of cast-in-place concrete drilled piles. The building is categorized by OSHPD as SPC-3, which permits the building to remain functional to the year 2030 and beyond. The existing Nonstructural Performance Category (NPC) of the building is NPC-3. Under the CEQA-exempt ongoing project, the building will be upgraded to continue to be used for hospital functions.

2.2.2.9 Medical Records and Laundry Building

The existing 26,355-square-foot Medical Records Building is a one-story building constructed in 1972. The building is composed of reinforced-concrete construction. The gravity system utilizes two-way reinforced-concrete slabs supported by reinforced-concrete beams and columns. The lateral-force-resisting system is composed of reinforced-concrete shear walls. The foundation system is composed of cast-in-place concrete drilled piles. The building is categorized by the OSHPD as SPC-2, which means that the building can remain functional until only the year 2030, unless it is brought into compliance with the OSHPD structural provisions. Under the CEQA-exempt ongoing project, the building will be upgraded seismically to bring it up to OSHPD SPC-4 or SPC-5, thus allowing the building to be used for inpatient functions until the year 2030 and beyond. The seismic retrofit work would include the addition of new reinforced-concrete shear walls, mitigation of existing discontinuous shear wall conditions, and possible localized strengthening of existing foundations. The building is also expected to be completely gutted, and all new nonstructural and information technology work would comply with the current code.

The CEQA-exempt, ongoing project includes installation of a pneumatic tube blower room on the roof of the existing building. This would probably require strengthening of the building as well as localized strengthening of the framing to support the added weight.

2.2.2.10 Central Plant

The 24,103-square-foot Central Plant was constructed in two phases. The Phase I component is a single-story building, with partial mezzanine floor, built in the 1960s. Roof structure consists of reinforced concrete one-way slab supported by tapered steel girder. Concrete shear walls form the perimeter of the building and provide the seismic bracing for the building. Foundation system of the building consists of cast-in-place concrete piles. However, the mechanical, electrical, and plumbing equipment upgrade within it and some structural work (voluntary) were performed in 1993 under OSHPD permit number HS912289. OSHPD records show the building rated as SPC-1. Under the CEQA-exempt ongoing project, the building will be upgraded seismically to bring it up to OSHPD SPC-4 or SPC-5, thus allowing the building to be used for hospital function until the year 2030 and beyond.

The Central Plant Phase II building, located to the south of the Phase I building, was constructed in 1975. The building structure currently has an SPC-4 rating; therefore, no seismic retrofit upgrade of the building is required. The construction of the Phase II building is similar to the Phase I building. There is an underground water storage tank, measuring 47 feet by 47 feet by 22.5 feet deep and occupying the southern half of the building. Construction of water storage tank consists of cast-in-place concrete slabs and walls. Under the CEQA-exempt ongoing project, new plant equipment will be placed on the floor slab above the tank, which may require strengthening.

The CEQA-exempt ongoing project, a 6,000-square-foot expansion to the Central Plant will include installation of chiller equipment on the roof.

2.2.2.11 Plant Management Building

The 15,648-square-foot Plant Management Building supports campus functions at the proposed project site. This building is architecturally comparable to the other structures on the proposed project site in that it has concrete walls. Under the CEQA-exempt ongoing project, renovations and improvements to the interior of the building may be required.

2.2.2.12 North Support Building

The existing 52,276-square-foot North Support Building is a two-story building, constructed in two phases. The original building, which consisted of the lower full level and a partial second level, was built as a concrete structure in 1973. The second floor and roof consist of two-way waffle slab supported on concrete columns. Perimeter concrete walls provide lateral bracing to the structure. Foundation system consists of cast-in-place drilled pile. The second phase consisted of capturing the setback area over the second floor at the east side to provide additional space in the late 1980s. The addition was constructed of steel framing with concrete fill roof deck. The two phases appear to be connected so that the buildings function structurally as one. Under the CEQA-exempt ongoing project, interior renovations to the first and second floors will be included.

2.2.2.13 South Support Building

The 34,762-square-foot South Support building is a single-story concrete building with partial mezzanine floor, built in the early 1970s. Construction is similar to the North Support building. The gravity system of the building consists of concrete waffle slab supported on concrete columns. The lateral-force-resisting system is composed of reinforced concrete shear walls. Under the CEQA-exempt ongoing project, interior renovations will be included.

2.2.2.14 Interns and Physicians Building

The 124,391-square-foot Interns and Physicians Building is a six-story building also built in the 1970s. This building is currently not fully operational. This building housed mainly the interns and physicians involved in the Physician Assistant Program of the Charles R. Drew Postgraduate Medical School. This building is architecturally comparable to the other structures on the proposed project site in that it has concrete walls.

The 1,100-square-foot MRI Building houses the MRI systems. This one-story structure is located north of the existing MACC building and may be relocated in Tier I of the proposed project.

2.2.2.15 Claude Hudson Auditorium

The 3,922-square-foot Claude Hudson Auditorium is a one-story structure that is attached by a walkway to the existing MACC building. This building may remain following the reuse or replacement of the existing MACC building.

2.2.2.16 Cooling Towers

The 6,790-square-foot Cooling Towers are one-story structures that serve the heat removal and heating, ventilating, air conditioning functions of the existing MACC. These structures may be reused or replaced following the reuse or replacement of the existing MACC building in Tier II of the proposed project.

2.2.2.17 Hub Clinic

The 12,265-square-foot Hub Clinic is situated north of the Hawkins Building off East 120th Street. This is a one-story building. The Hub Clinic services the needs of children and families in the foster care system.

2.2.2.18 Storage Building

The 2,533-square-foot, one-story Storage Building is currently used for storage. This building is located south of the Central Plant and Medical Records and Laundry Buildings. This building will be removed under the CEQA-exempt ongoing project.

2.2.2.19 Additional Support Structures

Existing Tunnel

The existing underground utility tunnel was constructed in two phases. The Phase I tunnel extends north from the north side of Central Plant Phase I and connects to the east-west segment serving the existing MACC building to the east and Interns and Physicians Building to the west. Phase I tunnel was constructed in the early 1970s as part of the CEQA exempt and ongoing project approved in 2009. The existing Phase I tunnel will be seismically retrofitted to obtain an SPC-5 rating.

The Phase II tunnel consists of north-south segment extending north from the Phase I tunnel to serve the Hawkins Building and Inpatient Tower. The Phase II tunnel was built in late 1970s.

Existing Retaining Wall between Hawkins Building and Inpatient Tower

The existing concrete retaining wall is about 500 feet long spanning in the east-west direction, between the Hawkins Building to the north and the service road to the south. The retaining wall was built in the late 1970s. The existing retaining wall and footings appear to be structurally adequate under the current lateral soil loadings. Strengthening of the retaining wall is not anticipated.

2.3 PROJECT DESCRIPTION

The proposed project entails two tiers. Tier I involves project-level development of the new MACC and the Ancillary Building, tenant improvements in existing buildings, site improvements, and the potential relocation of the MRI Building. The existing buildings that would be part of Tier I of the proposed project include the North Support Building, South Support Building, Interns and Physicians Building, and the Plant Management Building.

Development of the new MACC and the Ancillary Building are currently registered with the U.S. Green Building Council under Leadership in Energy and Environmental Design for New Construction (LEED-NC).[7] The County will seek LEED Silver certification for the MACC and the Ancillary buildings.[8] The LEED program recognizes and promotes a project's success in five areas: (1) sustainable sites, (2) water efficiency, (3) energy and atmosphere efficiencies, (4) materials and resources, and (5) indoor environmental quality. In addition, the federal government has a program titled "Green Guide for Healthcare Construction" (GGHC), which is designed to help hospitals navigate through the LEED program. The proposed project would incorporate energy efficient and sustainable strategies throughout the construction, development, and operation of the proposed project.

Tier II of the proposed project would entail the reuse or replacement of the existing MACC Building, Emergency Room Expansion, Storage Building, and Cooling Towers, and master-planned, mixed-use development, which may include the potential for medical office, commercial, retail, residential, recreational, office space, and other development that is appurtenant to and compatible with the primary land use, in support of the campus.

To establish a proposed programmed development level for the mixed-use portion of Tier II, the currently undeveloped areas of the campus (undeveloped in this case includes parking lots and structures but not buildings) were calculated and adjustments were made for buildings to be demolished and developed, to obtain a surface area from which to calculate allowable build-out. A maximum build-out of this remaining area was calculated using maximum build-out criteria from the Los Angeles County Zoning Code restrictions applicable to the site. Initially, this maximum build-out number was in excess of 2 million square feet and included zoning code allowances of a maximum of three stories in building height and 10 percent open space (i.e., areas without structures). To determine a more accurate level of development for Tier II, the following assumptions were added: (1) open space sitewide would remain 10 percent in order to maintain some of the current character of the site as an open and landscaped campus; (2) the site area to be set aside for the potential development of an up to 100-unit residential component, parking structures or parking lots, and walkways would be 40 percent of the entire site; and (3) although a

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[7] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[8] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

maximum of three stories would be allowed for new buildings, an average height of 2.5 stories was assumed. With these assumptions added in, the maximum programmed development for Tier II could consist of up to 1,814,696 square feet (Table 2.3-1, *Proposed Campus Development Matrix*, and Figure 2.3-1, *MLK Proposed Campus Plan*).

TABLE 2.3-1
PROPOSED CAMPUS DEVELOPMENT MATRIX

	Building Name	Current Total Floor Area (square feet)	Proposed Total Floor Area of Existing Campus to Remain Buildings (square feet)	Floor Area to Be Reused or Replaced (Vacated or Demolished[a] square feet)	Net New Total Floor Area of Campus Buildings (square feet)	Floors
1	Genesis Clinic	2,100	2,100	N/A	N/A	1
2	Oasis Clinic (old)	2,580	2,580	N/A	N/A	1
3	Oasis Clinic (new)	1,850	1,850	N/A	N/A	1
4	Registration Building	10,950	10,950	N/A	N/A	2
5	Augustus F. Hawkins Comprehensive Mental Health Center	226,818	226,818	N/A	N/A	3[a]
6	Inpatient Tower	187,676	187,676	N/A	N/A	5[a]
7	Existing MACC[b]	495,335	0	(495,335)	N/A	5[a]
8	Pediatric Acute Care	7,878	7,878	N/A	N/A	1
9	Medical Records and Laundry	26,355	26,355	N/A	N/A	1
10	Central Plant I and II	24,103	24,103	N/A	N/A	1
11	Plant Management	15,648	15,648	N/A	N/A	1
12	North Support Building	52,276	52,276	N/A	N/A	2
13	South Support Building	34,762	34,762	N/A	N/A	2
14	Interns and Physicians Building	124,391	124,391	N/A	N/A	6
15	Emergency Room	3,300	0	(3,300)	N/A	1
16	Storage Building	1,060	0	(1,060)	N/A	1
17	MRI Building	1,100	1,100	N/A	N/A	1
18	Claude Hudson Auditorium	3,922	3,922	N/A	N/A	1
19	Cooling Towers[c]	6,790	0	(6,790)	N/A	1
20	Hub Clinic	12,265	12,265	N/A	N/A	1
21	Storage Building[d]	2,533	0	(2,533)	N/A	1
A	New MACC	0		N/A	132,000	4
A	Ancillary Building	0		N/A	24,700	2
A	Emergency Generator	0		N/A	4,223	1
A	Central Plant III	0		N/A	9,409	1
	TOTAL	**1,243,692**	**737,207**	**509,018**	**170,332**	**N/A**

NOTES: It is understood that the emergency room, storage buildings, cooling towers, and existing MACC will be vacated as in Tier I and reused or replaced as part of Tier II of the proposed project These buildings may be either (1) removed during Tier II or (2) reused or replaced in Tier II. In either case, the building space would not be operational as part of Tier I. Should these buildings be reused or replaced in Tier II, the floor area of the space would be included within the total Tier II potential development of 1,814,696 square feet. Thus, the total of all net new development floor area at build-out of the campus would not exceed 1,476,010 square feet (not including the 100 residential units). The new MACC, Ancillary Building, emergency generator space, and new central plant III are labeled "A" in Table 2.4-1, are proposed buildings.

a. These buildings also have basements.
b. This scenario takes into account the replacement of the MACC Building. Should this structure be reused, 132,000 square feet for the MACC Building should be accounted for in both the proposed total floor area and proposed footprint of the campus buildings.
c. These structures would likely be demolished following the reuse or replacement of the existing MACC building.
d. This building is in the footprint of the Central Plant (Phase III) expansion but may just be incorporated during design and remain.

* Note: This figure has been adapted from HMC Architects. July 2010.

FIGURE 2.3-1
MLK Proposed Campus Plan

2.3.1 Tier I: Project Development

Tier I of the proposed project would entail the development of two new buildings: the new MACC and the Ancillary Building, tenant improvements in existing buildings, site improvements, and potential relocation of the MRI Building. Project-level environmental impact report (EIR) analysis will be provided for Tier I.

2.3.1.1 Multi-Service Ambulatory Care Center (MACC)

The proposed MACC building would be a four-story building consisting of approximately 132,000 square feet of floor area. This building would house the walk-in clinic, outpatient imaging, outpatient surgery, and various other outpatient clinics that are currently operating in the existing MACC. The proposed building would most likely be of structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. Similar to the proposed Ancillary Building, the lateral-force-resisting system of the MACC building can be any one of the following: moment frames, braced frames, or a combination of the two. The lateral-force-resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

2.3.1.2 Ancillary Building

The proposed Ancillary Building would be a two-story structure consisting of approximately 24,700 square feet of floor area. This building would house the campus kitchen and cafeteria, and administrative offices. The building would be constructed to the east of the new MACC. A new pedestrian foot bridge would be provided at the east end of the building for connection to the existing Inpatient Tower for the transportation of materials and supplies. The bridge would most likely be constructed of steel with a seismic joint at the Inpatient Tower.

The new building would most likely be structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. The lateral-force-resisting system for the building can be any one of the following: moment frames, braced frames, or a combination of the two. It is anticipated that the lateral-force-resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

2.3.1.3 Tenant Improvements

The tenant improvements would be performed in the North Support Building to provide space for the MACC administrative departments. The South Support Building would be reorganized to serve as the main warehouse for the MACC. The South Support Building may also serve as a central distribution center for other Los Angles County healthcare facilities in the area. Other tenant improvements would be performed in the Interns and Physicians and Plant Management Buildings for support functions to the MACC.

2.3.1.4 Site Improvements

The site work would consist of a new parking terrace, relocated entrance to the facility, new parking lots, re-striping of existing lots, and new landscaping at the entry of the new MACC and its surrounding area. A space for an emergency generator and a service yard with technical (tech) dock positions that connect mobile radiology equipment would also be provided.

2.3.2 Tier II: Master Plan Development

Tier II of the proposed project would entail the development of a campuswide master plan. It is anticipated that the development described in the Master Plan would seek to prepare the proposed project site for future mixed-use campus support development that would provide the health services necessary to respond to and address the needs of the community. Tier II would have the potential to build out approximately 1,814,696 square feet of development on the proposed project site with mixed uses including medical office, commercial, retail, office space, recreation, and other development in support of the campus. In addition, up to 100 residential units, to be developed at a multifamily density consistent with surrounding residential area multifamily development densities, are proposed in Tier II. Although the these buildings would be vacated as a component of Tier I, the Tier II components would entail the reuse or replacement of the existing MACC building, Emergency Room, Storage Building, and Cooling Towers. The Tier II components are conceptual at this time, and will therefore only be discussed in a programmatic level in the EIR, as permitted under CEQA. Once the detailed future development plans for Tier II components are prepared, consistent with the guidelines for programmatic EIRs under CEQA, the projects will be examined in light of the program EIR analysis, to determine whether an additional environmental document must be prepared.

2.4 CONSTRUCTION SCENARIO

2.4.1 Tier I Construction Scenario

Tier I of the proposed project—which consists of the construction of the new MACC, the Ancillary Building, tenant improvements, site improvements, and potential relocation of the MRI Building—would require approximately 37 months to complete (November 2010 to December 2013). Construction at the proposed project site is anticipated to be in accordance with all federal, state, regional, and County regulations, including the National Pollution Discharge Elimination System[9] and the County General Plan.[10]

It is anticipated that construction related to Tier I for the proposed project may require the type of equipment listed below in Table 2.4.1-1, *Tier I Anticipated Construction Equipment*.

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[9] U.S. Environmental Protection Agency. 2009. *National Pollution Discharge Elimination System*. Available at: http://cfpub.epa.gov/npdes/

[10] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

TABLE 2.4.1-1
TIER I ANTICIPATED CONSTRUCTION EQUIPMENT

Approximate Quantity	Type of Equipment or Vehicle	Approximate Duration of On-site Construction Activity (in months)
2	Man lift	3
4	Pickup truck	8
2	Hand compactor	5
2	Crane	3
1	Concrete mixer	4
1	Backhoe	3
40–60	Crew members	8
50	Crew vehicles (maximum)	8
1	Pile Driver	6
1	Large Bulldozer	3
2	Dozer	3
1	Front-end loader	1
1	Water truck	2
1	Grader	1
5	Dump truck	6
16	Concrete mix truck	9
1	Roller	1
3	Fork lift / grade all	3

It is anticipated that there would be grading activities associated with the development of Tier I of the proposed project. It is anticipated that the approximately 40,000 cubic yards of material will be exported from the site during construction of the proposed project. It is further anticipated that excavation may exceed 20 feet but would not be expected to be greater than 45 feet deep. It is anticipated that a geotechnical engineer would be available for observation and testing of the earthwork-related tasks to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered would be evaluated by the proposed project engineering geologist and the soil engineer.[11] The existing access roads to and the streets surrounding the proposed project site will be used to transport import, export, and other construction related materials to and from the proposed project site.

2.4.2 Tier II Construction Scenario

The Tier II of the proposed project consists of a campus-wide master plan and up to 1,814,696 square feet of development on the proposed project site. The potential construction scenario for Tier II may be envisioned as a multiphase process to be completed concurrently with Tier I. The longest scenario is to develop Tier II within a 10-year timeframe, between 2010 and 2020. This analysis approach of the construction scenario has been developed based on an aggressive scenario (which allows the proposed project site to be developed to the maximum extent possible) to allow the consideration of a reasonable worst-case scenario in the even that the County chooses to complete up to 1,814,696 square feet of development.

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[11] URS. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

The type and quantity of equipment that would potentially be used in construction of Tier II would vary for each component. However, for the purposes of this analysis, it is anticipated that development of Tier II would require up to eight phases that would utilize equipment that is comparable to the equipment described for each phase.

Site preparation and construction of the proposed project would be in accordance with all federal, state, and County building codes.

SECTION 3
REGULATORY FRAMEWORK

This regulatory framework identifies the federal, state, and local statutes, regulations, and guidelines that govern the identification and treatment of cultural resources and analysis of potential impacts to cultural resources. The lead agency must consider this regulatory framework when rendering decisions on projects that have the potential to affect cultural resources.

3.1 FEDERAL

3.1.1 National Historic Preservation Act of 1966[12]

Enacted in 1966, the National Historic Preservation Act (NHPA) declared a national policy of historic preservation and instituted a multifaceted program, administered by the Secretary of the Interior, to encourage the achievement of preservation goals at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the National Register of Historic Places (NRHP), established the position of State Historic Preservation Officer (SHPO) and provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHRA, assisted Native American tribes to preserve their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP).

3.1.1.1 Section 106

Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any historic property that is included in or eligible for inclusion in the NRHP and that the ACHP must be afforded an opportunity to comment—through a process outlined in the ACHP regulations, in Title 36 of the Code of Federal Regulations (CFR) Part 800—on such undertakings. The Section 106 process involves identification of significant historic resources within an "area of potential effect," determination if the undertaking will cause an adverse effect on historic resources, and resolution of those adverse effects through execution of a Memorandum of Agreement. In addition to the ACHP, interested members of the public, including individuals, organizations, and agencies (such as the California Office of Historic Preservation), are provided with opportunities to participate in the process.

The proposed project is financed in part by federally funded Build America Bonds issued under the American Reinvestment and Recovery Act of 2009. The issuance of these federal bonds has been determined by the ACHP to constitute a ministerial action on the part of the US Treasury or Internal Revenue Service.[13] Ministerial acts are not subject to Section 106 review. The County of Los Angeles General Counsel concurs with this interpretation of Build America Bonds as a ministerial action.[14] The project does not meet the definition of a federal undertaking; therefore, Section 106 of the NHPA is not applicable.

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[12] *United States Code*. Title 16, Section 470.

[13] Advisory Council on Historic Preservation. 9 October 2009. "Build America Bonds and Section 106." Available at: http://www.achp.gov/news091009.html

[14] Hawkins, Delafield, and Wood (Mr. Arto C. Becker and Mr. Russell Miller). 7 April 2010. Memorandum: Various Questions Regarding the American Recovery and Reinvestment Act of 2009. Submitted to the County of Los Angeles (Mr. Glenn Byers, Mr. Douglas Baron, Ms. Cammy DuPont).

3.1.1.2 National Register of Historic Places

The NRHP was established by the NHPA of 1966 as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment."[15] The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American or regional/local history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance also must possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if it is significant under one or more of the four established criteria:[16]

Criterion A: It is associated with events that have made a significant contribution to the broad patterns of our history;

Criterion B: It is associated with the lives of persons who are significant in our past;

Criterion C: It embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; and/or

Criterion D: It has yielded, or may be likely to yield, information important in prehistory or history.

Ordinarily cemeteries, birthplaces, or graves of historic figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, and properties that are primarily commemorative in nature are not considered eligible for the NRHP, unless they satisfy certain conditions. In general, a resource must be 50 years old to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

No properties within the proposed project site are listed in or have been formally determined eligible for listing in the NRHP.

3.1.2 Secretary of the Interior's Standards for the Treatment of Historic Properties

Evolving from the *Secretary of the Interior's Standards for Historic Preservation Projects with Guidelines for Applying the Standards* that were developed in 1976, the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings* was published in 1995 and codified as 36 CFR 67. Neither technical nor prescriptive, these standards are "intended to promote responsible preservation practices that help protect our Nation's irreplaceable cultural resources."[17] *Preservation* acknowledges a resource as a document of its history over time and emphasizes

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[15] *Code of Federal Regulations*. Title 36, Section 60.2.

[16] *Code of Federal Regulations*. Title 36, Section 60.4.

[17] Weeks, Kay D., and Anne E. Grimmer. 1995. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstruction Historic Buildings*. Washington, DC: U.S. Department of the Interior, National Park Service.

stabilization, maintenance, and repair of existing historic fabric. *Rehabilitation* not only incorporates the retention of features that convey historic character but also accommodates alterations and additions to facilitate continuing or new uses. *Restoration* involves the retention and replacement of features from a specific period of significance. *Reconstruction*, the least used treatment, provides a basis for recreating a missing resource. These standards have been adopted, or are used informally, by many agencies at all levels of government to review projects that affect historic resources.

3.1.3 Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

3.2 STATE OF CALIFORNIA

3.2.1 California Environmental Quality Act[18]

Pursuant to the California Environmental Quality Act (CEQA), an historical resource is a resource listed in, or eligible for listing in, the California Register of Historical Resources (CRHR). In addition, resources included in a local register of historical resources or identified as significant in a local survey conducted in accordance with state guidelines also are considered historical resources under CEQA, unless a preponderance of evidence demonstrates otherwise. According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude a Lead Agency, as defined by CEQA, from determining that the resource may be an historical resource as defined in California Public Resources Code (PRC) Section 5024.1.[19] Pursuant to CEQA, a project with an effect that may cause a substantial adverse change in the significance of an historical resource may have a significant effect on the environment.[20]

CEQA also applies to effects on archaeological sites. Archaeological sites may be eligible for the CRHR and thus would qualify as historical resources under CEQA. If an archaeological site does not satisfy the criteria as an historical resource but does meet the definition of a "unique archaeological resource," it is also subject to CEQA. A unique archaeological resource is defined as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:[21]

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[18] *California Public Resources Code*. Division Thirteen, Statutes 21083.2, 21084.1.

[19] *California Code of Regulations*. Title 14, Chapter 3. CEQA Guidelines, Section 15064.5(a).

[20] *California Code of Regulations*. Title 14, Chapter 3. CEQA Guidelines, Section 15064.5(b).

[21] *California Public Resources Code*. Section 21083.2(g).

(1) It contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information

(2) It has a special and particular quality such as being the oldest of its type or the best available example of its type

(3) It is directly associated with a scientifically recognized important prehistoric or historic event or person

3.2.2 California Register of Historical Resources

Created in 1992 and implemented in 1998, CRHR is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change."[22] Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys or designated by local landmarks programs, may be nominated for inclusion in the CRHR. A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:[23]

Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Criterion 2: It is associated with the lives of persons important in our past.

Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.

Criterion 4: It has yielded, or may be likely yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance.[24] It is possible that a resource whose integrity does not satisfy NRHP criteria still may be eligible for listing in the CRHR. Similarly, resources that have achieved significance within the past 50 years may be eligible for inclusion in the CRHR if enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource.[25]

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[22] *California Public Resources Code*. Section 5024.1(a).

[23] *California Public Resources Code*. Section 5024.1(c).

[24] Office of Historic Preservation. n.d. "Technical Assistance Bulletin 6: California Register and National Register, A Comparison (for purposes of determining eligibility for the California Register)." Available at: http://www.ohp.parks.ca.gov

[25] Office of Historic Preservation. n.d. "Technical Assistance Bulletin 6: California Register and National Register, A Comparison (for purposes of determining eligibility for the California Register)." Available at: http://www.ohp.parks.ca.gov

No properties within the proposed project site are listed in or have been formally determined eligible for listing in the CRHR.

3.2.3 California Historical Landmarks[26]

California Historical Landmarks are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the County Board of Supervisors or be recommended by the State Historical Resources Commission, and be officially designated by the Director of California State Parks. The specific standards now in use first were applied in the designation of CHL 770. CHLs 770 and above are automatically listed in the CRHR.

To be eligible for designation as a *landmark*, a resource must meet at least one of the following criteria:

- Be the first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California)
- Be associated with an individual or group having a profound influence on the history of California
- Be a prototype of, or an outstanding example of, a period, style, architectural movement, or construction, or be one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder

The proposed project site does not include any California Historical Landmarks.

3.2.4 California Points of Historical Interest[27]

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of Historical Interest designated after December 1997 and recommended by the State Historical Resources Commission also are listed in the CRHR. No historical resource may be designated as both a landmark and a *point*. If a point is subsequently granted status as a landmark, the point designation will be retired.

To be eligible for designation as a Point of Historical Interest, a resource must meet at least one of the following criteria:

- Be the first, last, only, or most significant of its type within the local geographic region (city or county)

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[26] Office of Historic Preservation. Accessed 17 July 2006. "California Historical Landmarks Registration Program." Available at: http://ohp.parks.ca.gov

[27] Office of Historic Preservation. Accessed 17 July 2006. "California Points of Historical Interest, Registrations Programs." Available at: http://ohp.parks.ca.gov

- Be associated with an individual or group having a profound influence on the history of the local area
- Be a prototype of, or an outstanding example of, a period, style, architectural movement, or construction, or be one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder

The proposed project site does not include any California Points of Historical Interest.

3.2.5 State Historical Building Code[28]

Created in 1975, the State Historical Building Code (SHBC) provides regulations and standards for the preservation, restoration, rehabilitation, or relocation of historic buildings, structures, and properties that have been determined by an appropriate local or state governmental jurisdiction to be significant in the history, architecture, or culture of an area. Rather than being prescriptive, the SHBC constitutes a set of performance criteria. The SHBC is designed to help facilitate restoration or change of occupancy in such a way as to preserve original or restored elements and features of a resource; to encourage energy conservation and a cost-effective approach to preservation; and to provide for reasonable safety from earthquake, fire, or other hazards for occupants and users of such buildings, structures, and properties." The SHBC also serves as a guide for providing reasonable availability, access, and usability by the physically disabled.

3.2.6 Native American Heritage Commission

Section 5097.91 of the Public Resources Code established the Native American Heritage Commission (NAHC), whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Section 5097.98 of the Public Resources Code specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

There are no listed Native American Sacred Sites within the proposed project site.

3.2.7 Government Code, Sections 6254(r) and 6254.10

These sections of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the NAHC." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the NAHC, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency."

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[28] California State Historical Building Safety Board, Division of the State Architect. 2 June 2006. "California's State Historical Building Code and State Historical Building Safety Board." Sacramento, CA. Available at: http://www.dsa.dgs.ca.gov/StateHistoricalBuildingSafetyBoard/default.htm

3.2.8 Health and Safety Code, Sections 7050 and 7052

Health and Safety Code, Section 7050.5 declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground-disturbing activities must cease and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

3.2.9 Penal Code, Section 622.5

Penal Code, Section 622.5 provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands, but specifically excludes the landowner.

3.2.10 Public Resources Code, Section 5097.5

Public Resources Code, Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

3.3 LOCAL

3.3.1 Southern California Association of Governments

The Southern California Association of Governments (SCAG) Growth Management Chapter (GMC) has instituted policies regarding the protection of cultural resources. SCAG GMC Policy No. 3.21 "encourages the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites."[29]

3.3.2 County of Los Angeles General Plan

The Conservation, Open Space, and Recreation element of the General Plan[30] establishes goals and policies for conservation of cultural resources in the unincorporated territory of County of Los Angeles. The General Plan recognizes that the County has numerous archaeological and historical sites from the Native American, Hispanic, and American periods of California's history, as well as paleontological sites and important geological formations that predate man's occupation and that such cultural resources are nonrenewable and irreplaceable. Policy 20 states the County's intention to "protect cultural heritage resources, including historical, archaeological, paleontological, and geological sites, and significant architectural structures."[31]

3.3.3 Los Angeles County Historical Landmarks and Records Commission

The Los Angeles County Historical Landmarks and Records Commission (Commission) considers and recommends to the Board of Supervisors local historical landmarks defined to be worthy of registration by the State of California, either as California Historical Landmarks or as Points of

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[29] Southern California Association of Governments. 2001. *SCAG Growth Management Chapter (GMC) Policy No. 3.21*. Los Angeles, CA.

[30] County of Los Angeles, Department of Regional Planning. January 1993. *County of Los Angeles Streamlined General Plan*. Los Angeles, CA, p. CA2.

[31] County of Los Angeles, Department of Regional Planning. January 1993. *County of Los Angeles Streamlined General Plan*. Los Angeles, CA, p. OS-11.

Historical Interest. The Commission also may comment for the Board on applications relating to the NRHP. The Commission also is charged with fostering and promoting the preservation of historical records. In its capacity as the memorial plaque review committee of the County of Los Angeles, the Commission screens applications for donations of historical memorial plaques and recommends to the Board plaques worthy of installation as County property.[32]

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[32] McCauley, J. Tyler. County of Los Angeles Department of Auditor-Controller. 21 October 2002; accessed 17 July 2006. "Sunset Review for the Los Angeles County Historical Landmarks and Records Commission." Available at: http://auditor.co.la.ca.us/cms1_003345.pdf

SECTION 4
STUDY METHODS

This section of the Cultural Resources Technical Report describes the methods employed in the characterization and evaluation of cultural resources at the Martin Luther King, Jr. Medical Center Campus (proposed project) site. The study methods were designed to provide the substantial evidence required to address the scope of analysis recommended in Appendix G of the State of California Environmental Quality Act (CEQA) Guidelines[33] and policies related to cultural resources, paleontological resources, prehistoric resources, historical resources, Native American sacred sites, and human remains.

4.1 PALEONTOLOGICAL RESOURCES

The potential to yield paleontological resources within the approximately 38-acre proposed project site was assessed in relation to a three-tier probability analysis:

- **High:** Sedimentary geologic units and other geologic units that have yielded unique paleontological resources
- **Moderate:** Older alluvium geologic units
- **Low to none:** Younger alluvium and metamorphic and igneous geologic units

The potential presence of paleontological resources within the proposed project site and vicinity was determined through a records search at the Natural History Museum of Los Angeles County (NHMLAC). The records search consisted of review of the paleontological locality and specimen data collection for the proposed project area from the NHMLAC.[34]

4.2 ARCHAEOLOGICAL AND HISTORICAL RESOURCES

The methodology undertaken to identify and evaluate archaeological and historical resources was designed to accomplish three goals:

- Identification of previously known, recorded, and/or designated resources
- Identification of potentially significant resources
- Evaluation of the significance of properties using established criteria within the framework of a historic context, in accordance with the Secretary of the Interior's Standards for Evaluation

4.2.1 Record Search and Literature Review

Preparation of this report included the use of information housed at the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton, one of the 12 independent centers operated under contract to the State Office of Historic Preservation (OHP) for the purposes of maintaining the federally and state-mandated California Historic Resources Inventory (HRI).

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[33] *California Code of Regulations*. Title 14, Division 6, Chapter 3, Section 15000–15387, Appendix G.

[34] McLeod, Samuel A. 21 November 2009. "Vertebrate Paleontology Section, Natural History Museum of Los Angeles County, Los Angeles, California." Letter response to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

A literature review was undertaken to determine if the proposed project would have the potential to adversely affect known archaeological and historical resources. Published and unpublished literature was reviewed. An archaeological and historic resources records search for the proposed project site and surrounding 1.0-mile radius was conducted in October 2009 by a Sapphos Environmental, Inc. staff historian at the SCCIC. This search included a review of all known relevant cultural resource surveys and excavation reports, and an examination of the 2009 editions of the California HRI,[35] the National Register of Historic Places (NRHP),[36] the listing of California Historic Landmarks (CHL),[37] and the California Points of Historical Interest (CPHI).[38]

Additional research was conducted in public records and a number of repositories, including building permits as available, the California History Index of the Los Angeles Public Library, the Avery Index of Architectural Periodicals, aerial photographs, parcel and zoning maps, Sanborn fire insurance maps, general histories, historic images, historic newspapers and periodicals indexed by the ProQuest Newspaper Database, ephemera, historical resources survey reports, relevant ordinances, technical materials relating to federal, state, and local historic preservation, and other materials, as available or appropriate. The information collected was used to assist in the evaluation of the property for historical significance, to develop an architectural description, determine periods of significance, and identify character-defining features.

4.2.2 Historic Resource Evaluation

An intensive-level survey of the proposed project site was conducted on October 27, 2010 in order to identify any buildings, structures, objects, or districts that meet the CEQA definition of a historical resource. The survey was conducted in accordance with the *Instructions for Recording Historical Resources*[39] and National Register Bulletin 24, *Guidelines for Local Surveys*.[40] The buildings and their settings were inspected and photographed. Character-defining features were assessed in accordance with *Preservation Brief No. 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*[41] and *Preservation Brief No. 18: Rehabilitating Interiors in Historic Buildings: Identifying and Preserving Character-Defining Elements*.[42] This information was recorded on updated State of California Department of Parks and Recreation Historic Resources Inventory forms (DPR 523 series) (Appendix B, *California*

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[35] California Office of Historic Preservation. 2009. *California Historical Resources Inventory, 2004*. Fullerton, CA: California State University, Department of Anthropology, South Central Coastal Information Center.

[36] California Office of Historic Preservation. 2009. *National Register of Historic Places*. Fullerton, CA: California State University, Department of Anthropology, South Central Coastal Information Center.

[37] California Office of Historic Preservation. 2009. *California Historic Landmarks*. Fullerton, CA: California State University, Department of Anthropology, South Central Coastal Information Center.

[38] California Office of Historic Preservation. 2009. *California Points of Historical Interest*. Fullerton, CA: California State University, Department of Anthropology, South Central Coastal Information Center.

[39] Office of Historic Preservation. March 1995. *Instructions for Recording Historical Resources*. Sacramento, CA. Available at: http://ohp.parks.ca.gov

[40] U.S. Department of the Interior, National Park Service. Accessed 18 August 2006. *National Register Bulletin 24. Guidelines for Local Surveys: A Basis for Preservation Planning*. Washington, DC. Available at: http://www.cr.nps.gov/nr/publications/bulletins/nrb24/chapter1.htm

[41] Nelson, Lee H., FAIA. September 1988. *Preservation Brief No. 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*. Washington, DC: U.S. Department of the Interior, National Park Service, Technical Preservation Services. Available at: www.cr.nps.gov/hps/tps/briefs/brief17.htm

[42] Jandl, H. Ward. October 1988. *Preservation Brief No. 18: Rehabilitating Interiors in Historic Buildings: Identifying and Preserving Character-Defining Elements*. Washington, DC: U.S. Department of the Interior, National Park Service, Technical Preservation Services. Available at: www.cr.nps.gov/hps/tps/briefs/brief18.htm

Historic Resources Inventory DPR 523 Forms), which were prepared for NRHP/CRHR–eligible properties (Appendix A). The results of the survey are presented in Section 5, *Results*, of this report. A historic context was developed to provide a framework for evaluation. Resources were evaluated using the criteria of significance for listing in the NRHP and CRHR.

4.3 HUMAN REMAINS

The potential presence of human remains, including those interred outside of formal cemeteries, was assessed through the inquiry to the Native American Heritage Commission (NAHC) and examination of historic topographic maps[43,44] for the presence of cemetery icons. In addition, the history of the property was reviewed to determine if any burials were recorded on the site.

4.4 PERSONNEL

Sapphos Environmental, Inc. cultural resources manager, Ms. Leslie Heumann, supervised the work effort. Ms. Marie Campbell reviewed the technical and procedural adequacy of the report under CEQA and NEPA. Ms. Marlise Fratinardo prepared the architectural history and historical resources sections of this report. Ms. Laura Carias assisted with research and written documentation, including the records search conducted at the SCCIC. Mr. Chris Purtell, Ms. Roberta Thomas, and Mr. Karl Huebchen prepared the archaeological and paleontological sections of this report. Ms. Heumann, Ms. Fratinardo, and Ms. Carias meet the Secretary of the Interior's Professional Qualifications Standards for Architectural History. Mr. Huebchen and Mr. Purtell meet the Secretary of the Interior's Professional Qualification Standards for Archaeology (Appendix C, *Résumés of Key Personnel*).

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[43] U.S. Geological Survey. 1964. 7.5-*Minute Series Inglewood, California, Topographic Quadrangle*. Reston, VA.

[44] U.S. Geological Survey. 1964. *7.5-Minute Series South Gate, California, Topographic Quadrangle*. Reston, VA.

This section of the Cultural Resources Technical Report presents the results of the investigations of cultural resources. The scope of the analysis includes the categories of resources specified in Appendix G of the California Environmental Quality Act (CEQA) Guidelines: paleontological resources, archaeological resources, historical resources, and human remains. The discussion of each resource category consists of a context that provides background information and a framework for evaluation, a resource characterization that describes previously identified cultural resources and existing cultural resources, an impact analysis that includes significance thresholds and an itemization of potential impacts, and recommended mitigation measures that would avoid or reduce potential project impacts.

5.1 PALEONTOLOGICAL RESOURCES

5.1.1 Paleontological Context

The geology of the proposed project site is composed of surficial deposits of younger Quaternary Alluvium (Holocene) as a result of deposition from the Los Angeles River to the east and Compton Creek nearby to the west.[45] These younger deposits are underlain by older Quaternary Alluvium, which has the potential to contain significant fossil vertebrates.[46] By 1954, the depositional process was halted when the Los Angeles River and portions of Compton Creek were channelized and the banks paved with cement to provide 100-year levels of flood protection. The flood control system was further enhanced in the 1990s.[47] Excavation depths of the existing Martin Luther King, Jr. Medical Center Campus are assumed to have exceeded 15 feet below the natural ground surface; therefore, there would be no expected paleontological resources within 15 feet of the ground surface at the locations where these excavations occurred.

5.1.2 Paleontological Resource Characterization

The results of the record search indicate that there are no known vertebrate fossil localities recorded within the proposed project site. The proposed project site is located within an area with a moderate level of sensitivity to contain unique paleontological resources and is not in the vicinity of recognized unique geologic features. The geology of the proposed project site is composed of surficial deposits of younger Quaternary Alluvium (Holocene) as a result of deposition from the Los Angeles River, which currently flows through a concrete channel just east of the proposed project site, and Compton Creek nearby to the west. These younger deposits are underlain by older Quaternary Alluvium. The younger Quaternary deposits do not usually contain significant fossil vertebrates; however, the older Quaternary deposits have the potential to contain significant fossil vertebrates. The closest known fossil localities, identified as LACM 1295, 1344, 3266, and 4206, were recovered from these older Quaternary deposits. They are situated west of the proposed project site in the Athens vicinity around the Harbor Freeway (I-110), from south of Imperial

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[45] Saucedo, G.J., H.G. Greene, M.P. Kennedy, and S.P. Bezore. 2003. Geologic Map of the Long Beach 30′ x 60′ Quadrangle, California, Version 1.0. California Department of Conservation, California Geological Survey.

[46] McLeod, Samuel A. 21 November 2009. "Vertebrate Paleontology Section, Natural History Museum of Los Angeles County, Los Angeles, California." Letter response to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

[47] Los Angeles and San Gabriel Rivers Watershed Council, EIP Associates, and Heal the Bay. June 2005. Compton Creek Watershed Management Plan.

Highway to near El Segundo Boulevard. These localities produced specimens of fossil pond turtle (*Clemmys*), puffin (*Mancalla*), turkey (*Parapova*), ground sloth (*Paramylodon*), mammoth (*Mammuthus*), dire wolf (*Canis dirus*), rabbit (*Sylvilagus),* squirrel (*Sciuridae*), deer mouse (*Microtus*), pocket gopher (*Thomomys*), horse (*Equus*), deer (*Cervus*), pronghorn antelope (*Capromeryx*), and bison (*Bison*), at depths as shallow as 15 feet below the surface. Therefore, extant, undisturbed deposits of older Quaternary Alluvium have a moderate level of sensitivity to produce unique paleontological resources. While the proposed project site has been substantially disturbed, it is anticipated that excavation at the proposed project site has the potential to exceed 15 feet in depth, and based on previous findings, the excavation activities would have the potential to impact native soils, underlying extant rock units, and potentially the older Quaternary deposits that have a higher likelihood of containing vertebrate fossil localities.

5.1.3 Paleontological Impacts Analysis

5.1.3.1 Significance Thresholds

With respect to paleontological resources, CEQA does not specifically establish thresholds for significant impacts; however, Appendix G of the CEQA Guidelines indicates that a project may have a significant effect on the environment if it would directly or indirectly destroy a unique paleontological resource or a unique geologic feature. For the purposes of the analysis, excavation of rock with a moderate to high potential to yield paleontological resources is considered to be significant and would warrant the consideration of mitigation measures.

5.1.3.2 Impacts

Tier I and Tier II of the proposed project has the potential to result in significant impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource. The geology of the proposed project site is composed of surficial deposits of younger Quaternary Alluvium underlain by older Quaternary Alluvium. The older Quaternary Alluvium deposits have moderate sensitivity for paleontological resources and, therefore, have the potential to reveal important vertebrate fossils that can contribute to the life history of the area. Excavations are expected to exceed 15 feet and may impact previously undisturbed native soils and thus would have the potential to encounter paleontological resources in these older deposits. As a result, the proposed project has the potential to result in significant impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource, therefore requiring the consideration of mitigation measures to reduce impacts to below the level of significance.

There are no unique geological features currently identified within the proposed project boundary; therefore, there would be no expected impacts to cultural resources related to the destruction of a unique geologic feature.

5.1.4 Paleontological Mitigation Measures

5.1.4.1 Mitigation Measure Cultural-1

The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the proposed project shall be reduced to below the level of significance by monitoring, salvage, and curation of unanticipated paleontological resources discovered during ground-disturbing activities in previously undisturbed native soils located 15 or more feet below the ground surface that would have the potential to contact extant older

Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology:

- Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found.

- Prior to any ground-disturbing activities, the County shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium.

- A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources.

- Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find.

- If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing.

- Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored, the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered, fossil specimens recovered, and associated specimen data.

- All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository, regarding the final disposition, permanent storage, and maintenance of any significant fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written agreement shall specify the level of treatment (i.e., preparation, identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed.

- Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended, itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, signify the completion of the program to mitigate impacts to paleontological resources.

5.2 ARCHAEOLOGICAL RESOURCES

5.2.1 Archaeological Context

5.2.1.1 Ethnographic Context

At the time of contact, the Native Americans subsequently known as the Gabrielino Indians occupied nearly the entire basin comprising the Counties of Los Angeles and Orange. They belonged to the Takic family of the Uto-Aztecan linguistic stock. Named after the Mission San Gabriel, the Gabrielino are considered to have been one of the two wealthiest and largest ethnic groups in aboriginal Southern California,[48] the other being the Chumash. This was largely due to the many natural resources within the land base they controlled, primarily the rich coastal section from Topanga Canyon to Aliso Creek and the offshore islands of San Clemente, San Nicholas, and Santa Catalina.

The Gabrielino arrived in the Los Angeles basin around 500 BC and began to spread throughout the area, displacing a preexisting Hokan-speaking population. The expansion of this Uto-Aztecan-speaking population toward the coast separated the Yuman and Chumashan blocks of the Hokan linguistic stock.[49] The Chumash occupy the region to the north of the Gabrielino, as well as the islands off the coast, and share many attributes, beliefs, and religious practices. Commonly, it is stated that the Chumash occupied areas as far south as what is now Ventura County, with a few sites found within the boundaries of Los Angeles County.[50] There has been evidence of Chumash further south and intermixed with Gabrielino populations.

The first Spanish contact with the Chumash and Gabrielino took place in 1542, when Juan Rodriguez Cabrillo arrived in Santa Catalina Island. According to Kroeber,[51] the Chumash were the first Native American group to encounter Europeans while Cabrillo was sailing among the islands. In 1602, the Spanish returned to Santa Catalina under Sebastián Vizcaíno, and in 1769, Gaspar de Portolá made the first attempt to colonize Gabrielino territory. By 1771, the Spanish had built four missions, and the decimation of the Chumash and Gabrielino had already begun.[52] European diseases and conflicts among the native populations, as well as conversion to Christianity, carried a toll in their numbers, traditions, and beliefs.

Although determining an accurate account of the population numbers is difficult, Bean and Smithstate that by AD 500, the Gabrielino established permanent settlements and their population continued to grow.[53] Early Spanish accounts indicate that the Gabrielino lived in permanent

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[48] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, ed. R.F. Heizer. Washington, DC: Smithsonian Institution, p. 538.

[49] Moratto, Michael J. 1984. *California Archaeology*. Academic Press, Inc, Orlando, Florida, p. 560.

[50] Jones, Terry L. and K. A. Klar. 2007. *California Prehistory*. United Kingdom: AltaMira Press, p. 193.

[51] Kroeber, A. L. 1976. "The Chumash." In *Handbook of the Indians of California*. New York: Dover Publications, p. 550.

[52] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, ed. R.F. Heizer. Washington, DC: Smithsonian Institution, pp. 540–541.

[53] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, ed. R.F. Heizer.

villages with a population ranging from 50 to 200 individuals. The Gabrielino population surpassed 5,000 people by around 1770.

5.2.1.2 Gabrielino Ways of Life and Customs

Several types of structures characterized the Gabrielino villages. They lived in domed circular structures covered with tule, ferm, or carrizo. Communal structures measured over 60 feet in diameter and could house three or four families. Sweathouses, menstrual huts, and a ceremonial enclosure were also part of the village arrangements.[54]

The Gabrielino practiced different subsistence strategies that included hunting, fishing, and gathering. Hunting activities inland were carried out with the use of bow and arrow, deadfalls, snares, and traps. Smoke and throwing clubs also were used to assist with the hunt of burrowing animals. Aquatic animals were hunted with harpoons, spear-throwers, and clubs. Although most fishing activities took place along rivers and from the shore, open-water fishing trips between mainland and the islands also took place using boats made from wood planks and asphalt. The Gabrielino fishing equipment included fishhooks made of shells, nets, basketry traps, and poison substances obtained from plants.[55]

The Gabrielino diet included a large number of animals, such as deer, rabbit, squirrel, snake, and rats, as well as a wide variety of insects. However, some meat taboos also existed. The meat of bears, rattlesnakes, stingrays, and ravens were not consumed; these animals were believed to be messengers of the god Chengiichngech. Aquatic animals such as fish, whales, seals, sea otters, and shellfish were also an important part of the diet, mainly among the coastal population.[56]

A variety of plant foods were consumed by the Gabrielino, the main one being acorns. These nuts are rich in nutrients and have a high content of fiber and fat. Other plants used for consumption by the Gabrielino include the seeds of the Islay (*Prunus ilicifolia*), which were ground into a meal, and the seeds and shoots of the Chía (*Salvia columbariae*), which were eaten raw, made into loaves, or mixed with water to make a beverage. Roots and bulbs were also part of the diet among the mainland and island groups, as well as clover, wild sunflower seeds, and cholla seeds. Wild tobacco was used with medicinal purposes and as a sedative and narcotic.[57]

The Gabrielinos were involved in trade among themselves and with other groups. Archaeological evidence suggests that Shoshonean-speaking groups such as the Gabrielino inhabited San Nicolas Island by 8,500 years ago; by 5,000 years ago, the inhabitants of the island were involved in an exchange network of symbolic items and raw materials.[58] On Santa Catalina Island, a steatite (soapstone) "industry" was developed and the material was obtained by the groups living on the

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Washington, DC: Smithsonian Institution, p. 540.

[54] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, ed. R.F. Heizer. Washington, DC: Smithsonian Institution, p. 542.

[55] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, ed. R.F. Heizer. Washington, DC: Smithsonian Institution, p. 546.

[56] McCawley, W. 1996. *The First Angelinos: The Gabrielino Indians of Los Angeles*. Banning, CA: Malki Museum Press, pp. 116–117, 121, 126.

[57] McCawley, W. 1996. *The First Angelinos: The Gabrielino Indians of Los Angeles*. Banning, CA: Malki Museum Press, pp. 128–131.

[58] Arnold, J.E., M.R. Walsh, and S.E. Hollimon. 2004. "The Archaeology of California." *Journal of Archaeological Research*, *12* (1): 1–73.

mainland from the inhabitants of Santa Catalina. This rock is abundant on the island and was widely used among the Gabrielino to make arrow straighteners and artistic or ritualistic objects. In addition, this rock was used in the making of functional objects for food preparation such as bowls, mortars, pestles, and comals.[59] The island inhabitants also obtained other items such as acorns, different types of seeds, obsidian, and deerskin from the Serranos, who lived on the mainland. Coastal people exchanged shell and shell beads, dried fish, sea otter pelts and salt.

5.2.1.3 Chumash Ways of Life and Customs

Regardless of the arbitrary boundary line drawn between the Gabrielino and the Chumash, the two groups exhibit enough parallels and crossover evidence that it is necessary to consider that Chumash ways of life and customs may be found in areas that extend into Los Angeles and Orange Counties and vice versa.

According to Kroeber,[60] the Chumash had only a couple of structures that characterized their villages or settlements. Like the Gabrielino, they lived in domed circular structures covered with tule, ferm, or carrizo. These were also communal structures spanning 50 feet or more in diameter that could house three to four families or up to 50 individuals.[61] The Chumash were also one of the few groups that put to use a true bed, meaning a raised platform, and separated rooms inside their homes.[62] Sweathouses were another common structure found in Chumash villages and settlements but there is not much known about the common sweathouse.

Despite the use of the word "pots" in the ethnographic record, the Chumash did not make use of pottery. They did not manufacture it or acquire it by use of trade networks. Any references to "pots" were groundstone vessels usually made from steatite.[63] The Chumash utilized steatite to manufacture other groundstone implements such as milling stones and mortars. They also made use of other materials in the area such as sandstone.

One groundstone implement shaped like a plummet, commonly referred to as a charm stone, is believed to be a religious or ceremonial object despite the fact that little is known about their religious practices.[64] Charm stones have been found within what is considered Gabrielino territory even though there is no ethnographic connection between the Gabrielino and these objects. Kroeber[65] suggests that because what is known of the Chumash religious practices is similar if not the same as certain aspects of the Gabrielino religion that these two groups mutually developed a religion based on toloache.

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[59] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, ed. R.F. Heizer. Washington, DC: Smithsonian Institution, pp. 542, 547.

[60] Kroeber, A. L. 1976. "The Chumash." In *Handbook of the Indians of California*. New York: Dover Publications, p. 557.

[61] Kroeber, A. L. 1976. "The Chumash." In *Handbook of the Indians of California*. New York: Dover Publications, p. 557.

[62] Kroeber, A. L. 1976. "The Chumash." In *Handbook of the Indians of California*. New York: Dover Publications, p. 557.

[63] Kroeber, A. L. 1976. "The Chumash." In *Handbook of the Indians of California*. New York: Dover Publications, p. 562.

[64] Kroeber, A. L. 1976. "The Chumash." In *Handbook of the Indians of California*. New York: Dover Publications, p. 567.

[65] Kroeber, A. L. 1976. "The Chumash." In *Handbook of the Indians of California*. New York: Dover Publications, p. 568.

5.2.1.4 Regional and Local Chronology

The chronology used here is Arnold's[66] modification of King's[67] chronology for coastal areas of California (Table 5.2.1.4-1, *Coastal Regional Chronology*). Although King's chronology has been widely used, it has been criticized because the time frames reflect changes in artifact styles but do not necessarily reflect social and behavioral changes.

TABLE 5.2.1.4-1
COASTAL REGIONAL CHRONOLOGY

Epoch	Coastal Region	Dates
Middle to Late Holocene	Early Period	Circa 5500 to 600 BC
Late Holocene	Middle Period	Circa 600 BC to AD 1150
Late Holocene	Transitional Period	AD 1150 to 1300
Late Holocene	Late Period	AD 1300 to Historic Period (post–1769)

Early Period (5500–600 BC)

The latter part of the Early Period is characterized by high numbers of ground stone implements, such as manos (handstones) and metates (milling slabs). These artifacts suggest that plant foods, and particularly hard seeds, increasingly became dietary staples during this period.[68] Grave goods from areas throughout California suggest that relatively egalitarian social systems prevailed during the Early Period.

Middle Period (600 BC–AD 1150)

During the Middle Period, changes occurred in the types of plant foods exploited and in the technologies used to process them. Yucca buds and acorns were processed through roasting or leaching techniques, allowing the consumption of these otherwise inedible plants. The introduction of these fleshy foods to the diet is signaled by technological changes; the use of portable milling equipment (manos and metates) used in the processing of hard seeds apparently declined, while permanent milling features such as bedrock mortars and pestles increased in frequency. As population densities and sedentism increased, food storage became an increasingly common practice. King et al. interpret differing quantities and qualities of grave goods among burials in several Southern California sites as evidence that social differentiation may have increased during the Middle Period and then declined during the subsequent Transitional and Late Periods.[69] The Middle Period also apparently brought a shift in the production of shell beads, with *Haliotis* and *Olivella* beads changing from rectangular to circular varieties. Overall, there was an

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[66] Arnold, Jeanne E. 1992. "Complex Hunter-Gatherer-Fishers of Pre-historic California: Chiefs, Specialists, and Maritime Adaptations of the Channel Islands." *American Antiquity*, *57*: 60–84.

[67] King, Chester D. 1990. *Evolution of the Chumash Society: A Comparative Study of Artifacts Used for Social System Maintenance in the Santa Barbara Channel Region before A.D. 1804*. New York: Garland.

[68] King, Chester D., Charles Smith and Tom King. 1974. *Archaeological Report Related to the Interpretation of Archaeological Resources Present at Vasquez Rocks County Park*. Prepared for: County of Los Angeles Department of Parks and Recreation, p. 44.

[69] King, Chester D., Charles Smith and Tom King. 1974. *Archaeological Report Related to the Interpretation of Archaeological Resources Present at Vasquez Rocks County Park*. Prepared for: County of Los Angeles Department of Parks and Recreation, pp. 44–45.

increase in the variety of ornaments present in Southern California sites at this time,[70] although bead production did not become a form of craft specialization per se until later periods.[71]

Transitional Period (AD 1150–1300)

The end of the Middle Period and the beginning of the Transitional Period are characterized by the nucleation of previously independent villages. This time also marks the appearance of simple chiefdoms in Chumash territory, characterized by complex socioeconomic relationships, hereditary inequality, and defined leadership. This higher complexity is evidenced in the archaeological record by the presence of craft specialization, advanced boating technology, extensive exchange networks, and subsistence patterns. Craft specialization is represented in microblade production and in increased manufacturing of shell beads from the thickest part (the callus) of the *Olivella* shells. Toward the end of the Transitional Period and beginning of the Late Period, *Olivella* callus beads began to be used as currency in the exchange system. Although beads were produced in coastal areas, changes in bead production also were reflected inland because of trading systems.[72] The development of a sophisticated water craft, the plank canoe or *tomol*, intensified existing trade networks among the islands and mainland, thus affecting exchange throughout inland California.

Late Period (AD 1300–1769) and Historic Period (Post–1769)

During the Late Period, the trade networks continued to expand among islanders and between coastal and inland populations. In coastal areas, production of beads and microliths increased, while standardization of manufactured items became more common. Similar intensification of bead and microlith production is not as well known inland; ethnographic evidence suggests that the collection of foods (such as acorn, seeds, and bulbs) and the manufacturing of other items (such as baskets and bowls) intensified, thus providing inland groups with currency that could be traded for needed coastal products.[73]

5.2.2 Archaeological Resource Characterization

5.2.2.1 Previous Research Conducted in the Area

On October 20, 2009, a records search was conducted at the South Central Coastal Information Center (SCCIC), located at California State University, Fullerton. The U.S. Geological Survey (USGS) 7.5-minute series South Gate and Inglewood, California, topographic quadrangles were reviewed for previously recorded archaeological resources within the proposed project area and within a 1.0-mile radius of the Martin Luther King, Jr. Medical Center Campus.[74] The results of the

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[70] King, Chester D. 1990. *Evolution of the Chumash Society: A Comparative Study of Artifacts Used for Social System Maintenance in the Santa Barbara Channel Region before A.D. 1804*. New York: Garland.

[71] Arnold, Jeanne E., and Anthony Graesch. 2004. "The Later Evolution of the Island Chumash." In *Foundations of Chumash Complexity*, ed. Jeanne Arnold Cotsen. Los Angeles, CA: Institute of Archaeology, University of California, Los Angeles, p. 5.

[72] Arnold, Jeanne E., and Anthony Graesch. 2004. "The Later Evolution of the Island Chumash." In *Foundations of Chumash Complexity*, ed. Jeanne Arnold Cotsen. Los Angeles, CA: Institute of Archaeology, University of California, Los Angeles, pp. 6–7.

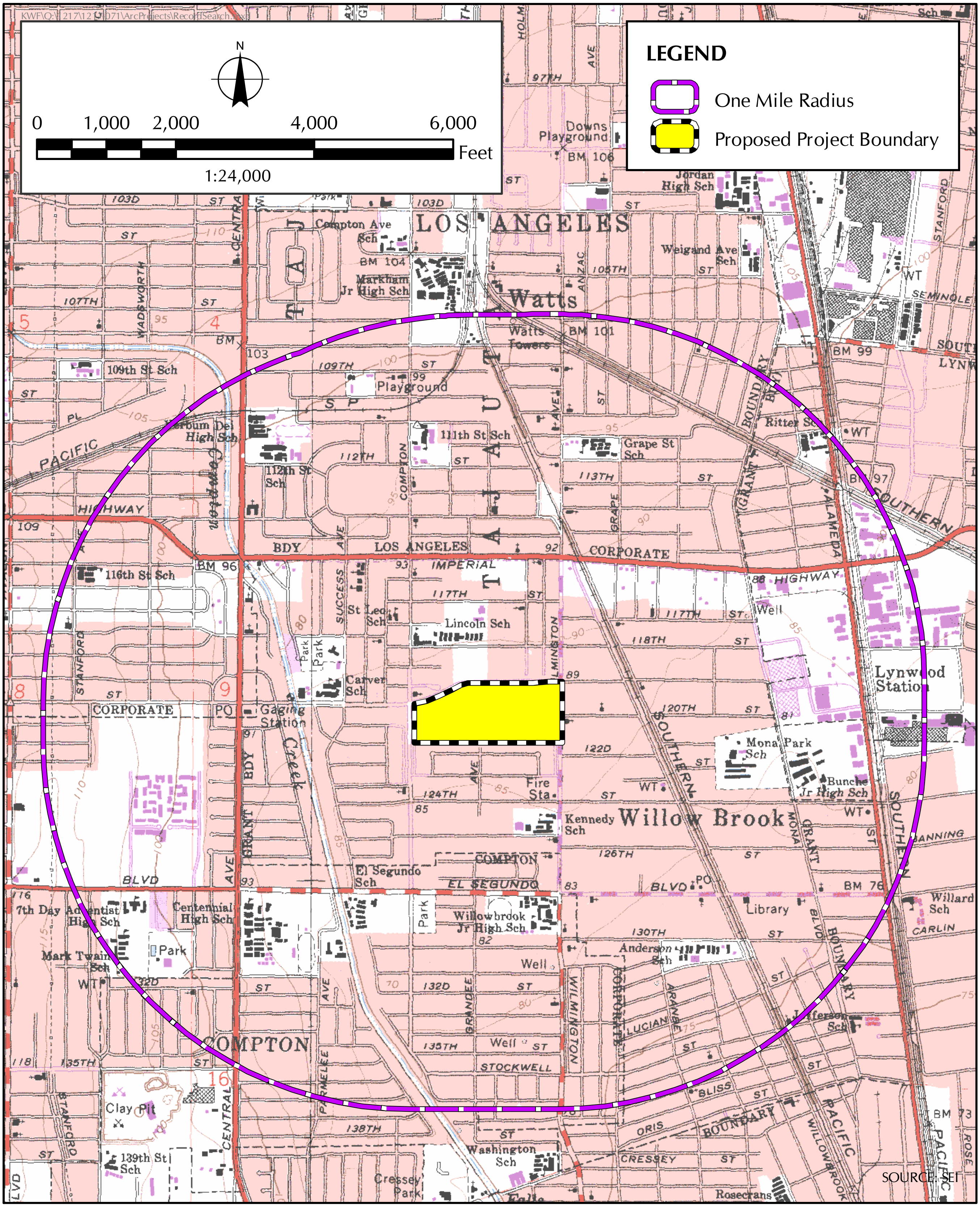
[73] Arnold, Jeanne E. 1993. "Labor and the Rise of Complex Hunter-Gatherers." *Journal of Anthropological Archaeology, 12*:75–119.

[74] U.S. Geological Survey. 1981 [1964]. *7.5-minute Series, South Gate, California, Topographic Quadrangle*. Reston, VA; U.S. Geological Survey. 1964. 7.5-*Minute Series Inglewood, California, Topographic Quadrangle*. Reston, VA.

record search indicate that all, or portions of, 31 previous archaeological and / or historic architectural surveys have been conducted within 1 mile from the proposed project area (Table 5.2.2.1-1, *Surveys Conducted within 1 Mile of Martin Luther King, Jr. Medical Center Campus*; and Figure 5.2.2.1-1, *Cultural Resources Record Search Area and Results*). The results indicate that no surveys have been conducted within the proposed project property.

TABLE 5.2.2.1-1
SURVEYS CONDUCTED WITHIN 1 MILE OF MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS

Report No.	Year	Report Title	Authors
LA 00078	1975	Evaluation of the Archaeological Resources and Potential Impact of the Proposed Construction of Route 105 Freeway From El Segundo to Norwalk	Martin D. Rosen; University of California, Los Angeles Archaeological Survey
LA 01111	1977	Impact on Archaeological Resources of the Proposed Willowbrook Park for the Los Angeles County Department of Parks and Recreation	Frederick J. Bove; University of California, Los Angeles Archaeological Survey
LA 02644	1992	The Results of a Phase 1 Archaeological Study for the Proposed Alameda Transportation Corridor Project, Los Angeles County, California	Robert J. Wlodarski; Historical, Environmental, Archaeological, Research Team
LA 02877	1993	Cultural Resources Survey, 1711 East 126th Street, Willowbrook District, Los Angeles County	Mary Valentine-Maki and Steve Svete; Fugro-McClelland (West), Inc.
LA 02950	1992	Consolidated Report: Cultural Resources Studies for the Proposed Pacific Pipeline Project	Peak & Associates, Inc.
LA 03202	1995	A Phase I Cultural Resources Survey of 1 Acre at 11742–58 Bandera Ave., 11743 Wilmington Ave., and 1865 East 118th Street, Los Angeles County, California	Mary K. Maki; Fugro West, Inc.
LA 03514	1995	Archaeological Survey Report for 1941–1947 East 113th Street, Los Angeles, California	Patricia R. Jertberg; Petra Resources, Inc.
LA 03573	1997	Results of a Phase I Archaeological Survey Located at 2053 Santa Ana Boulevard, Los Angeles	John F. Romani; Compass Rose Archaeological, Inc.
LA 03738	1997	Negative Phase 1 Archaeological Survey Willowbrook, Los Angeles County	Mary K. Maki; ENSR Consulting and Engineering
LA 04009	1998	Results of Phase I Archaeological Survey Located at 11516 Willowbrook Avenue, Watts, Los Angeles, California	Gwendolyn R. Romani; Compass Rose Archaeological, Inc.
LA 04144	1998	Negative Phase I Archaeological Survey and Impact Assessment of 1.2 Acres for the 12710 Wilmington Avenue Project/No. Jj7201-98 Los Angeles County, California	Mary K. Maki; Conejo Archaeological Consultants
LA 04543	1999	Negative Phase I Archaeological Survey and Impact Assessment of 0.42 Acre for the 2010 El Segundo Boulevard Project, Los Angeles County, California	Mary K Maki; Conejo Archaeological Consultants
LA 04625	1994	Historic Property Survey Report for the Proposed Alameda Corridor from the Ports of Long Beach and Los Angeles to Downtown Los Angeles in Los Angeles County, California	Richard Starzak; Myra L. Frank & Associates



SOURCE: SEI

FIGURE 5.2.2.1-1

Cultural Resources Record Search Area and Results

TABLE 5.2.2.1-1
SURVEYS CONDUCTED WITHIN 1 MILES OF MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS, *Continued*

Report No.	Year	Report Title	Authors
LA 04836	2000	Phase I Archaeological Survey along Onshore Portions of the Global West Fiber Optic Cable Project	Science Applications International Corporation
LA 04980	2000	Negative Phase I Archaeological Survey of Approximately 0.4 Acres for the 11651 Antwerp Avenue Project Willowbrook, Los Angeles County, California	Mary K. Maki; Conejo Archaeological Consultants
LA 05569	2000	Negative Archaeological Survey Report: at 2250 East 111th Street, Los Angeles	John F. Romani and Dan A. Larson; Compass Rose Archaeological, Inc.
LA 05570	2000	Negative Archaeological Survey Report: at 2115 East Imperial Highway, Los Angeles	James J. Schmidt; Compass Rose Archaeological, Inc.
LA 05571	2000	Negative Phase I Archaeological Survey and Impact Assessment of Approximately 0.7 Acre for the Willow Apartments Project 1916 East 126th Street and 12612 South Wilmington Avenue, Willowbrook, Los Angeles County, California	Mary K. Maki; Conejo Archaeological Consultants
LA 05573	2000	Negative Phase I Archaeological Survey and Impact Assessment of Approximately 0.6 Acres for the Willowbrook Community Redevelopment Project 1631, 1635, 1641, 1651 East 17th Street Willowbrook, Los Angeles County, California	Mary K. Maki; Conejo Archaeological Consultants
LA 05944	2002	Los Angeles Eye Institute, CDC Project No. 62be17c-01	Mary K. Maki; Conejo Archaeological Consultants
LA 06226	2002	CDC-Oasis Eye Clinic in Willowbrook, Los Angeles County, California	Mary K. Maki; Conejo Archaeological Consultants
LA 06877	2003	Negative Phase I Archaeological Survey of Approximately 9.56 Acres for the Salinas Avenue Housing Project 13024 Salinas Avenue-APN 6134-033-900 Unincorporated Compton, Los Angeles County, California	Mary K. Maki; Conejo Archaeological Consultants
LA 07641	2004	Records Search Results and Site Visit for Sprint Telecommunications Facility Candidate La60xc327a (trinity Chapel) 2813 North Wilmington Avenue, Compton, Los Angeles County, California	Wayne H. Bonner; Michael Brandman Associates
LA 07648	2004	Historic Architectural Survey and Section 106 Compliance for a Proposed Wireless Telecommunications Service Facility Located on a Monopine at 2237 East El Segundo Boulevard in the Community of Willowbrook (Los Angeles County), California	Christeen Taniguchi; Galvin and Associates
LA 07693	2004	Indirect APE Historic Architectural Assessment for Sprint Telecommunications Facility Candidate La60xc354a (Community Methodist Church) 11860 Avalon Boulevard, Los Angeles, Los Angeles County, California	Wayne H. Bonner; Michael Brandman Associates

TABLE 5.2.2.1-1
SURVEYS CONDUCTED WITHIN 1 MILES OF MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS, *Continued*

Report No.	Year	Report Title	Authors
LA 08237	2007	A Phase I Cultural Resources Investigation for the Proposed Park Water Company Well No. 19c in the City of Compton, Los Angeles County, California	Jeanette A. McKenna; McKenna et al.
LA 08255	2006	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and II	Cindy Arrington and Nancy Sikes; SWCA Environmental Consultants, Inc.
LA 08959	2007	Archaeological Survey Report for the 109th Street Pool and Bathhouse Replacement Project Los Angeles County, California	Catherine M. Wood; Jones & Stokes
LA 09188	2007	Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate LA13086B (Fierro Building), 2714 South Compton Avenue, Compton, Los Angeles County, California	Wayne H. Bonner; Michael Brandman Associates
LA 10029	2005	An Investigation of Human Skeletal Remains Volume 2 of Treatment of Historic Properties Discovered During the Alameda Corridor Project	Vanessa A. Mirro, Dennis McDougall, Sherri Gust, and Carole Denardo; Applied EarthWorks, Inc.
LA 10045	2004	CDC-Mason Court Construction Project	Mary K. Maki; Conejo Archaeological Consultants

Coordination also was undertaken with the Native American Heritage Commission (NAHC) to ascertain the presence of known Native American sacred sites. According to NAHC,[75] no Native American cultural resources have been recorded in the Sacred Lands File on or within one mile of the proposed project site.

LA 00078. In 1975, the Institute of Archaeology, Archaeological Survey, University of California, Los Angeles, conducted field reconnaissance, in the form of pedestrian survey, of the proposed project area for construction of Route 105 Freeway from El Segundo to Norwalk. No historic or prehistoric archaeological resources were observed during the survey.

LA 01111. In 1977, the Institute of Archaeology, Archaeological Survey, University of California, Los Angeles, conducted field reconnaissance, in the form of pedestrian survey, of the proposed project area for the Willowbrook Park for the Los Angeles County Department of Parks and Recreation. The proposed project area encompassed approximately 80 acres. No historic or prehistoric archaeological resources were observed during the survey.

LA 02644. In 1992, a crew of five archaeologists from H.E.A.R.T. surveyed the proposed project area for the proposed Alameda Transportation Corridor. No historic or prehistoric archaeological resources were observed during the survey.

LA 02877. In 1993, a Fugro-McClelland archaeologist conducted an archaeological survey of the project site located at 1711 East 126th Street, Willowbrook District, Los Angeles County for

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[75] Singleton, Dave, Native American Heritage Commission, Sacramento, California. 2 November 2009. Letter to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

proposed housing development. No significant historic or prehistoric archaeological resources were observed during the survey.

LA 02950. In 1992, Peak & Associates, Inc. conducted an archaeological survey of the proposed 171.1-mile crude oil pipeline between Gaviota in Santa Barbara and refineries in El Segundo and Long Beach, Los Angeles County. The survey found 19 sites along the proposed route and 2 along the Southern Alternative; none of these sites are located on or within 1 mile of the Martin Luther King, Jr. Medical Center Campus.

LA 03202. In 1995, a Fugro archaeologist conducted an archaeological survey of the undeveloped portions of the project area for the proposed construction of a commercial business strip at 11742–58 Bandera Avenue, 11758 Wilmington Avenue and 1865 East 118th Street, in Willowbrook, Los Angeles County, California. No historic or prehistoric archaeological resources were observed during the survey.

LA 03514. In 1995, Petra Resources, Inc. provided an archaeological assessment, which included a field survey, for the property located at 1941–1947 East 113th Street, in the Watts area of Los Angeles at the request of the Historic Resources Group for a proposed housing project. No prehistoric archaeological resources were observed during the survey.

LA 03573. In 1997, Compass Rose Archaeological Consultants conducted an archaeological survey at 2053 Santa Ana Boulevard, Los Angeles, California at the request of the Historic Resources Group for a proposed housing project. No historic or prehistoric archaeological resources were observed during the survey.

LA 03738. In 1997, ENSR conducted an archaeological survey at 1601–1625 117th Street and 11668 Compton Boulevard in Willowbrook, Los Angeles County at the request of the Los Angeles County Community Development Commission (CDC) for planned housing developments and street improvements. The project area consisted of about 1.25 acres. No historic or prehistoric archaeological resources were observed during the survey.

LA 04009. In 1998, Compass Rose Archaeological Consultants completed an archaeological survey at 11516 Willowbrook Avenue, Watts, Los Angeles, California at the request of the Historic Resources Group for a proposed housing project. No historic or prehistoric archaeological resources were observed during the survey.

LA 04144. In 1998, Conejo Archaeological Consultants conducted an archaeological investigation, including a reconnaissance survey, for the proposed CDC 12710 Wilmington Avenue project located in unincorporated Los Angeles County. The CDC plans to acquire two vacant parcels for the development of 20 housing units. No historic or prehistoric archaeological resources were observed during the survey.

LA 04543. In 1999, Conejo Archaeological Consultants conducted an archaeological investigation, including a field survey, for the proposed acquisition and development of a 0.42 acre vacant lot located at 2010 El Segundo Boulevard, Willowbrook, Los Angeles County. No historic or prehistoric archaeological resources were observed during the survey.

LA 04625. In 1994, Myra L. Frank & Associates conducted archival and field investigations to determine if cultural resources were present in the Area of Potential Effect (APE) for the proposed Alameda Corridor Improvements Project extending north from the ports of Los Angeles and Long

Beach to downtown Los Angeles in southern Los Angeles County. No prehistoric or historic archaeological resources within the APE appeared to qualify for the NRHP. As a result of a historic architectural survey, five properties were identified as listed in or eligible for listing in the NRHP, including one located approximately 1 mile from the Martin Luther King, Jr. Medical Center Campus (Ritter Elementary School, 11108 Watts Avenue, Los Angeles).

LA 04836. In 2000, a Phase I archaeological survey of the onshore portions of the proposed Global West Fiber Optic Cable project was conducted by Science Applications International Corporation. No historic or prehistoric archaeological resources were observed during the survey.

LA 04980. In 2000, Conejo Archaeological Consultants conducted an archaeological investigation, including a field survey, for the 11651 Antwerp Avenue Project, which involved the proposed construction of two single-family residences and associated utilities on the vacant project site. No historic or prehistoric archaeological resources were observed during the survey.

LA 05569. In 2000, Compass Rose Archaeological Consultants completed an archaeological survey at 2250 East 111th Street, Los Angeles at the request of the Historic Resources Group, for the Los Angeles Housing Department, in preparation for the construction of 78 apartment units. No historic or prehistoric archaeological resources were observed during the survey.

LA 05570. In 2000, Compass Rose Archaeological Consultants completed an archaeological survey at 2115 East Imperial Highway, Los Angeles for the proposed undertaking by the Housing Authority of the City of Los Angeles, consisting of the development of the Imperial Courts Child Care Facility. No historic or prehistoric archaeological resources were observed during the survey.

LA 05571. In 2000, Conejo Archaeological Consultants conducted an archaeological investigation, including a field survey, for the Willow Apartments/ Project No. G89203 at the request of the Los Angeles County Community Development Commission (CDC). No historic or prehistoric archaeological resources were observed during the survey.

LA 05573. In 2000, Conejo Archaeological Consultants conducted an archaeological investigation, including a field survey, for the Willowbrook Community Redevelopment Project No. BB2200-99, which involved the acquisition of four properties located at 1631, 1635, 1641 and 1651 East 117th Street. No historic or prehistoric archaeological resources were observed during the survey.

LA 05944. In 2002, Conejo Archaeological Consultants completed an archaeological survey in the form of a site visit for the Los Angeles Eye Institute, CDC Project No. 62BE17C-01, located at 11801–11839 Wilmington Avenue, 1854 East 118th Street, 11805, 11823, 11826, 11830, and 11836 Bandera Avenue, and 11800–11832 South Holmes Avenue, Willowbrook, Los Angeles County California. No historic or prehistoric archaeological resources were observed during the survey.

LA 06226. In 2002, Conejo Archaeological Consultants conducted an archaeological investigation, including a field survey, for the CDC-Oasis Eye Clinic, the Los Angeles Eye Institute Project, located at 11830 and 11832 South Holmes Avenue in Willowbrook, Los Angeles County, California. No historic or prehistoric archaeological resources were observed during the survey.

LA 06877. In 2003, Conejo Archaeological Consultants conducted an archaeological investigation, including a field survey, for the Salinas Avenue Housing Project in preparation for the acquisition of APN 6134-033-900 for the construction of 115 single-family homes in the unincorporated

Compton area of Los Angeles County. No historic or prehistoric archaeological resources were observed during the survey.

LA 07641. In 2004, Michael Brandman Associates conducted a partial survey in the form of a site visit at the request of Sprint for the Sprint telecommunications facility candidate LA60XC327A (Trinity Chapel), located at 2813 North Wilmington Avenue, Compton, CA 90222. No prehistoric archaeological resources were observed within the direct APE or the indirect APE. No historic archaeological resources were observed within the direct APE. There were four properties located within the indirect APE that were over 45 years of age that were recommended for evaluation of significance following Section 106 of the NHPA.

LA 07648. In 2004, Galvin and Associates conducted a site visit and historic architectural assessment for the Nextel telecommunications facility located on a monopine at 2237 East El Segundo Boulevard in the community of Willowbrook (Los Angeles County), California. Two buildings were evaluated and determined not to be historical resources. No prehistoric archaeological resources were observed during the site visit.

LA 07693. In 2004, Michael Brandman Associates conducted an indirect APE historic architectural assessment, which included a partial survey in the form of a site visit, for Sprint telecommunications facility candidate LA60XC354A located at 11860 Avalon Boulevard, Los Angeles, CA 90061. There were three properties that were 45 years of age or older (610–612 East 118th Place, 613 East 119th Street and 616–618 East 118th Place) were recommended not eligible for the NRHP. No prehistoric archaeological resources were observed during the site visit in either the direct APE or indirect APE.

LA 08237. In 2007, McKenna et al. completed cultural resource investigations, including field studies, for the proposed Park Water Company Well Site No. 19C for the existing facility located at 1743 East 118th Street, Compton, Los Angeles County, California. No historic or prehistoric archaeological resources were observed during the field studies within the project area.

LA 08255. In 2004, SWCA conducted a cultural resources investigation, including pedestrian surveys and cultural monitoring, for the maintenance (replacement and repair) of fiber optic cable within the Qwest network backbone throughout the state of California, known as the Qwest Network Construction Project. No previously unknown historic or prehistoric archaeological resources were observed during the survey or the cultural monitoring.

LA 08959. In 2007, Jones & Stokes conducted an archaeological survey for the City of Los Angeles Department of Recreation and Parks 109th Street Pool and Bathhouse Replacement Project, located approximately 1.0 mile northwest of Martin Luther King, Jr. Medical Center. The 109th Street Pool and Bathhouse has been identified as eligible for listing in the CRHR. No other historic or prehistoric archaeological resources were observed during the survey.

LA 09188. In 2007, Michael Brandman Associates conducted a cultural resources investigation, including a partial survey in the form of a site visit, at the request of Environmental Assessment Specialists, Inc. (EAS) for T-Mobile candidate LA13086B (Fierro Building), located at 2714 South Compton Avenue, Compton, CA 90222. No historic or prehistoric archaeological resources were observed during the site visit.

LA 10029. In 2005, Applied EarthWorks, Inc. encountered two sets of human remains during construction monitoring associated with the Alameda Corridor Project. The Alameda Corridor

Project was launched to improve motor vehicle and railroad traffic along the Alameda Corridor, which is a consolidated railroad link that runs between the ports of Los Angeles and Long Beach and the regional and national rail systems. One set of human remains was a cemetery site containing the remains of 12 individuals that dates between A.D. 990–1250 and the second was an isolated burial that dates from A.D. 1310–1440. The majority of the burials are female, with the exception of one possible adolescent male. DNA analyses revealed that one individual was probably of Chumash descent despite the fact that the cemetery is within what is known as Gabrielino territory, while at least two other individuals support an Uto-Aztecan origin. The burials are located approximately 0.85 miles east of the proposed project site.

LA 10045. In 2004, Conejo Archaeological Consultants conducted archaeological investigations, including a partial survey in the form of a site visit, for the CDC-Mason Court Construction Project. The proposed project consists of demolition of an apartment building located at 2129 East El Segundo Boulevard in the unincorporated Willowbrook area of Los Angeles County to construct a new, larger apartment building. No historic or prehistoric archaeological resources were observed during the site visit.

5.2.2.2 Previously Recorded Prehistoric and Historic Archaeological Resources

Two prehistoric burials and two historic archaeological sites have been recorded within one mile of the proposed project site (Figure 5.2.2.2-1, *Previously Recorded Prehistoric and Historic Archaeological Resources*; Table 5.2.2.2-1, *Previously Recorded Prehistoric and Historic Archaeological Resources Located within 1 Mile of Martin Luther King, Jr. Medical Center Campus*).

TABLE 5.2.2.2-1
PREVIOUSLY RECORDED PREHISTORIC AND HISTORIC ARCHAEOLOGICAL RESOURCES LOCATED WITHIN 1 MILE OF MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS

Primary	Trinomial	Description	Prehistoric	Historic
P-19-002757		Human burial, Native American	×	
P-19-002792		Human burial, Native American	×	
P-19-002848		Refuse deposit		×
P-19-100585		Foundation and collection of artifacts, possibly associated with Watts Towers		×

5.2.3 Archaeological Impact Analysis

5.2.3.1 Significance Thresholds

Archaeological resources under CEQA may meet the definition of a either a historical resource or unique archaeological resource. A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. Substantial adverse change in the significance of a historical resource is defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. The significance of a historical resource would be significantly impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the

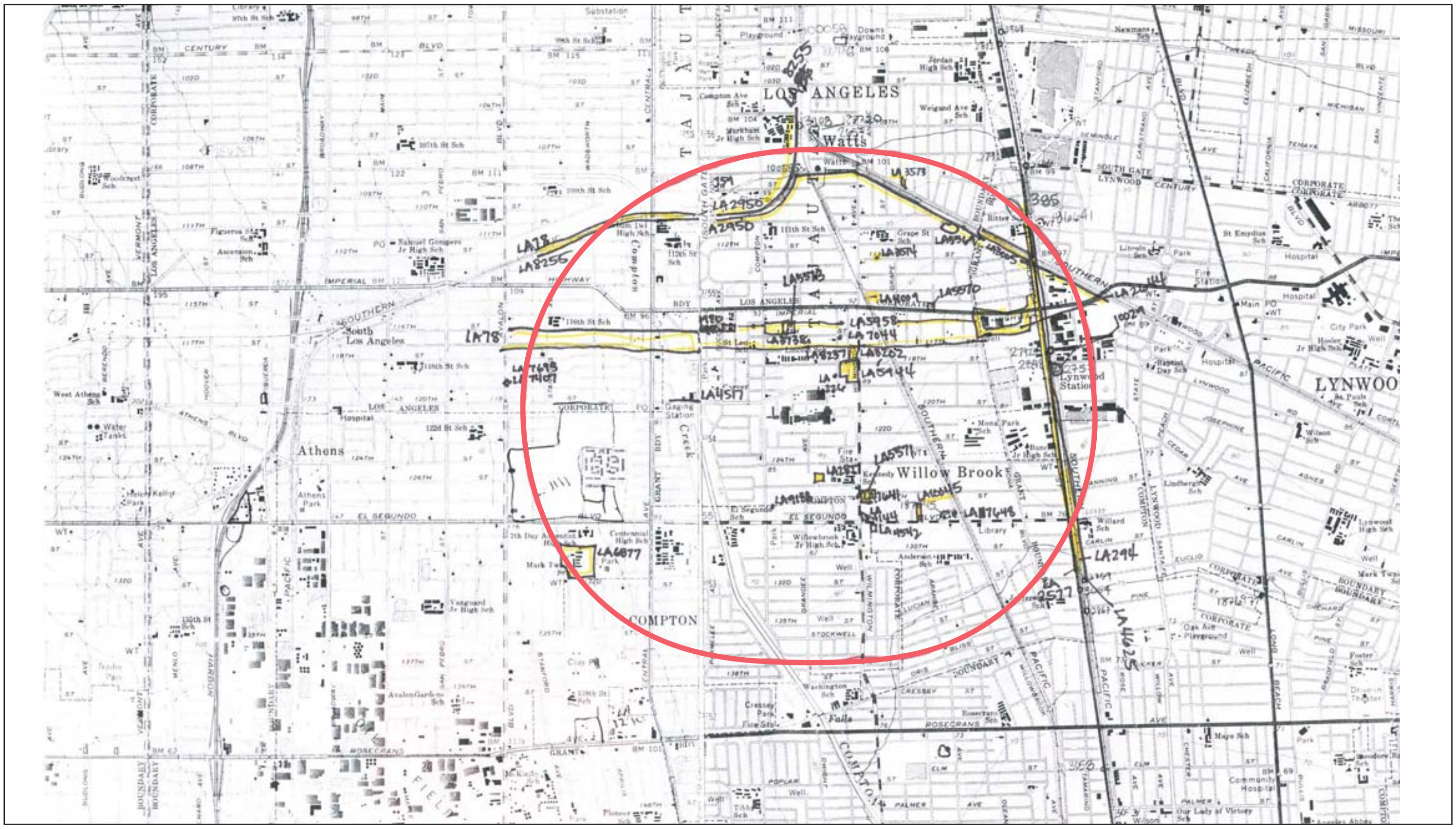

FIGURE 5.2.2.2-1
Previously Recorded Prehistoric and Historic Archaeological Resources

CRHR, a local register of historic resources pursuant to Section 5020.1(k) of the Public Resources Code, or historic resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code. With regard to unique archaeological resources, CEQA states that when a project will cause damage to a unique archaeological resource, reasonable efforts must be made to preserve the resource in place or left in an undisturbed state. Mitigation measures and alternatives are required to be considered when a historical resource or unique archaeological resource would potentially be damaged or destroyed by a project.

5.2.3.2 Impacts

Tier I and Tier II of the proposed project would not result in significant impacts to cultural resources related to a substantial adverse change in the significance of prehistoric or historic archaeological resources. There are no known prehistoric or historic archaeological resources within the proposed project area. Although it is not certain whether the proposed project site has the potential to yield archaeological resources, it is unlikely due to the historical development of the area. The ground surface has been highly disturbed since its early agricultural use and the subsequent construction and landscaping of the existing buildings within the proposed project property (see Figure 5.2.3.2-1, *1893 Topographic Map*; Figure 5.2.3.2-2, *1923 Topographic Map*; and Figure 5.2.3.2-3, *2000 Topographic Map*, to compare the development of the project site preconstruction and postconstruction of Martin Luther King, Jr. Medical Center). Construction of the Martin Luther King, Jr. Medical Center Campus involved excavation of native soils and the underlying geologic units to an estimated depth that exceeded 15 feet below the ground surface. Due to the level of disturbance that has occurred within the proposed project area in conjunction with construction of the Martin Luther King, Jr. Medical Center in 1972 and subsequent years, extant archaeological resources would likely not be present.

5.3 HISTORICAL RESOURCES

5.3.1 Historic Context

The history and development of the Martin Luther King, Jr. Medical Center Campus may be understood within the contexts of its association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for a new hospital in South Los Angeles in the wake of the 1965 civil unrest. The Martin Luther King, Jr. Medical Center Campus, the Willowbrook area's largest construction project in the years following the 1965 civil unrest, was constructed on the recommendation of the McCone Commission, which identified the lack of access to health care as one of the contributing factors that culminated in the civil unrest.

5.3.1.1 Development of the Willowbrook Area (1893–1980)

The unincorporated area of Los Angeles County known today as Willowbrook originated as one of several early settlements located to the southeast of the Pueblo de Los Angeles. On September 4, 1781, Governor Felipe de Neve granted the region's first settlement, Nuestra Senora La Reina de Los Angeles, or the Pueblo de Los Angeles, with a vast territory covering approximately 28 square miles.[76] In the 1820s, an early settler, Anastacio Abila, utilized the larger Willowbrook area for grazing his herds of cattle. In 1843, Abila was granted approximately 4,500 acres of land, named

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[76] Gumprecht, Blake. 2001. *The Los Angeles River: Its Life, Death, and Possible Rebirth*. Baltimore, MD: Johns Hopkins Press, pp. 40–44.

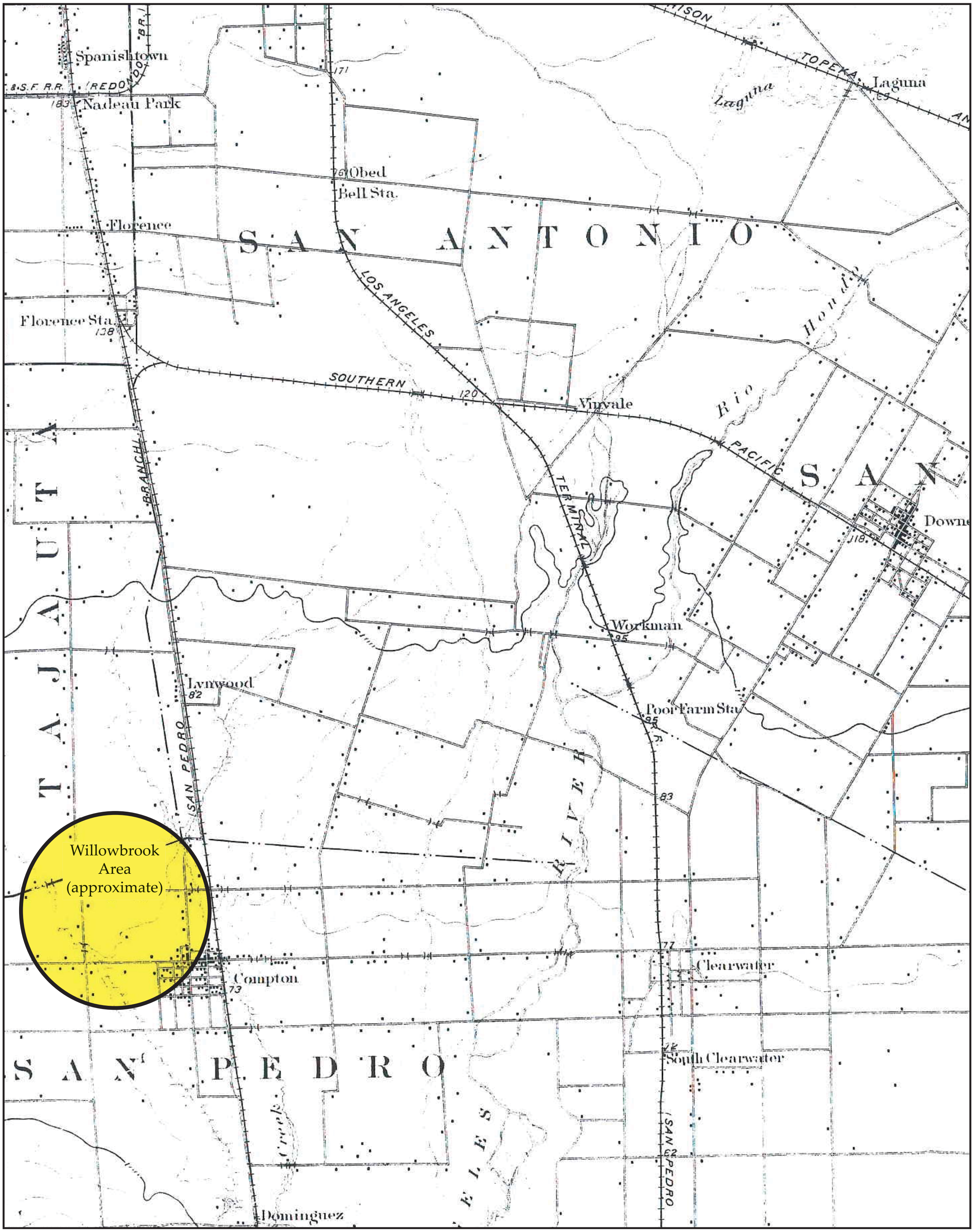

FIGURE 5.2.3.2-1
1893 Topographic Map

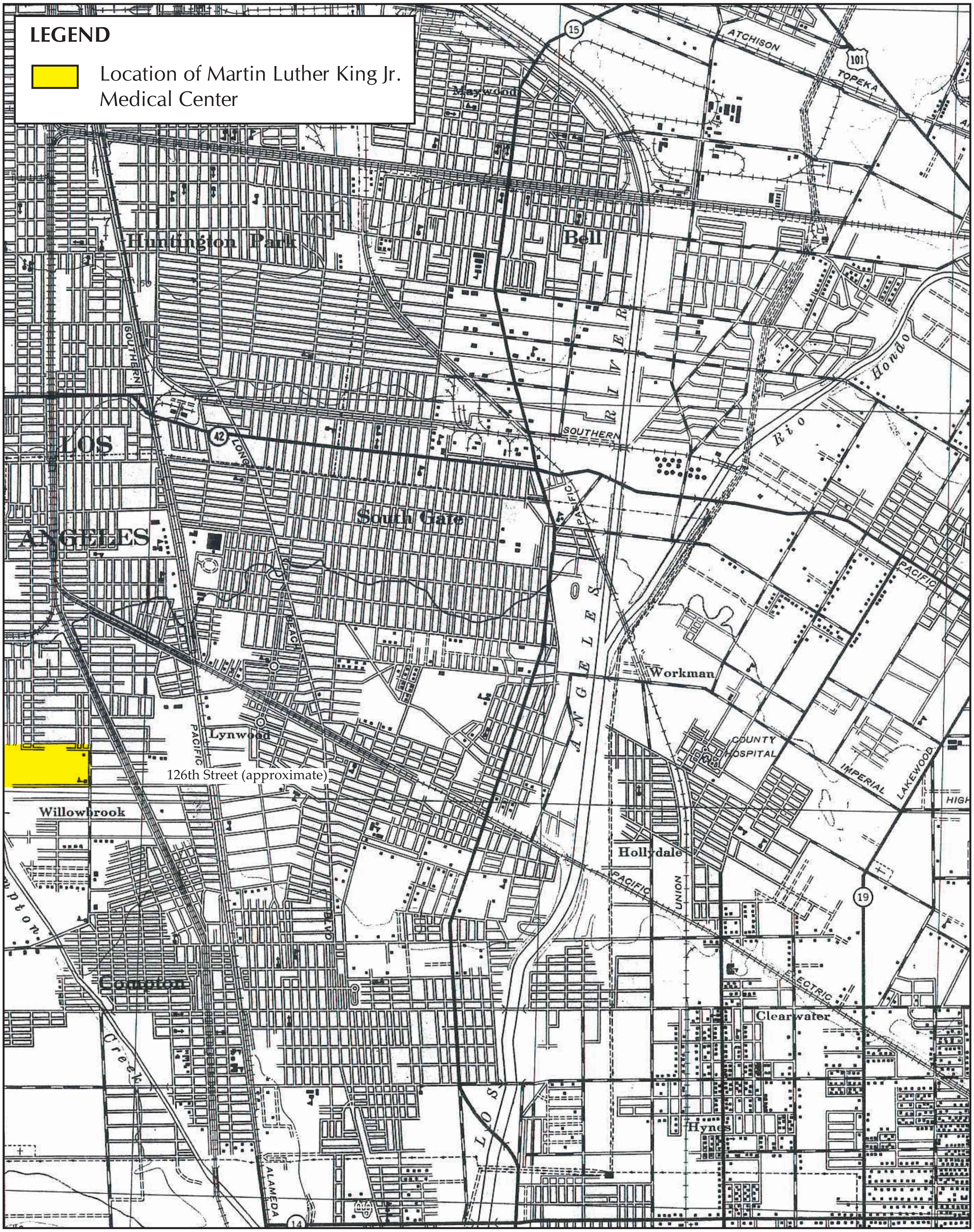

FIGURE 3.2.3.2-2
1923 Topographic Map

Printed from TOPO! ©2000 National Geographic Holdings (www.topo.com)

FIGURE 5.2.3.2-3
2000 Topographic Map

Rancho Tajauta. Rancho Tajauta occupied an area that can be roughly defined today as south of Firestone Boulevard and north of Rosecrans Avenue, from Alameda Street on the east to the Harbor Freeway on the west. The present-day community of Willowbrook is located entirely within the original boundaries of Rancho Tajauta (Figure 5.3.1.1-1, *Approximate Location of Rancho Tajauta*).[77,78]

Rancho Tajauta's boundaries were surveyed and slightly altered after the admission of California to the Union in 1850. During this period, the southern boundary of the incorporated City of Los Angeles was established in the vicinity of the present-day Exposition Boulevard. Despite the introduction of residential development in Willowbrook, the area continued to be used primarily for grazing. A map of Rancho Tajauta, circa 1854, depicted the area as open land crossed by springs with a dwelling and a corral.[79,80]

The construction of railroad lines in the 1870s increased Los Angeles' connectivity with the rest of the nation. During this period, the rangeland uses that had previously typified Rancho Tajauta gave way to a new era of farming, as roads were surveyed and new farmhouses began to dot the landscape.[81]

In ensuing decades, new arrivals flooded Los Angeles, dramatically increasing the city's population and creating unprecedented demands for housing. Land speculators targeted the southern portion of the growing metropolitan area for new housing developments, which were often strategically concentrated along railroad lines. According to historical topographic maps, in 1893, the area where Willowbrook would be located in ensuing years was located adjacent to the San Pedro branch of the Southern Pacific railroad line and consisted of undeveloped land, dotted by occasional dwellings and crossed by a small network of roads.[82] The settlement in this era was concentrated to the south of the project site in Compton and, to the east, in Downey.[83] In 1903, the Willowbrook Tract was recorded along the newly constructed Pacific Electric railway line to Long Beach. By 1904, much of the formerly open land located to the east of the project site was platted with unusually deep 300-foot lots to accommodate agricultural and residential uses.[84] A 1904 *Los Angeles Times* advertisement for the Willowbrook subdivision described the benefits of the tract's distinctive appeal as an agricultural community,

> Willowbrook faces the Long Beach Electric Line. Only 17 minutes ride from Los Angeles. With the rapid service of the Long Beach system it can be easily reached. The soil is rich, loamy and fertile. It is right in the heart of one of the finest berry, fruit, and vegetable regions of California. For a small dairy, a chicken ranch, etc. it is unexceled [*sic*]. . . . Willowbrook is regularly laid out with wide streets, graded

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[77] John R. Kielbasa. 1998. *Historic Adobes of Los Angeles County*. Pittsburgh, PA: Dorrance Publishing.

[78] City of Los Angeles, Department of City Planning, 2000. *Southeast Los Angeles Community Plan*, p. 1–1.

[79] City of Los Angeles, Department of City Planning, 2000. *Southeast Los Angeles Community Plan*, p. 1–1.

[80] United States. District Court Land Case 354. ca. 1854. *No. 456, Anto. Ygno. Abila, Sausal Rodondo [sic]. Copy of '6' ex No. 391, Map of Tajauta. Filed in office, June 27h, 1854, (signed) Geo. Fisher, sy*. Bancroft Library, University of California, Berkeley, CA.

[81] City of Los Angeles, Department of City Planning, 2000. *Southeast Los Angeles Community Plan*, p. 1–1.

[82] U.S. Geological Survey, 1893–1894, 15-Minute Series, Downey, California. Topographic Quadrangle. Reston, VA.

[83] U.S. Geological Survey, 1893–1894, 15-Minute Series, Downey, California. Topographic Quadrangle. Reston, VA.

[84] U.S. Geological Survey. 1904. Downey15-Minute Series, Downey, California. Topographic Quadrangle. Reston, VA.

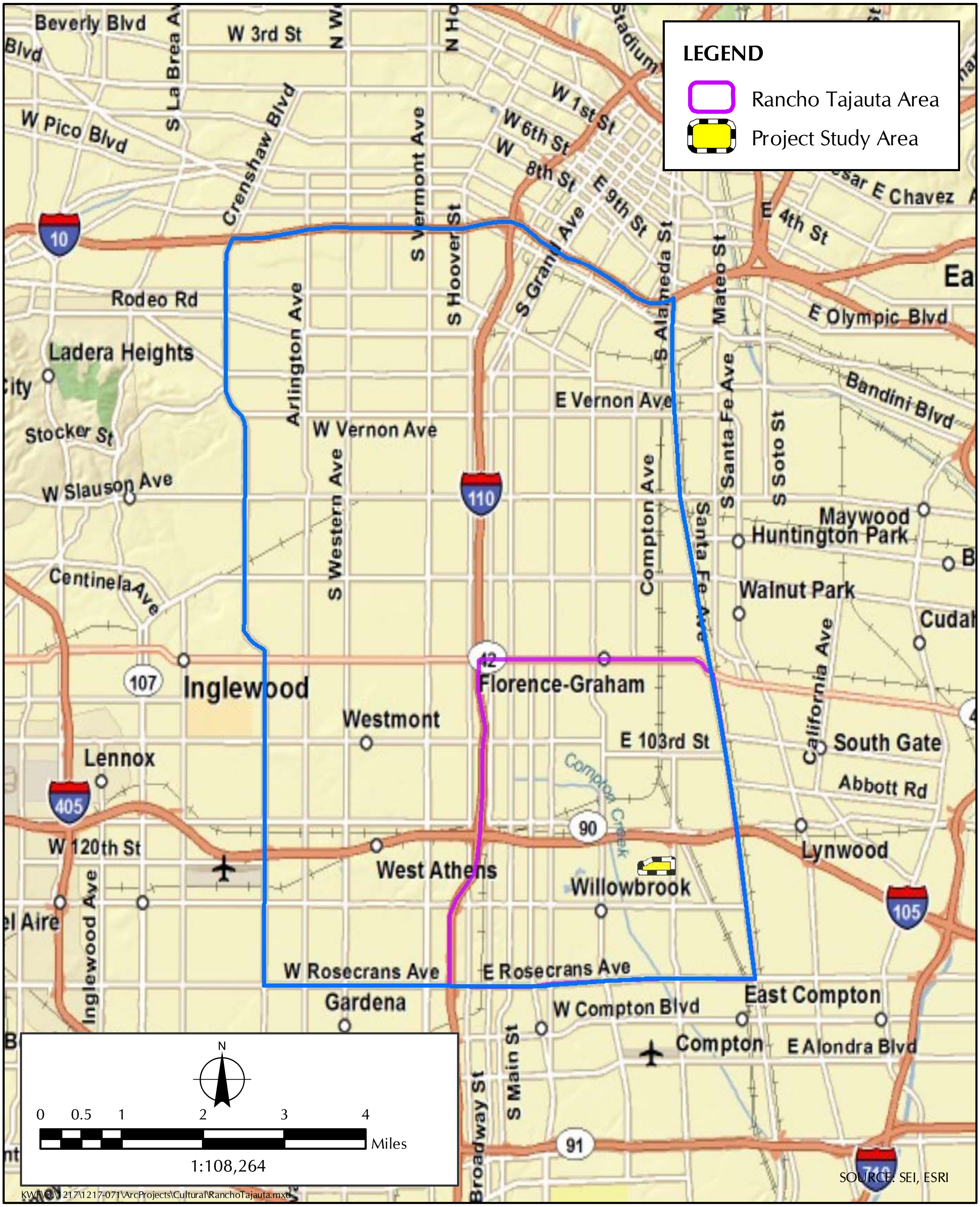

FIGURE 5.3.1.1-1

Approximate Location of Rancho Tajauta

> and oiled according to city specifications. 4 and 6 water mains are laid to every lot, making it a good proposition for an ideal country home.[85]

Willowbrook's proximity to rail lines provided the area's working-class residents with ready access to downtown Los Angeles, located to the northeast, and, to the south, the City of Long Beach. The wider area also became known as Willowbrook due to a Pacific Electric Railroad Company stop that was located near the Willowbrook subdivision along 126th Street. In 1915, an eight-room school was constructed in Willowbrook.[86] A 1923 map of the Willowbrook area depicts several widely spaced and unconnected streets, suggesting the presence of undeveloped land or land occupied by agricultural uses during this period.[87] No historic Sanborn maps were located for the project site for this period, suggesting that buildings were so limited and widely spaced as not to warrant mapping for fire insurance purposes. Willowbrook retained its low-density mix of residential and agricultural uses into the 1940s. In 1945, the Palm Lane Housing Project, consisting of 300 units located in 75 buildings, was constructed on the project site to provide temporary housing for returning World War II veterans. In 1966, the Palm Lane Housing Project was purchased by the County of Los Angeles and demolished shortly thereafter for the construction of the Martin Luther King, Jr. Medical Center.

By the late 1970s, Willowbrook was a metropolitan area anachronism, "Deep in the blighted slums of South Central Los Angeles, there are horses grazing, roosters crowing and corn growing. . . . Homeowners in Willowbrook, right next to Martin Luther King, Jr. County Hospital have turned their 300-foot-deep lots into agricultural havens to supplement poverty-level incomes."[88] In 1979, the Los Angeles County Board of Supervisors approved a plan, conceived by the Watts Labor Community Action Committee, to redevelop 365 acres in Willowbrook. During the 1980s, 56 new homes, the $23 million Kenneth Hahn Shopping Plaza, and a new water system were built in Willowbrook.[89,90] In 1984, the first permanent building on the campus of Charles Drew University immediately to the north of the medical center, the W. Montague Cobb Medical Education Building, was dedicated. Campus construction would continue at Charles Drew University throughout the 1980s.

The south area of Los Angeles, including the Willowbrook area, has a historic identity with African-American settlement, dating back to the late 1910s when migrating African Americans began settling in Watts, a rural working-class community then located just outside the boundaries of the City of Los Angeles. As opportunities to live in the City of Los Angeles were often unavailable to African Americans due in part to restrictive residential covenants, locations just outside the city boundaries provided opportunities for African Americans to establish communities. Only with the easing of discriminatory practices after World War II did African Americans begin to move to other parts of the Los Angeles metropolitan area. The historically African American areas of south Los Angeles experienced a demographic shift between 1970 and 1990. The 1970 Census reported that the residential composition of south Los Angeles was predominantly African American at 86.2

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[85] *Los Angeles Times*. 23 October 1904. Display Ad, p. 14.

[86] *Los Angeles Times*. 16 November 1915. "Ask Protective Bond," p. II2.

[87] U.S. Geological Survey. 1923. 15-Minute Series, Downey, California. Topographic Quadrangle. Reston, VA.

[88] *Los Angeles Times*. Spiegel, Claire. 22 October 1979. "Willowbrook: A Life Style About to Be Displaced by Progress," p. C1.

[89] Kelley, Daryl. 3 November 1988. "City, County Programs Taking Shape for Poorest South L.A. Areas Ticketed for Development." *Los Angeles Times*, p. 1.

[90] Kelley, Daryl. 22 November 1988. "Change in the Air: Face of Willowbrook Slowly Being Transformed as Redevelopment Projects, Freeway Take Root." *Los Angeles Times*, p. 1.

percent. By 1990, the African American population of South Los Angeles decreased, with African Americans comprising only 39.6 percent of residents, while the Latino population rose to 58 percent. Today, south Los Angeles comprises a mix of African Americans, Latinos, and other ethnicities.[91,92,93,94]

5.3.1.2 Development of the Martin Luther King, Jr. Medical Campus (1965–1971)

The development of the Martin Luther King, Jr. Medical Center Campus between 1966 and 1971 was a direct result of the County of Los Angeles Board of Supervisor's approval of recommendations of the McCone Commission to respond to the civil unrest that had occurred in the Watts-Willowbrook area in 1965. On August 11, 1965, California Highway Patrol officers arrested a man named Marquette Frye for suspected drunken driving in the Watts neighborhood in South Los Angeles. A subsequent confrontation erupted in civil unrest. Over the following six days, violence left 34 persons dead, over 1,000 persons injured, damaged over 600 buildings, and burned business districts. The National Guard was called to intervene and would place a cordon around a vast region of South Los Angeles. The affected area ranged as far east as Alameda Street, as far west as Crenshaw Boulevard, and extended south of the Santa Monica Freeway to Rosecrans Avenue (Figure 5.3.1.2-1, *Approximate Area of National Guard Cordon, 1965*).[95,96]

In December 1965, California Governor Pat Brown appointed John McCone, former director of the Central Intelligence Agency, to investigate the causes of the unrest. The resulting Governor's Commission on the Los Angeles Riots, known as the McCone Commission, produced a report, *Violence in the City: an End or a Beginning?*, which cited poverty and racial discrimination as the unrest's major contributing causes. The McCone Commission report acknowledged the commitment required by all citizens to address the severity of the issue,

> The avenue of violence and lawlessness leads to a dead end. To travel the long and difficult road will require courageous leadership and determined participation by all parts of our community, but no task in our times is more important. Of what shall it avail our nation if we can place a man on the moon but cannot cure the sickness in our cities?[97]

In comparison to the rest of the metropolitan area, the McCone Commission found that south Los Angeles had a greater incidence of disease, fewer medical facilities, inadequate private hospitals, and a lack of medical professionals. The McCone Commission recommended the construction of a hospital, stating that "Immediate and favorable consideration should be given to a new, comprehensively-equipped hospital in this area" and called for the establishment of a local

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[91] City of Los Angeles, Department of City Planning, 2000. *Southeast Los Angeles Community Plan*, p. 1–1.

[92] Myers, Dowell. "Demographic and Housing Transitions in South Central Los Angeles, 1990 to 2000."

[93] Population Dynamics Research Group, School of Policy, Planning, and Development, University of Southern California. 22 April 2002; accessed 19 October 2009. Available at: http://www.usc.edu/schools/sppd/research/census2000/pdf/SoCentral_DM.pdf

[94] Bryant, Clora, Buddy Collette, William Green, Steve Isoardi and Marl Young, eds. 1999. *Central Avenue Sounds: Jazz in Los Angeles*. Berkeley and Los Angeles, CA: University of California Press, pp. 90–91.

[95] Reitman, Valerie, and Mitchell Landsberg. 11 August 2005. "Watts Riots, 40 Years Later." *Los Angeles Times*.

[96] King/Drew Medical Center. 12 July 2004; accessed 20 October 2009. "Significant Events Leading to the Creation of King Hospital."

[97] Governor's Commission on the Los Angeles Riots. Accessed 20 October 2009. "Violence in the City: an End or a Beginning?" Available at: http://www.usc.edu/libraries/archives/cityinstress/mccone/contents.html

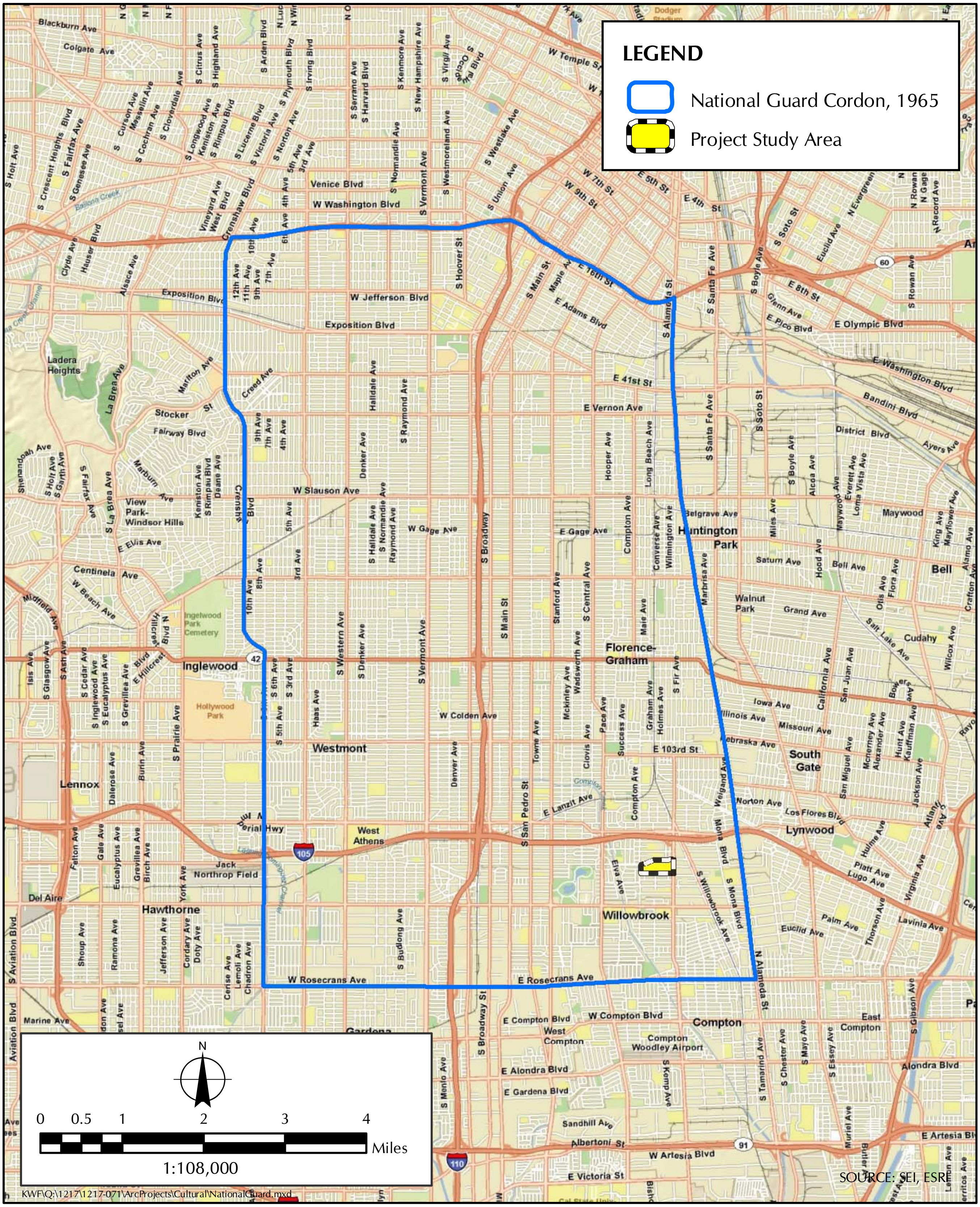

FIGURE 5.3.1.2-1

Approximate Area of National Guard Cordon, 1965 committee comprised of "citizens of the area and representatives of the Los Angeles County Department of Charities, Los Angeles County Medical Association, the California Medical Association, the State Department of Health, and medical and public health schools"[98] In addition to the recommendation for a new hospital, the McCone Commission recommended that the facility should specialize in postgraduate education of physicians and medical assistants through an affiliation with one or more medical schools.

The McCone Commission's recommendation for a hospital reiterated a need that was already an identified local concern in the years leading to the 1965 unrest. The Charles Drew Medical Society, an association of African American medical professionals named in honor of pioneering African American physician and plasma specialist Charles R. Drew, had advocated for the construction of a medical school and hospital in the Willowbrook area since the 1950s.[99] Lack of a local hospital required Willowbrook area residents seeking medical care to travel over 15 miles to County facilities located near downtown Los Angeles for emergency or outpatient services.[100,101]

In February 1966, the Los Angeles County Board of Supervisors unanimously approved the construction of a new teaching hospital in the Watts-Willowbrook area in a direct response to the findings of the McCone Commission.[102] A task force was organized to develop an architectural program for the new hospital.[103] In March 1966, an architectural team for the "Los Angeles County Southeast General Hospital" was selected. The team was composed of three firms: Adrian Wilson and Associates; Nielsen, Moffatt, and Wolverton; and Carey K. Jenkins and Associates, Inc.[104] The Los Angeles County Board of Supervisors appointed Carey K. Jenkins and Associates, Inc. to develop a multi-phased master plan of projected facilities.[105]

County Supervisor Kenneth Hahn spearheaded the drive to construct the new hospital facility, navigating considerable political and funding obstacles, including a general obligation bond proposition that fell just short of the required percentage for successful passage. A Southeast General Hospital Joint Authority Commission was subsequently established to fund and complete the project, which would be leased back to the County at an annual rate.[106] In August 1966, seeking a location for the new facility, the County Board of Supervisors purchased the 30-acre Palm Lane Housing Project from the County Housing Authority for $100,000.[107,108] In April1968, Los Angeles County Supervisors accepted contractor Robert E. McKee's $24.5 million bid to construct the facility. Local efforts—including the Watts Health Foundation and the King-Drew

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[98] Governor's Commission on the Los Angeles Riots. Accessed 20 October 2009. "Violence in the City: an End or a Beginning?" Available at: http://www.usc.edu/libraries/archives/cityinstress/mccone/contents.html

[99] Charles Drew University of Medicine and Science. Accessed 20 October 2009. Available at: http://www.cdrewu.edu/about-cdu/cdu-the-journey

[100] *Ebony Magazine*. December 1974. "Watts Finally Gets a Hospital," pp. 124–134.

[101] *Los Angeles Times*. 15 August 1972. "King Hospital Treats 42,618 in Five Months," p. D2.

[102] Goff, Tom. 16 February 1966. "Supervisors Vote to Build Hospital in L.A. Riot Area." *Los Angeles Times,* p. 3.

[103] Goff, Tom. 16 February 1966. "Supervisors Vote to Build Hospital in L.A. Riot Area." *Los Angeles Times,* p. 3.

[104] Windsor, Charles E. November 1972, "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." *Journal of the National Medical Association*, *64* (6): 544–547.

[105] Windsor, Charles E. November 1972, "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." *Journal of the National Medical Association*, *64* (6): 6, pp. 544–547.

[106] Windsor, Charles E. November 1972, "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." *Journal of the National Medical Association*, *64* (6): pp. 544–547.

[107] *Los Angeles Times*. 26 August 1966. "County Buys 30-Acre Site for New Hospital in Watts," p. 3.

[108] *Los Angeles Times*. 26 January 1966. "County Looks Over 'Bargain' 30-Acre Tract," p. A2.

Auxilliary, led by community activists such as Mary Henry, Caffie Green, Johnnie Tillman, Nona Carter, and Lillian Harkless Mobley—were instrumental in securing community support for the project.[109,110] Following the assassination of Dr. Martin Luther King, Jr. on April 4, 1968, the County Board of Supervisors unanimously adopted Supervisor Hahn's resolution to rename the Southeast General Hospital in honor of Dr. King. A groundbreaking ceremony for Martin Luther King Jr. General Hospital was held on May 4, 1968.[111,112,113]

Planning efforts for the hospital represented the area's largest construction project since the 1965 civil unrest. The project's primary building, known today as the MACC, estimated at $23.5 million, was promoted not only as an opportunity to increase the availability of medical care in South Los Angeles but as an important new source of local employment. Supervisor Hahn personally monitored the ethnic and racial composition of the project's construction workers to ensure that employment reflected the predominantly African American demographic of the area. Priority was also given to African Americans for hospital staff positions.[114,115]

5.3.1.3 Operation of the Martin Luther King, Jr. Medical Campus (1972–2010)

In July 1971, Martin Luther King Jr. General Hospital and Charles R. Drew Postgraduate Medical School entered into a contract to provide health care and education services. In addition to the promise of increased employment and educational opportunities, it was hoped that the project would positively impact the wider community and generate local investment. In 1972, hospital administrator Charles E. Windsor stated that,

> Like the rock thrown in the pond, this Area Health-Education Center will set in motion ripples of productive activity throughout the community. For where there are hospitals there will be uniform shops and shoe shops, recreational facilities, restaurants, lodging places, rest homes, convalescent homes, medical offices and all of the other things that will create the kind of economic base that is required to support a healthy community.[116]

Approximately one year later, on March 27, 1972, the new hospital accepted its first patient. Over the next five months, the hospital treated 42,618 outpatients, prompting County Supervisor Kenneth Hahn to note, "Building the hospital fulfilled the No. 1 health recommendation of the McCone Commission which investigated the Watts riot of 1965." During 1973, the facility cared for approximately 9,000 inpatients, 40,000 emergency room visitors, and 160,000 outpatients, and delivered 1,832 babies. In December 1977, Drew Medical School established an undergraduate medical program in conjunction with the University of California, Los Angeles. In 1982, the Martin

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[109] *Los Angeles Times*. 7 June 2010. "Caffie Green, 1919–2010: She Helped Create King/Drew," p. AA5.

[110] Norwood, Chico. 26 March 2009; accessed 21 June 2010. "Watts Community Activist Lillian Mobley—At Nearly 80 Years Old—is Still Fighting." *L.A. Watts Times*. Available at: http://www.lawattstimes.com/component/content/article/52-featured/575-watts-community-activist-lillian-mobley-at-nearly-80-years-old-is-still-fighting.html

[111] *Los Angeles Times*. 17 April 1968. "New County Hospital to be Named for King," p. A8.

[112] Dr. Martin Luther King, Jr. General Hospital. 4 May 1968. Groundbreaking Ceremonies. County of Los Angeles.

[113] Goff, Tom. 17 August 1966. "Supervisors Hold Up Planning Funds for Watts Hospital." *Los Angeles Times*, p. A1.

[114] *Los Angeles Times*. 27 March 1972. "Dream Fulfilled: Martin Luther King Hospital Registers Its First Patients," p. 3.

[115] Bernstein, Harry. 6 December 1968. "Minorities in Majority on Watts Hospital Job." *Los Angeles Times*, p. SF1.

[116] Windsor, Charles E. November 1972, "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." *Journal of the National Medical Association*, *64* (6): pp. 544–547.

Luther King Jr. General Hospital and Drew Medical School became known as the Martin Luther King, Jr./Drew Medical Center.[117,118,119,120,121]

During the 1980s and 1990s, the facility provided medical services to some of Los Angeles County's neediest citizens. As the only public hospital in South Los Angeles, the facility persevered through numerous challenges, including meeting the intense need for medical care of the poor and uninsured, funding cuts, treating victims of violence, and addressing new health crises such as HIV/AIDS. By the late 1990s, the Martin Luther King, Jr. Medical Center Campus was the only Level 1 trauma center in the region and charged with handling the most difficult medical emergencies over a 94 square mile area of Watts, Compton, Willowbrook and South Los Angeles inhabited by 1.5 million residents. The facility employed 3,000 people and provided postgraduate training for 300 resident physicians.[122]

Founded with high aspirations after the Watts civil disturbance, Martin Luther King Jr. Medical Center Campus was troubled by repeated incidents of purported mismanagement. In 2004, the *Los Angeles Times* published the results of an in-depth investigation by a team of reporters documenting managerial issues and neglect at the facility that were believed to have contributed to harm to some patients and even the loss of life. In 2005, the hospital's Level 1 trauma center was closed with other hospital facilities and departments following suit. Since 2007, the hospital has functioned as a Multi-Service Ambulatory Care Center with clinics for urgent care and outpatient visits. In 2009, the County of Los Angeles Board of Supervisors approved the rehabilitation of the Inpatient Tower (constructed in 1993) to house a 120-bed inpatient facility, and state and county officials announced a new agreement that would reopen the hospital in 2012.[123,124,125,126]

5.3.1.4 Architectural Design and Construction

Historical research indicates the Martin Luther King Jr. Medical Center Campus was planned and constructed between 1968 and 1972.[127,128,129,130] Three Los Angeles firms were selected to collaboratively design the new facility: Adrian Wilson and Associates; Carey K. Jenkins; and

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[117] *Los Angeles Sentinel*. 16–22 December 2004. "History of King/Drew Medical Center," p. A1.

[118] *Los Angeles Times*. 27 March 1972. "Dream Fulfilled: Martin Luther King Hospital Registers Its First Patients," p. 3.

[119] *Los Angeles Times*. 17 April 1968. "New County Hospital to be Named for King," p. A8.

[120] December 1974. "Watts Finally Gets a New Hospital: Modern Facility Serves L.A. Riot Area Residents." *Ebony Magazine,* pp. 124–134.

[121] *Los Angeles Times*. 15 August 1972. "King Hospital Treats 42,618 in Five Months," p. D2.

[122] Decker, Cathleen. 15 March 2009; accessed 19 October 2009. "King Plan Nurtures a Fragile Hope." *Los Angeles Times*. Available at: http://www.latimes.com/news/local/la-me-week15-2009mar15,0,7991787.story

[123] *Los Angeles Sentinel*. 16–22 December 2004. "History of King/Drew Medical Center," p. A1.

[124] *Los Angeles Times*. 12 December 2004; accessed 19 October 2009. "Fulfilling the Wrong Dream." Available at: http://www.latimes.com/news/nationworld/nation/la-kingdrew121204_latpul,1,879918.story

[125] Decker, Cathleen. 15 March 2009; accessed 19 October 2009. "King Plan Nurtures a Fragile Hope." Available at: http://www.latimes.com/news/local/la-me-week15-2009mar15,0,7991787.story

[126] County of Los Angeles. Accessed 9 October 2009. Los Angeles County Health Services, MLK-MACC. Available at: http://www.ladhs.org/wps/portal/KingHomepage

[127] *Los Angeles Times*. 17 April 1968. "New County Hospital to be Named for King," p. A8.

[128] Nelson, Harry. 4 July 1968. "Watts Gets $259,875 for Medical School." *Los Angeles Times,* p. 3.

[129] Bernstein, Harry. 6 December 1968. "Minorities in Majority on Watts Hospital Job." *Los Angeles Times,* p. SF1.

[130] *Los Angeles Times*. 27 March 1972. "Dream Fulfilled: Martin Luther King Hospital Registers Its First Patients," p. 3.

Nielsen, Moffatt, and Wolverton. Two of these firms, Adrian Wilson and Associates and Nielsen, Moffatt, and Wolverton already had considerable experience in the planning and design of hospitals and medical facilities.[131,132,133,134,135,136,137]

The initial buildings, including the MACC, of the Martin Luther King Jr. Medical Center Campus were built by contractor Robert E. McKee, Inc. As the hospital's primary patient care facility, the MACC, exhibits elements of the Brutalism style, which was a popular choice for public and institutional buildings constructed during the 1960s and 1970s. In the ensuing years, subsequently constructed buildings and structures located on the project site refer broadly to the Brutalism design precedent embodied in the MACC.

The main buildings of the Martin Luther King, Jr. Medical Center Campus were constructed in phases during the late 1960s and 1970s. The earliest improvements included the three wings of the MACC, the Central Plant, and the Medical Records and Laundry Building, which were all operational by 1972. In 1973, the North and South Support buildings and the Dr. H. Claude Hudson Auditorium were built. The Interns and Physicians Building was constructed circa 1974. A second phase of the Central Plant building was completed in 1975, followed by the Augustus F. Hawkins Comprehensive Mental Health Center in 1979. No building permits were located that provided specific dates of subsequent buildings; however, several support buildings, such as the Cooling Towers, Oasis Clinic, Storage Buildings, and the Hub Clinic were built during the 1970s and 1980s. The early 1990s brought several new buildings to the Medical Center: the Registration Building, Inpatient Tower, Pediatric Acute Care, Emergency Room, and the MRI Building.[138]

The individual buildings and the Martin Luther King Jr. Medical Center Campus as a whole have been continuously modified to meet the needs of the hospital and hospital building safety codes; between 1973 and 2008, nearly 140 construction projects were completed, with costs in excess of $143 million.

Brutalism Style

Brutalism, pioneered by the architect Le Corbusier, developed in part as a return to the functionalist principles defined by early modernist architects. Brutalism prioritized simplicity and function in form and materials. Brutalist buildings are typically constructed of rough unfinished concrete, or *breton brut*, and utilized prefabricated construction techniques. Structural elements, such as steel beams, are often left exposed. Forms are often monolithic and monumental. Windows may be small and/or nonfunctional. Many Brutalist buildings convey a sense of stark austerity. In contrast to the transparency and refinement conveyed by the use of glass and steel in International style buildings, Brutalist buildings, constructed primarily of concrete, often appear solid, raw and

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[131] Boich, Bob. 22 July 1962. "His Designing Ways Add to City's Stature." *Los Angeles Times,* p. M1.

[132] *Los Angeles Times.* 12 November 1967. "Firm to Plan Hospitals in Vietnam and Korea," p. I9.

[133] *Architectural Record.* January 1945. "Victory Park Housing, Compton, California," pp. 64–70.

[134] Jones, Frederick W. September 1942. "Pueblo del Rio: Los Angeles' most recent housing project." *Architect & Engineer,* pp. 11–21.

[135] *Los Angeles Times.* 28 April 1949. "Mental Health Facilities to be Expanded."

[136] *Los Angeles Times.* 13 August 1951. "New County Psychopathic Unit Dedication Aug. 28," p. 12.

[137] *Los Angeles Times.* 6 February 1988. "Adrian Wilson; Architect for L.A. Buildings," p. 30.

[138] Windsor, Charles E. November 1972, "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." *Journal of the National Medical Association, 64* (6): pp. 544–547.

unfinished. Considered easy to construct and maintain, the Brutalist style was widely popular for government, civic, and institutional buildings during the 1960s and 1970s.[139,140] Examples of Brutalist buildings include Le Corbusier's Unité d'Habitation (1952) in Marseille, France and Secretariat Building (1953) in Chandigarh, India, the Architecture Building at Yale University (Paul Rudolph, 1958), and the Jack Langson Library, UC Irvine (William Pereira, 1965).[141]

The MACC building, constructed in the early 1970s, incorporates elements of the Brutalism style. Like many Brutalist buildings, it is characterized by use of concrete, horizontality, monolithic massing, geometric repetition, and exposed structural elements. In contrast to the International Style's enthusiasm for transparency via glass curtain walls, its windows are de-emphasized and the contrast between the heavy solidity of the concrete structure and the voids of the horizontal bands of windows are played up instead. In keeping the Brutalism aesthetic, ornamentation is minimal, with an overall appearance of simplicity in form and an implied visual strength. Similarly, the Interns and Physicians Building (circa 1975) and Augustus F. Hawkins Comprehensive Mental Health Center (1979) also exhibit the hallmarks of Brutalist architecture.

Adrian Wilson and Associates

Adrian Jennings Wilson (1898–1988) studied architecture, structural engineering, and mechanical engineering at Washington University in St. Louis, Missouri, where he graduated in 1919. In 1920, he began his career as a draftsman for the Los Angeles firm of Dodd and Richards. While at Dodd and Richards, Mr. Wilson participated in the design of several notable buildings in downtown Los Angeles, including the Pacific Mutual Building at Sixth and Olive Streets (1922). In 1930, Mr. Wilson began a partnership with Erle Farrington Webster to create the architectural firm of Webster and Wilson, Architects. In 1936, the firm was renamed Adrian Wilson Associates.[142]

Adrian Wilson Associates specialized in the design of numerous institutional, civic, defense, and commercial projects in the United States and abroad. Early projects of note in the Los Angeles area include Pueblo Del Rio (circa 1942), Victory Park Housing Project in Compton (circa 1945), and Pacific Palisades High School (circa 1961). The firm was one of several architects involved with the Kenneth Hahn Hall of Administration (1960) and the Los Angeles County Courthouse (1958) in downtown Los Angeles. The firm obtained numerous commissions in Asia, and Mr. Wilson established a network of offices in Japan, Vietnam, Korea, the Philippines, Turkey and Thailand.[143,144,145,146,147,148,149]

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[139] Lewis, Roger K. 30 May 2009. "The Triumph and Decline of a Truly Brutal Style." *The Washington Post*.

[140] "New Brutalism." Accessed 16 October 2009. *Encyclopedia Britannica*. Available at: http://www.britannica.com/EBchecked/topic/411216/New-Brutalism

[141] "Beyond Brutalism: Creative Concrete Buildings." Accessed 16 October 2009. *Web Urbanist*. Available at: http://weburbanist.com/2009/04/01/brutalism-postmodernism-concrete-architecture

[142] "Adrian Jennings Wilson." Accessed 16 October 2009. *Pacific Coast Architecture Database*. Available at: http://digital.lib.washington.edu/php/architect/record.phtml?type+architect&architectid+615

[143] Boich, Bob. 22 July 1962. "His Designing Ways Add to City's Stature." *Los Angeles Times,* p. M1.

[144] *Los Angeles Times*. 12 November 1967. "Firm to Plan Hospitals in Vietnam and Korea," p. I9.

[145] *Architectural Record*. January 1945. "Victory Park Housing, Compton, California," pp. 64–70.

[146] Jones, Frederick W. September 1942. "Pueblo del Rio: Los Angeles' most recent housing project." *Architect & Engineer,* pp. 11–21.

[147] *Los Angeles Times*. 28 April 1949. "Mental Health Facilities to be Expanded."

[148] *Los Angeles Times*. 13 August 1951. "New County Psychopathic Unit Dedication Aug. 28," p. 12.

[149] *Los Angeles Times*. 6 February 1988. "Adrian Wilson; Architect for L.A. Buildings," p. 30.

By the late 1960s, Adrian Wilson Associates were recognized in the field of hospital design and planning. The firm designed several medical facilities, including the Mira Loma Hospital (1961) and the Harbor General Hospital in Torrance (1963). In Los Angeles, Mr. Wilson collaborated with architect Paul R. Williams in the design of the Psychopathic Unit (circa 1951), Communicable Diseases building (1955), and Osteopathic Hospital (1958) of Los Angeles County General Hospital. Adrian Wilson and Paul R. Williams collaborated again in the design of the Post-Acute Polio Hospital at Rancho Los Amigos in Downey (1955). In addition, the firm obtained commissions for many large hospital projects in Asia, such as the V. Luna General Hospital in Quezon City, Philippines. In 1967, the firm was awarded a contract to design three hospital units in Vietnam. The Department of the Army contracted with Adrian Wilson Associates to design the 121st Evacuation Hospital in Seoul, Korea and the firm also worked on alterations to the Seoul Military Hospital.[150,151,152,153,154,155,156]

Mr. Wilson served as president of the Southern California chapter of the American Institute of Architects (AIA) and was chosen as a Fellow of the AIA. Adrian Wilson Associates was sold to Howard Needles Tammen and Bergendoof, an architecture firm based in Kansas City, in 1976.[157,158] Adrian Wilson International Associates, Inc. (AWIA) continues to operate today as an independent, multi-disciplinary engineering consulting firm. AWIA began in 1956 as the Philippines Office of the Los Angeles-based Adrian Wilson Associates.[159]

Carey K. Jenkins

Carey K. Jenkins (1919–1987) was one of the first African-American graduates in architecture at University of Southern California.[160] During the 1970s, Mr. Jenkins was involved in Watts Industrial Park, a federally funded 53–acre economic revitalization project. Mr. Jenkins designed the project's 22,000 sq. ft. Community Service Center. Other projects included the Mary McLeod Bethune Middle School in Los Angeles. In addition to his participation in the development of the Martin Luther King, Jr. Medical Campus, Mr. Jenkins designed the Southeast Comprehensive Health Center (Hubert H. Humphrey Comprehensive Health Center), a satellite facility to the Medical Center Campus, located at 5850 South Main Street in Los Angeles. This building was recognized as the first public comprehensive health center in the nation.[161,162,163] The firm Mr.

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[150] Boich, Bob. 22 July 1962. "His Designing Ways Add to City's Stature." *Los Angeles Times,* p. M1.

[151] *Los Angeles Times*. 12 November 1967. "Firm to Plan Hospitals in Vietnam and Korea," p. I9.

[152] *Architectural Record*. January 1945. "Victory Park Housing, Compton, California," pp. 64–70.

[153] Jones, Frederick W. September 1942. "Pueblo del Rio: Los Angeles' most recent housing project." *Architect & Engineer,* pp. 11–21.

[154] *Los Angeles Times*. 6 February 1988. "Adrian Wilson; Architect for L.A. Buildings," p. 30.

[155] *Los Angeles Times*. 18 August 1952. "Ground Broken for New Post-Acute Polio Hospital," p. A3.

[156] *Los Angeles Times*. 7 December 1958. "Extensive New Hospital Unit Is Dedicated," p. G1.

[157] *Los Angeles Times*. 21 November 1976. "Adrian Wilson Unit Sold to Kansas Firm," p. H6.

[158] *Los Angeles Times*. 6 February 1988. "Adrian Wilson; Architect for L.A. Buildings," p. 30.

[159] United CADDtech Philippines, Inc. Available at: http://www.unicadd.com/awia.asp

[160] "Carey K. Jenkins." Accessed 16 October 2009. *Pacific Coast Architecture Database*. Available at: https://digital.lib.washington.edu/architect/architects/628

[161] *Los Angeles Times*. 26 July 1970. "Industrial Park Lights Glow on Watts Horizon," p. H1.

[162] Jenkins, Gale & Martinez, Inc., Hubert H. Humphrey Health Center. Available at: http://www.jgminc.com/Medical/Medical_Projects/Hubert_Humphrey_Health.htm

[163] *Los Angeles Times*. 9 June 1974. Untitled photo.

Jenkins founded in 1981 continues to operate in Los Angeles as Jenkins, Gales & Martinez, Inc. The USC School of Architecture maintains the Carey K. Jenkins Memorial Scholarship, which is designated for a minority student in memory of Mr. Jenkins.[164,165]

Reiner C. Nielsen, Gene E. Moffatt

During the 1950s, Reiner C. Nielsen and Gene E. Moffatt collaborated on the design of several hospital projects in Southern California. In 1951, Reiner C. Nielsen designed the Metropolitan Hospital at 2001 South Hoover Street in Los Angeles.[166] Mr. Nielsen and Gene E. Moffatt were awarded the contract to design Victory General Hospital in Northridge in 1952.[167] Neilsen and Moffatt also designed the San Vicente Hospital at 6000 San Vicente Boulevard in Los Angeles (1954).[168] Other hospital commissions included the Lark Allen General Hospital in West Covina (1955) and the Southwest Foundation Hospital at La Brea Boulevard and Coliseum Street in Los Angeles (1958). A third designer, identified as "Wolverton," is listed as on a program for the 1968 groundbreaking celebration for Martin Luther King, Jr. Medical Center; however, no additional information was located regarding this individual.[169,170]

Robert McKee, Inc.

Robert Eugene McKee (1889–1965) began his career as a draftsman in El Paso, Texas for the City engineering department. After moonlighting as a surveyor, Mr. McKee established his own business as an independent contractor. In ensuing decades, the company would grow into one of the world's largest private construction firms. Robert McKee, Inc. built more than 3,000 projects in 35 states and abroad during the 1930s through the 1960s. Headquartered in El Paso, the firm maintained branch offices in Dallas, Santa Fe, Los Angeles, Honolulu, and the Panama Canal Zone.[171,172,173] Firm projects include the United States Air Force Academy Cadet Chapel in Colorado Springs, Colorado (Skidmore Owings Merrill, 1963) and military installations in the Panama Canal Zone. During World War II, the firm was selected to build the Los Alamos Atomic Energy Project in New Mexico.[174]

Robert E. McKee, Inc. constructed many high profile projects in Los Angeles: Union Station Terminal (1938); Hotel Statler (Statler Hilton) (1952); and Wilshire Federal Building (1969). The firm was the primary contractor for the Los Angeles International Airport (1959).[175,176]

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[164] Jenkins, Gales & Martinez, About JGM. Accessed 16 October 2009. Available at: http://www.jgminc.com/About/About.htm

[165] University of California School of Architecture, Los Angeles. Accessed 16 October 2009. Available at: http://arch.usc.edu/Resources/StudentServices/FinancialAidandScholarships/Scholarships

[166] *Los Angeles Times*. 20 September 1951. "City Official Cuts Ribbon at New Hospital Opening," p. 22.

[167] *Los Angeles Times*. 30 November 1952. "Victory General Hospital Construction Scheduled," p. F3.

[168] *Los Angeles Times*. 31 January 1954. "Hospital Rising on San Vicente," p. E2.

[169] *Los Angeles Times*. 31 July 1955. "Contract Let for New West Covina Hospital," p. E24.

[170] *Los Angeles Times*. 12 January 1958. "Plans Prepared for a $1,500,000 Hospital," p. F12.

[171] Mangan, Frank. 8 February 1998. "McKee Helped Mold Much of El Paso." *El Paso Times*.

[172] *Los Angeles Times*. 1 April 1973. "McKee Tells $100-Million 1972 Volume," p. M11.

[173] "Robert Eugene McKee." Accessed 16 October 2009. *Handbook of Texas Online*. Available at: http://www.tshaonline.org/handbook/online/articles/MM/fmcnv.html

[174] "Robert Eugene McKee." Accessed 16 October 2009. *Handbook of Texas Online*. Available at: http://www.tshaonline.org/handbook/online/articles/MM/fmcnv.html

[175] Mangan, Frank. 8 February 1998. "McKee Helped Mold Much of El Paso." *El Paso Times*.

5.3.2 Resource Characterization

5.3.2.1 Previously Surveyed Areas and Recorded Historical Resources

The historical resources investigations included archival records searches and literature reviews to determine: (i) if known historical resources sites have previously been recorded on, or within a 1-mile radius of, the project site; (ii) if the project site has been systematically surveyed by historians prior to the initiation of the study; and/or (iii) whether there is other information that would indicate whether or not the area of the project site is historically sensitive or may pose indirect impacts to adjacent historic resources. Sapphos Environmental, Inc. conducted a records search at SCCIC. The record search indicated that four of the cultural resources surveys described in Section 5.2.2.1, *Previous Research Conducted in the Area*, documented historic architectural surveys. As a result of the records search, it was determined that there is one property within a 1 mile radius of the proposed project site that has been formally determined to be a historical resource as defined by CEQA: Watts Towers (1761–1765 East 107th Street) is listed in the NRHP and the CRHR. It is has also been designated a National Historic Landmark, California Historical Landmark, and City of Los Angeles Historic-Cultural Monument (LAHCM No. 15). Located approximately 1 mile north of the Martin Luther King, Jr. Medical Center campus, Watts Towers are a California State Historic Park. Watts Towers are not visible from the proposed project site, nor can the proposed project site be seen from the area immediately surrounding Watts Towers. Two additional properties, the 109th Street Pool and Bathhouse (1464 East 109th Street) and Ritter Elementary School (11108 Watts Avenue) were recommended eligible for listing in the NRHP and CRHR.[177,178] Both properties are located approximately 1 mile from the project site, out of visible range. No other properties documented within the study area, either through performance of the cultural resources surveys itemized above or through listing in the California HRI, meet the definition of a historical resource pursuant to CEQA.

5.3.2.2 Existing Conditions

Summary of Historical Resources Evaluation

An intensive level historic resources survey of the Martin Luther King, Jr. Medical Center Campus was completed in support of the proposed project. A total of 21 buildings that occupy the proposed project site were evaluated as potential historical resources as defined by CEQA (Table 5.3.2.2-1, *Historic Resources Survey Results*; and Figure 5.3.2.2-1, *Martin Luther King, Jr. Medical Center Campus Historic District*). Four buildings, of the total of 21 buildings, appear to meet the criteria for listing in the NRHP and CRHR as contributors to a potential Martin Luther King, Jr. Medical Center Campus Historic District (California Historical Resources Code [CHR] 3D): (Building 5) Augustus F. Hawkins Comprehensive Medical Health Center; (Building 7) Multi-Service Ambulatory Care Center (MACC); (Building 14) Interns and Physicians Building; and (Building 18) Dr. H. Claude Hudson Auditorium. Contributing features to the potential historic district would also include seven appurtenant elements (discussed below in Section *5.3.2.2.2, Martin Luther King, Jr. Medical Center Campus Historic District*). The remaining 17 buildings and structures do not contribute to the historic district and are not considered to be historical resources.

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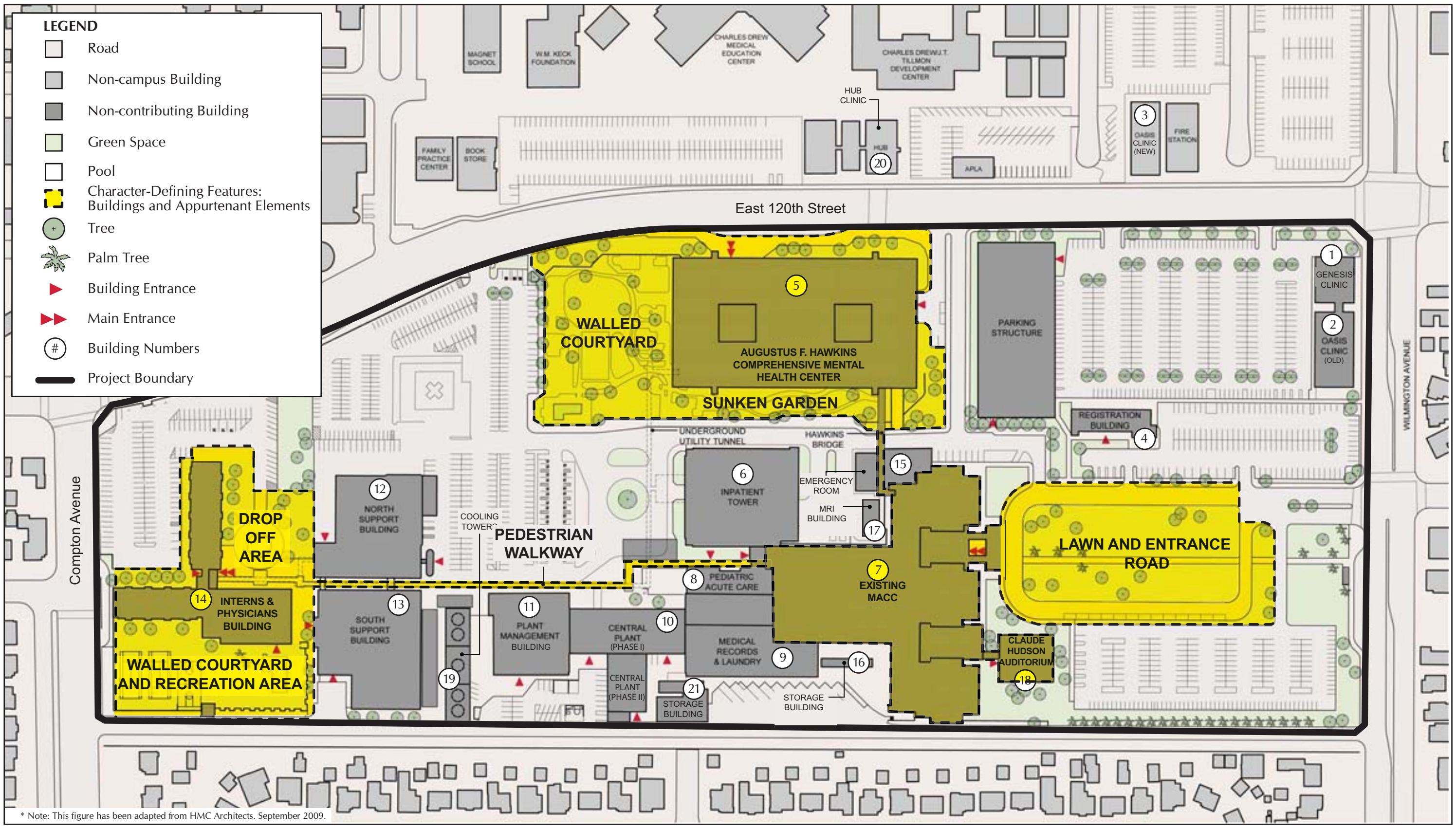
[176] *Los Angeles Times*. 1 April 1973. "McKee Tells $100-Million 1972 Volume," p. M11.

[177] Jones and Stokes. June 2007. Technical Report: 109th Street Pool and Bathhouse. Prepared for: the City of Los Angeles, Department of Recreation and Parks, 1200 West 7th Street, Los Angeles, CA 90017.

[178] Myra L. Frank & Associates. August 1994. Historic Property Survey Report for the Proposed Alameda Corridor from the Ports of Long Beach and Los Angeles to Downtown Los Angeles in Los Angeles County, California.



* Note: This figure has been adapted from HMC Architects. September 2009.

FIGURE 5.3.2.2-1
Martin Luther King, Jr. Medical Center Campus Historic District

TABLE 5.3.2.2-1
HISTORIC RESOURCES SURVEY RESULTS

	Name[a]	Date of Construction[b]	General Description	Treatment Under Project	Recommended CHR Status Code
1	Genesis Clinic	ca. 1979	One story	Tiers 1&2: To remain	6Z
2	Oasis Clinic (old)	ca. 1979	One story	Tiers 1&2: To remain	6Z
3	Oasis Clinic (new)	ca. 1995	One story	Tiers 1&2: To remain	6Z
4	Registration Building	ca. 1990	Two stories	Tiers 1&2: To remain	6Z (1)
5	Augustus F. Hawkins Comprehensive Mental Health Center	1979	Three stories plus a basement	Tiers 1&2: To remain	3D
6	Inpatient Tower	1993	Five stories plus basement	Tiers 1&2: To remain	6Z (1)
7	Multi-Service Ambulatory Care Center (MACC) (aka, King/Drew Hospital)	1968–1972	Five stories plus a basement and penthouse	Tier I: to remain; Tier II: Reuse, Replace, or Remove	3D
8	Pediatric Acute Care	1992	One story	Tiers 1&2: To remain	6Z (1)
9	Medical Records and Laundry	1972	One story plus basement	Tiers 1&2: To remain	6Z
10	Central Plant	Phase I: late1960s; Phase II: 1975	Phase I: one story with partial mezzanine floor Phase II: one story	Tiers 1&2: To remain	6Z
11	Plant Management Building	1979	One story	Tier I: to remain, with tenant improvements	6Z
12	North Support Building	1973	Two stories	Tier I: to remain, with tenant improvements	6Z
13	South Support Building	ca. 1973	One story	Tier I: to remain, with tenant improvements	6Z
14	Interns and Physicians Building	ca. 1974	Six stories	Tier I: to remain, with tenant improvements	3D
15	Emergency Room	ca. 1985	One story	Tier I: to remain; Tier II: Reuse, Replace, or Remove	6Z
16	Storage Building (1,060 sq. ft)	ca. 1980	One story	Tier I: to remain; Tier II: Reuse, Replace, or Remove	6Z (1)
17	MRI Building	ca. 1980	One story	Tier I: potentially moved	6Z (1)
18	Dr. H. Claude Hudson Auditorium	ca. 1973	One story	Tiers 1&2: To remain	3D
19	Cooling Towers	ca. 1979	One story	Tier I: to remain; Tier II: Reuse, Replace, or Remove	6Z (1)
20	Hub Clinic	ca. 1980	One story	Tiers 1&2: To remain	6Z
21	Storage Building (2,533 sq. ft.)	ca. 1980	One story	Tiers 1&2: To remain	6Z

NOTES:

a. Names used in this report to identify contributing resources are based on the results of the current survey and correlate with the buildings' historic use and name and may contradict previously used resource names.

b. Construction dates used in this report to calculate the age of contributing resources are based on the results of the current survey and were calculated using building materials and historical newspaper records. The date of construction may contradict previously estimated construction years.

KEY:

CHR Status Code:	California Historical Resources Status Code, adopted by the Office of Historic Preservation in August 2003
3D:	Appears eligible for NR as a contributor to a NR eligible district through survey evaluation.
6Z:	Found ineligible for NRHP, CRHR, or local designation through survey evaluation
6Z (1)	Less than 50 years old and not of exceptional significance
Ca.	Circa

5.3.2.2.2 Martin Luther King, Jr. Medical Center Campus Historic District

The intensive level survey of the Martin Luther King, Jr. Medical Center Campus indicated that there are a total of five historical resources present, the Martin Luther King, Jr. Medical Center Campus Historic District and four contributing buildings with seven appurtenant elements that comprise the historic district:

- MACC building
- Augustus F. Hawkins Comprehensive Mental Health Center
- Interns and Physicians Building
- Dr. H. Claude Hudson Auditorium

The five recommended-eligible historical resources were recorded on California Historic Resources Inventory forms (Appendix A).

Martin Luther King, Jr. Medical Center Campus Historic District. The historic district appears eligible under NRHP and CRHR Criteria A/1 for its exceptional importance in relation to the Civil Rights movement in Los Angeles, as epitomized by the 1965 civic unrest in the Watts area and resultant McCone Commission's recommendations. The McCone Commission identified the lack of access to health care in the historically underserved area of South Central Los Angeles as one of the primary contributing factors to the civil disturbances, along with high unemployment and limited educational opportunities. The historic district is also significant as a major milestone in the history and development of the Willowbrook area.

Originating during a turbulent era in the history of Los Angeles County and the nation, the Martin Luther King, Jr. Medical Center Campus represented the hopes and aspirations of South Central Los Angeles residents and Los Angeles County officials. The new campus was intended to serve multiple roles as a medical facility and economic engine, rectifying past inequalities regarding medical services, employment, and educational facilities in South Central Los Angeles. The Martin Luther King, Jr. Medical Center Campus Historic District demonstrates exceptional importance as a rare, surviving community development project that was built to respond to the 1965 civil unrest.

As part of the national civil rights movement that culminated in the 1960s, the civil disturbances in and around Watts in 1965 were a pivotal moment in the history of Los Angeles County. The McCone Commission and its recommendations represented a turning point in local governance, when the County made a concerted effort to redress the inequalities that the McCone Commission identified as some of the underlying causes of the upheaval. The Martin Luther King, Jr. Medical Center was a centerpiece of the County's response and as such has exceptional importance as a physical manifestation of significant historical events of the 1960s in Los Angeles. Furthermore, the name it bears represents one of the most visible local efforts to commemorate a prophet of the national civil rights movement, Dr. Martin Luther King, Jr.

In fulfilling the mandate of the McCone Commission, the Martin Luther King, Jr. Medical Center Campus project incorporated an active program of community involvement efforts. Hospital staff regularly attended various local community meetings and the community participated in the plans for the development and operation of the hospital. As a result of community outreach efforts, medical service needs that expanded beyond the facility's initial vision were identified and led to the acquisition by the County of Los Angeles of an additional 16 acres north of 120th Street to create a comprehensive "Area Health Education Center." Demonstrating the project's responsiveness to the provision of local community services, the MACC incorporated spaces for educational and assembly uses, including 50,000 square feet for classrooms and conference rooms. This space was intended for use in providing employment training for local residents and continuing education classes for health professionals at the facility.

The development of the Martin Luther King, Jr. Medical Center represented a major shift in the history and development of the Willowbrook area, which, prior to the project, was a relatively undistinguished community that still retained substantial vestiges of its original rural uses. The new hospital inspired high hopes as an economic generator and top-notch medical facility that would provide abundant opportunities in an area of considerable need, or, as stated by Martin Luther King, Jr. Medical Center Administrator Charles E. Windsor in 1972,

> This multimillion dollar project is being set in the middle of desert of deprivation offering hope and light where there has been none, offering opportunities in fields heretofore unknown to the residents in this area, and offering medical services of a quality which would be desirable even in the most prosperous of communities.[179]

In ensuing years, the presence of a Los Angeles County hospital employed approximately 3,000 workers, provided opportunities for medical professional training and development, and spurred numerous additional development projects in Willowbrook, which included a large scale redevelopment plan, dozens of new homes, the Kenneth Hahn Shopping Plaza and a new water system.

Related by function, period of significance (1968–1979), physical placement, and complementary architectural styles, the four buildings (Augustus F. Hawkins Comprehensive Mental Health Center, Multi-Service Ambulatory Care Center (MACC), Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium) that comprise the historic district convey intentionality as the key buildings of the Martin Luther King, Jr. Medical Center Campus. The campus function of the property is most evident in the design of its landscaped areas, which include the large lawn to the east of the MACC, gardens, courtyards, and circulation routes for pedestrians and vehicles. There are several pedestrian walkways that connect the four historic district contributors. The walkways enabled medical personnel and students to travel expeditiously around the campus. The MACC, for example, is connected to the Dr. H. Claude Hudson Auditorium via a low covered walkway that extends from the MACC's east façade, which provides a physical link between the medical (MACC) and assembly (Auditorium) uses. Existing gardens and courtyards, particularly those associated with the Augusts F. Hawkins Comprehensive Mental Health Center and the Interns and Physicians Building, provided recreational facilities for medical students and expressed the property's historic function as a medical center campus.

Character-defining features of the Martin Luther King, Jr. Medical Center Campus Historic District convey its historical function as a medical center campus. The character-defining features include four buildings and seven appurtenant elements:

Buildings

- MACC building
- Augustus F. Hawkins Comprehensive Mental Health Center
- Interns and Physicians Building
- Dr. H. Claude Hudson Auditorium

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[179] Windsor, Charles E. November 1972. "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." *Journal of the National Medical Association*, *64* (6): pp. 544–547.

Appurtenant Elements

- Elongated lawn located east of the MACC, which is bounded by a primary entrance road
- Sunken garden and walled courtyard located south and west of the Augustus F. Hawkins Comprehensive Mental Health Center
- Walled courtyard and recreation area located south of the Interns and Physicians Building
- Drop-off area located north of the Interns and Physicians Building and west of the North Support Building
- Pedestrian walkway extending from the MACC's east facade to the Dr. H. Claude Hudson Auditorium
- Pedestrian walkway extending from the north elevation of the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center
- Pedestrian walkway extending from the east facade of the Interns and Physicians Building to the MACC

Multi-Service Ambulatory Care Center (MACC). Planning for a new hospital in South Los Angeles began in 1966, after the Los Angeles County Board of Supervisors unanimously approved the project. Construction of the 5-story (plus basement and penthouse) MACC began in 1968. The facility accepted its first patient in 1972 (Figure 5.3.2.2.2-1, *Multi-Service Ambulatory Care Center, Facade, View West*). Character-defining features of the MACC are consistent with the Brutalism style:

- Ample use of concrete (e.g., vertically striated concrete supports and exterior framing) (Figure 5.3.2.2.2-2, *Multi-Service Ambulatory Care Center, Corner Detail, View Northwest*)
- Monolithic massing
- Geometric repetition (e.g., the plan configuration consisting of three identical towers, repetitive bands of windows, and a series of balconies located on the building's facade)
- Recessed primary entrance with deeply cantilevered canopy
- Minimal ornamentation
- Overall simplicity of form
- Original landscaping (elongated central lawn crossed by a single path)

The MACC is a significant contributing building of the Martin Luther King, Jr. Medical Campus Historic District. The MACC was constructed as the primary component of the Martin Luther King, Jr. Medical Center Campus, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of health care services between South Los Angeles and the rest of the City of Los Angeles (Figure 5.3.2.2.2-3, *Multi-Service Ambulatory Care Center, circa 1975*). Located at the far west end of a large grassy lawn, the MACC occupies a commanding location within the site, conveying the prominence of its hospital function to visitors entering the facility from the property's main entrance at Wilmington Avenue. The building is a highly characteristic example of the Brutalism style. The Brutalism style, considered easy to construct and maintain, was a popular choice for government, civic and institutional buildings during the 1960s and 1970s and thus use of Brutalist architecture reflects the building's public

FIGURE 5.3.2.2.2-1
Multi-service Ambulatory Care Center, Facade, View West

FIGURE 5.3.2.2.2-2
Multi-service Ambulatory Care Center, Corner Detail, View Northwest

SOURCE: Los Angeles Public Library

FIGURE 5.3.2.2.2-3
Multi-service Ambulatory Care Center, circa 1975

function and era of construction. Landscape elements—including the central lawn crossed by a single paved sidewalk, an allée of tall palms to the south of the property, and ornamental trees and shrubs located along the building's primary façade—serve to further emphasize the building's role as the primary care facility of the Martin Luther King, Jr. Medical Center Campus. The three pedestrian walkways associated with the MACC (consisting of a low covered walkway extending from the MACC's east facade to the Dr. H. Claude Hudson Auditorium, an elevated walkway constructed of reinforced concrete, providing pedestrian access from the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center, and a walkway extending from the west elevation of the MACC, constructed of reinforced concrete columns, and traversing past several medical campus buildings before terminating at the Dr. Julius W. Hill Interns and Physicians Building) (Figure 5.3.2.2.2-4, *Concrete Colonnade, View East*), contribute to the property's architectural and functional character. The MACC exhibits few exterior alterations since its construction; its character-defining features are intact; and it retains integrity in its location, design, setting, materials, workmanship, feeling and association. As a hospital, the MACC is a key property type associated with the property's overall function as a medical care facility and postgraduate medical teaching facility.

The MACC satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Historic District, the MACC meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional importance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest.

Augustus F. Hawkins Comprehensive Mental Health Center. The 3-story Augustus F. Hawkins Comprehensive Mental Health Center was built in 1979 (Figure 5.3.2.2.2-5, *Augustus F. Hawkins Comprehensive Mental Health Center, East Elevation, View Southwest*). Character-defining features of the Mental Health Center are consistent with the Brutalism style:

- Ample use of concrete with vertically striated, unfinished detailing
- Monumental horizontal massing with overhanging upper floor
- Small, recessed, fixed, tinted windows
- Recessed primary entrance
- Elevated pedestrian walkway extending from south elevation to the MACC
- Original landscaping (walled courtyard with pathways, sunken garden along south elevation, low planter wall along north facade)

The Mental Health Center is a significant contributing building of the Martin Luther King, Jr. Medical Campus Historic District. The Mental Health Center was constructed as a component of the Martin Luther King, Jr. Medical Center Campus, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of health care services between South Los Angeles and the rest of the City of Los Angeles. Located south of 120th Street, the Mental Health Center's monolithic north facade is a prominent feature of the medical center campus. The building is a highly characteristic example of the Brutalism style. Brutalism style buildings, considered easy to construct and maintain, were widely popular for government, civic and institutional buildings built during the 1960s and 1970s and thus use of Brutalist architecture reflects the building's public function. The building's unusual massing, weighted upwards,

FIGURE 5.3.2.2.2-4
Concrete Colonnade, View East

FIGURE 5.3.2.2.2-5
Augustus F. Hawkins Comprehensive Mental Health Center, East Elevation, View Southwest

incorporates elements of the Brutalism style in its ample use of reinforced concrete with striated unfinished detailing, small recessed fixed tinted windows, general appearance of solidity, and lack of ornamentation. Landscape elements include a low planter wall that extends along the building's north facade and continues beyond the building to the west, consisting of a thickly planted assortment of compact trees, ornamental shrubs, and landscape plantings, which contribute to the architectural and functional character of the property. An entrance located on the building's south elevation is accessed via a pedestrian bridge that passes over a sunken garden containing numerous examples of evergreens and ornamental vegetation (Figure 5.3.2.2.2-6, *Augustus F. Hawkins Comprehensive Mental Health Center, North Facade, View South*). To the west, the sunken garden transitions into a landscaped recreational area with a swimming pool, handball courts, and a small playground. The Mental Health Center exhibits few exterior and interior alterations since its construction and retains integrity in its location, design, setting, materials, workmanship, feeling and association. The Mental Health Center is associated with the function of the Martin Luther King, Jr. Medical Center Campus as a medical care and postgraduate medical teaching facility.

The Augustus F. Hawkins Comprehensive Mental Health Center satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Historic District, the Mental Health Center meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional significance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest. In addition, the Mental Health Center may become eligible for listing in the NHRP/CRHR under Criterion C/3 when it reaches 50 years of age as a good example of a Brutalism style building.

Interns and Physicians Building. The 6-story Interns and Physicians Building was constructed circa 1975 (Figure 5.3.2.2.2-7, *Interns and Physicians Building, Facade, View Southwest*; and Figure 5.3.2.2.2-8, *Interns and Physicians Building, North and West Elevations, View Southeast*). Character-defining features of the Interns and Physicians Building are consistent with the Brutalism style:

- Ample use of concrete with vertically striated, unfinished detailing
- Small, recessed, fixed, tinted windows
- Flat roof
- Geometric repetition in fenestration
- Monumental window above primary entrance
- Concrete colonnade extending from east facade
- Original landscaping (walled courtyard and drop-off area)

The Interns and Physicians Building is a significant contributing building of the Martin Luther King, Jr. Medical Campus Historic District. The Interns and Physicians Building was constructed as a component of the Martin Luther King, Jr. Medical Center Campus, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of health care services between South Los Angeles and the rest of the City of Los Angeles. Dedicated in 1974, the building was named for Dr. Julius Wanser Hill, the first African-American physician to

FIGURE 5.3.2.2.2-6
Augustus F. Hawkins Comprehensive Mental Health Center, North Façade, View South

FIGURE 5.3.2.2.2-7
Interns and Physicians Building, Façade, View Southwest

FIGURE 5.3.2.2.2-8
Interns and Physicians Building, North and West Elevations, View Southeast

complete his internship and residency at the Los Angeles County/University of Southern California Medical Center, Los Angeles. In 1961, Dr. Hill was appointed to the Los Angeles County Health Commission, where he served until his death in 1983.[180] Located at the southwest portion of the medical center campus near the intersection of 120th Street and Compton Avenue, the Physicians Building consists of two towers, perpendicular in plan, which point to the north and west. Constructed to house the interns and physicians involved with the Physician Assistant Program of the Charles R. Drew Postgraduate Medical School, the building incorporates elements of the Brutalism style in its ample use of reinforced concrete with striated unfinished detailing, small recessed fixed tinted windows, the geometric repetition in its fenestration, and square monumental window located above the building's primary entrance. Landscape elements include a concrete block retaining wall that bounds a courtyard, which contains a swimming pool, game courts for tennis and basketball, and a grass lawn. A long concrete colonnade extends from the building's east facade, traverses numerous buildings, and terminates at the MACC. The Interns and Physicians Building exhibits few exterior and interior alterations since its construction and retains integrity in its location, design, setting, materials, workmanship, feeling and association. The Interns and Physicians Building is a key property type associated with the function of the Martin Luther King, Jr. Medical Center Campus as a medical care and postgraduate medical teaching facility.

The Interns and Physicians Building satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Historic District, the Interns and Physicians Building meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional significance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest.

Dr. H. Claude Hudson Auditorium. The single-story, Dr. H. Claude Hudson Auditorium, circa 1973, is located directly along the east facade of the MACC building (Figure 5.3.2.2.2-9, *Dr. H. Claude Hudson Auditorium, North Elevation, View South*). It departed somewhat from the emphatically Brutalist architecture of the other three district contributors by merging the Brutalism inspired use of concrete and solid, enclosed volumes with elements associated with the "New Formalism" style of the 1960s and 1970s. Character-defining features of the Auditorium representative of New Formalism include:

- Single, freestanding block with square plan and low massing
- Heavy, flat overhanging roof, with cantilevered eaves, extended beams, and coffer-like treatment of soffits
- Raised piers suggestive of columns
- Symmetrical facade
- Smooth concrete walls and brick panel detailing

The Auditorium is a significant contributing building of the Martin Luther King, Jr. Medical Campus Historic District. The Auditorium was constructed as a component of the Martin Luther King, Jr. Medical Center Campus, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of health care services between South Los

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[180] Jack L. Moore, MD. 1984. "In Memoriam. Julius Wanser Hill." *Journal of the National Medical Association*, 76 (4).

FIGURE 5.3.2.2.2-9
Dr. H. Claude Hudson Auditorium, North Elevation, View South

Angeles and the rest of the City of Los Angeles. Located directly adjacent to a secondary entrance on the MACC's east facade, the Auditorium's west-facing entrance is oriented towards the MACC and connected to the MACC by a covered walkway, which reinforces the spatial relationship between the Auditorium and the MACC. The east end of the building is located on the edge of a small hill, where an angular concrete stairway with a metal railing descends into a parking lot located at the foot of the hill. The Auditorium's New Formalism style elements (square plan, low massing, brick panel detailing, flat roof with cantilevered eaves, oversized beams and soffit detailing) complement the Brutalism-inspired design of the MACC. Landscape elements associated with the Auditorium include the covered walkway, landscape plantings, original outdoor lighting, and concrete stairway at the east end of the building. The Auditorium exhibits few exterior and interior alterations since its construction and retains integrity in its location, design, setting, materials, workmanship, feeling and association. The Auditorium is a key property type associated with the postgraduate medical teaching function of the Martin Luther King, Jr. Medical Center Campus.

The Dr. H. Claude Hudson Auditorium satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Historic District, the Auditorium meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional significance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest.

Ineligible Martin Luther King, Jr. Medical Center Campus Buildings and Structures

The 17 remaining buildings and structures were determined ineligible as historical resources because they are less than 50 years old, do not exhibit exceptional importance related to the recommendation of the McCone Commission, reflect ancillary functions of the medical center campus, or lack aspects of integrity due to alterations.

Genesis Clinic. This one-story building, circa 1979, is located in the northeast corner of the Martin Luther King, Jr. Medical Center Campus. The west-facing building is rectangular in plan and is constructed of reinforced concrete. The building sits upon a concrete foundation. Concrete walls support the building's flat metal roof, which has a large, hipped parapet with overhanging eaves. The building is attached to the adjacent Oasis Clinic by a hyphen. A solid metal door on the hyphen functions as the primary entrance to the Genesis Clinic and Oasis Clinic. Regularly spaced, fixed metal windows, with protruding metal lintels, are located on the building's west-facing facade. A concrete walkway with a metal rail is located along the building's west facade. A parking lot at the corner of Washington Avenue and 120th Street provides the setting for the Genesis Clinic. Landscape plantings consisting of flowering shrubs are located along the building's west facade. No building permits were located. The building's condition is poor and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a medical support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Oasis Clinic (old). This one-story building, circa 1979, is located in the northeast corner of the Martin Luther King, Jr. Medical Center Campus. The west-facing building is rectangular in plan and is constructed of reinforced concrete. The building sits upon a concrete foundation. Concrete walls support the building's flat metal roof, which has a large, hipped parapet with overhanging eaves. The building is attached to the adjacent Genesis Clinic by a hyphen. A solid metal door on the hyphen functions as the primary entrance to the Genesis Clinic and Oasis Clinic. Regularly spaced, fixed metal windows, with protruding metal lintels, are located on the building's west facade. A parking lot at the corner of Washington Avenue and 120th Street provides the setting for the Pediatric Acute Care building. A children's playground enclosed by a tall metal fence is located to the north of the Oasis Clinic. Landscape plantings consisting of flowering shrubs are located along the building's west facade. No building permits were located. The building's condition is poor and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a medical support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Oasis Clinic (new). This one-story building, circa 1995, is located north of East 120th Street in an area that is primarily occupied by the Charles Drew University of Medicine and Science. The west-facing building is rectangular in plan and is constructed of reinforced concrete. The building sits upon a concrete foundation. Concrete walls support the building's flat roof. Minimally ornamented, the building's west facade has a concrete walkway, a metal door, and fixed metal windows. The (south) street-facing elevation has no windows and a single solid metal door. Landscape plantings, consisting of street trees and shrubs along 120th Street, provide the setting for the Oasis Clinic. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation; it is not exceptional and it was not constructed during the period of significance associated with the historic district. The building's construction is unrelated to the historic development of the Charles Drew University campus, which was not evaluated as part of the scope of this report. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a medical support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Registration Building. This two-story modern office building, circa 1990, is located in the eastern portion of the Martin Luther King, Jr. Medical Center Campus along the primary road leading to the MACC. The south-facing building is rectangular in plan and constructed of reinforced concrete, with concrete walls supporting a flat roof. Two large concrete pilasters with a vertically striated pattern project from the building's facade, one at the southwest corner and another directly west of the building's primary entrance. A continuous panel of fixed, mirrored windows is located on the second floor of the building's facade. Visitor parking, landscape plantings, and the grassy lawn located to the east of the MACC provide the setting for the Registration Building. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation; it is not exceptional and it was not constructed during the period of significance associated with the historic district. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a medical support office building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Inpatient Tower. This five-story building, circa 1993, is located to the northwest of the MACC in the central portion of the Martin Luther King, Jr. Medical Center Campus. The west-facing building has a square plan and is constructed with a superstructure of structural steel and reinforced concrete. The building's foundation is composed of cast-in-place concrete-drilled piles. Concrete walls support the building's flat roof, which supports a helipad. Bands of fixed, tinted windows with alternating bands of concrete are located on all elevations of the building. A vehicular drop-off structure extends from the building's west facade, which consists of a massive concrete colonnade with a flat roof that is supported by thick columns. Local access roads located along the building's north elevation and west facade provide the setting for the Inpatient Tower. Landscape plantings consisting of small ornamental shrubs and flowering plants are located at the building's west facade. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation; it is not exceptional and it was not constructed during the period of significance associated with the historic district. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a medical building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Pediatric Acute Care. This one-story building, circa 1992, is located in a small opening between the Central Plant and Laundry Building to the south and the Inpatient Tower to the north. The MACC is adjacent to the building's east elevation. The north-facing building is rectangular in plan and is constructed of structural steel and reinforced concrete. The building's foundation is composed of cast-in-place concrete-drilled piles. Concrete walls support the building's flat roof. Fixed metal windows are located on the building's north-facing facade. The building is sheltered by a large pavilion with a flat roof known as the Denzel Washington Pediatric Pavilion. The MACC and Inpatient Tower and Pediatric Pavilion provide the setting for the Pediatric Acute Care building. Landscape plantings consisting of flowering plants are located along the building's north-facing facade. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation; it is not exceptional and it was not constructed during the period of significance associated with the historic district. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a medical support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Medical Records and Laundry. The Medical Records and Laundry building, constructed in 1972, is one of a series of south-facing ancillary buildings oriented along the service road that defines the southern border of the Martin Luther King, Jr. Medical Center Campus where service uses are concentrated. Constructed of reinforced concrete, the one-story building has an L-shaped plan with a flat roof. The building's foundation system is composed of cast-in-place concrete drilled piles. An example of functional, utilitarian architecture, the building has few windows and minimal detailing, with the exception of concrete walls that are scored in a rectangular pattern. Paved areas for loading and the landscaped service road along the south border of the property provide the setting for the Medical Records and Laundry building. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a maintenance support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Central Plant. The Central Plant building is one of a series of south-facing ancillary buildings oriented along the service road that defines the southern border of the Martin Luther King, Jr. Medical Center Campus where service uses are concentrated. The one-story building has a T-shaped plan with a flat roof. The building's foundation system is composed of cast-in-place concrete drilled piles. Reinforced concrete walls support a reinforced concrete slab roof supported by a steel girder. Constructed in two phases, the Phase I portion has a partial mezzanine floor that was built in the late 1960s. Extending in a perpendicular direction to the south of the Phase I portion, the Phase II portion was built in 1975. An example of functional, utilitarian architecture, the building has few windows and minimal detailing, with the exception of concrete walls scored with a rectangular pattern. Paved areas for loading and the landscaped service road provide the setting for the Central Plant building. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a maintenance support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Plant Management Building. The Plant Management Building, circa 1979, is one of a series of south-facing ancillary buildings oriented along the service road that defines the southern border of the Martin Luther King, Jr. Medical Center Campus where service uses are concentrated. The one-story building has a square plan with a flat roof. The building's foundation system is composed of cast-in-place concrete drilled piles. Reinforced concrete walls support a reinforced concrete overhanging slab roof. An example of functional, utilitarian architecture, the building has few windows and minimal detailing, with the exception of concrete walls scored with a rectangular pattern. The building's south-facing facade has a series of double metal doors that provide access to various maintenance shop uses. A loading dock extends the length of the facade. Paved areas for loading and the landscaped service road provide the setting for the Central Plant building. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a maintenance support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

North Support Building. The North Support Building is located in the western portion of the Martin Luther King, Jr. Medical Center Campus. The building's east-facing facade is oriented toward large parking lots that are located to the north and east of the building. The two-story building is square in plan with a flat roof. The foundation system is composed of cast-in-place concrete drilled piles. Reinforced concrete walls support a reinforced concrete slab roof. Constructed in two phases, the original building (1975) consisted of a lower full level and a partial second floor. In the late 1980s, the second floor was expanded to cover the entire first floor. An example of functional, utilitarian architecture, the building has ribbon windows on the second floor, and a recessed entrance covered by concrete column. Detailing is otherwise minimal. Paved parking areas provide the setting for the Central Plant building. No building permits were located. The building's condition is good. The building's second floor addition in the 1980s compromised the original design and massing of the building and is a significant alteration. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a maintenance support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

South Support Building. The South Support Building, circa 1973, is one of a series of south-facing ancillary buildings oriented along the service road that defines the southern border of the Martin Luther King, Jr. Medical Center Campus where service uses are concentrated. The one-story building has an L-shaped plan with a flat roof. The building's foundation system is composed of cast-in-place concrete drilled piles. Reinforced concrete walls support a reinforced concrete slab roof. An example of functional, utilitarian architecture, the building has a band of ribbon windows on the second floor of the south facade overlooking a loading dock that is located in the southwest portion of the building. The building has minimal detailing, with the exception of concrete walls scored with a rectangular pattern. Paved areas for loading and the landscaped service road provide the setting for the South Support Building. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a maintenance support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Emergency Room. The one-story building, circa 1985, is connected to the north portion of the MACC building and extends to the north. The building is rectangular in plan and is constructed of concrete. The building sits upon a concrete foundation. The immediate setting of the building consists of the MACC and a one-way service road traveling from the facade (east) of the MACC building to the Emergency Room. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. It was not constructed during the period of significance associated with the historic district. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and its materials and construction are typical of its era. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Storage Building. The 1,060 square-foot one-story building, circa 1980, is located south of the MACC building along the service road that defines the property's southern border where service uses are concentrated. The building is rectangular in plan, with low massing, metal doors, and is constructed of concrete with a flat roof. The building sits upon a concrete foundation. The immediate setting of the building consists of the MACC and loading docks associated with the Medical Records and Laundry Building. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. It was not constructed during the period of significance associated with the historic district. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a maintenance support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

MRI Building. The one-story building, circa 1980, is located directly north of the MACC building. The west-facing building is rectangular in plan, with low massing, metal doors, and is constructed of concrete with a flat roof. The building sits upon a concrete foundation. The immediate setting of the building consists of the MACC. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. It was not constructed during the period of significance associated with the historic district. The building has a contemporary design and is a typical example of a medical support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Cooling Towers. The one-story Cooling Towers building houses the cooling towers that function to remove excess heat and provide heat, ventilation, and air conditioning to the MACC. Built circa 1979, the Cooling Towers are located in the south portion of the Martin Luther King, Jr. Medical Center Campus along the service road that defines the property's southern border. The windowless building is rectangular in plan constructed of concrete and sits upon a concrete foundation. The building's east and west concrete exterior walls are scored in a vertically striated pattern. No landscape elements are associated with the Cooling Towers. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a maintenance support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Hub Clinic. This one-story building, circa 1980, is located north of East 120th Street in an area that is primarily occupied by the Charles Drew University of Medicine and Science. The south-facing building is rectangular in plan and is constructed of wood. The building sits upon a concrete foundation. Wood walls support the building's flat roof. An elevated concrete pad enclosed by a metal rail, with a short stairway and a ramp, provides access to the building's primary entrance. Minimally ornamented, the building's facade has a solid metal door and metal sliding windows. A metal door is located on the north elevation. Landscape plantings consisting of street trees and shrubs along 120th Street provide the setting for the Hub Clinic. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. It was not constructed during the period of significance associated with the historic district. The building's construction is unrelated to the historic development of the Charles Drew University campus, which was not evaluated as part of the scope of this report. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a medical support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

Storage Building. This 2,533 square-foot one-story building, circa 1980, is located south of the Central Plant and Medical Records and Laundry Building, along the service road that defines the property's southern border where service uses are concentrated. The building is rectangular in plan and is constructed of concrete with a flat slab concrete roof with overhanging eaves. The building sits upon a concrete foundation. Minimally ornamented, a wide band of rusticated concrete detailing, intended to resemble stone, wraps the building. A rolling metal garage door and a metal sliding window are located on the building's east elevation. Surrounded by concrete paving and parking areas, landscape elements consist of shrubs that have been planted along the south and east elevations. No building permits were located. The building's condition is good and it does not appear to have been altered since its construction. The property does not meet the criteria for listing in the NRHP, CRHR, or for local designation. It was not constructed during the period of significance associated with the historic district. The building has a contemporary design that is not representative of the Brutalism or New Formalism style exhibited by the historic district contributors and is a typical example of a maintenance support building. Research failed to identify any evidence to suggest that the property has achieved exceptional importance since its construction. Therefore, the property does not qualify as a historical resource as defined by CEQA.

5.3.3 Impact Analysis

5.3.3.1 Significance Thresholds

Under CEQA, a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. Substantial adverse change in the significance of a historical resource is defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. The significance of an historical resource would be significantly impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR, a local register of historic resources pursuant to Section 5020.1(k) of the Public Resources Code, or historic resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code. In general, a project that follows the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and associated guidelines shall be considered as mitigated to below the level of significance.[181]

5.3.3.2 Impacts to Martin Luther King, Jr. Medical Center Campus Historic District Contributors

Summary of Impacts to Historical Resources

The proposed project entails two tiers: Tier I and Tier II. Both tiers involve modifications that will impact character-defining features of the Martin Luther King, Jr. Medical Center Campus Historic District and its four contributing buildings (Table 5.3.3.2-1, *Project Impacts to Historical*

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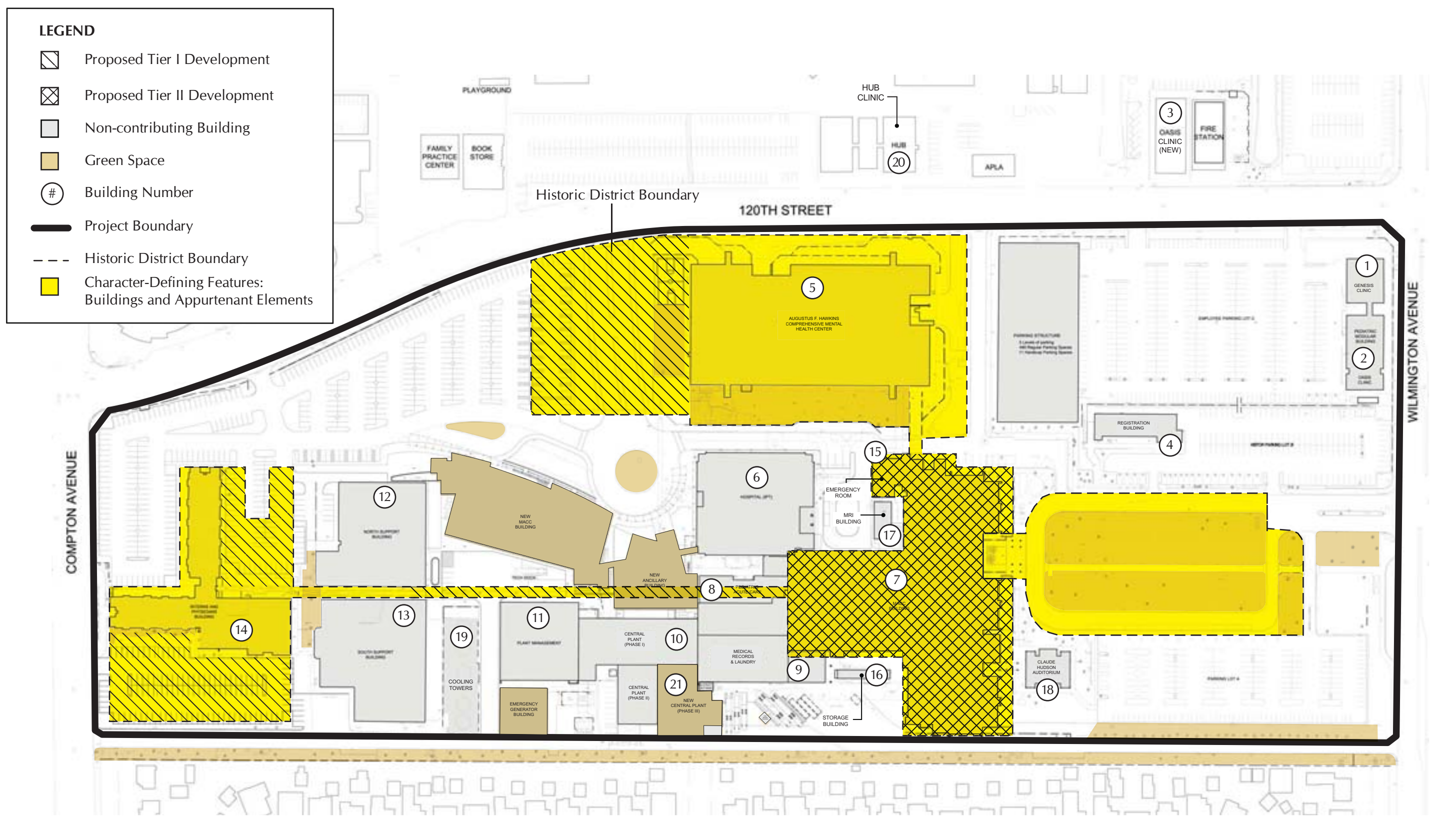
[181] Weeks, Kay D., and Anne E. Grimmer. 1995. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstruction Historic Buildings*. Washington, DC: U.S. Department of the Interior, National Park Service.

Resources; and Figure 5.3.3.2-1, *Project Impacts to the Martin Luther King, Jr. Medical Center Campus Historic District*). Construction of the Tier I improvements would affect character-defining features of three historical resources: appurtenant elements of the Martin Luther King, Jr. Medical Center Campus Historic District, specifically those associated with the Augustus F. Hawkins Comprehensive Mental Health Center and the Interns and Physicians Building. However, the Tier I project would not result in substantial adverse changes in the significance of the historical resources such that the historic district or its contributors would no longer be eligible for inclusion in the CRHR. Construction of the Tier II improvements would be expected to affect two historical resources, appurtenant elements of the Martin Luther King, Jr. Medical Center Campus Historic District and the MACC building. If Tier II improvements include the demolition and replacement of the MACC, a significant adverse change in the significance of the Martin Luther King, Jr. Medical Center Campus Historic District and the MACC would occur and neither resource would continue to be eligible for inclusion in the CRHR. If Tier II improvements include rehabilitation and reuse of the MACC, impacts to cultural resources would be reduced to below the level of significance with the implementation of mitigation measures.

TABLE 5.3.3.2-1
PROJECT IMPACTS TO HISTORICAL RESOURCES

Historical Resource	Impacted by Tier I	Impacted by Tier II
Martin Luther King, Jr. Medical Center Campus Historic District	• Removal of portion of covered corridor/colonnade extending from the east facade of the Interns and Physicians Building to the MACC • Removal of landscaped open spaces, pedestrian walkways, walled courtyards	• Reuse/redevelopment of MACC • Mixed use site development
MACC building	• N/A	• Reuse/redevelopment of MACC • Removal of pedestrian walkway extending from the north elevation of the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center • Removal of pedestrian walkway extending from the MACC's east facade to the Dr. H. Claude Hudson Auditorium
Augustus F. Hawkins Comprehensive Mental Health Center	• Reduction of courtyard size and partial replacement of walled courtyard, located south and west of the Augustus F. Hawkins Comprehensive Mental Health Center, with entry drive and parking	• Removal of pedestrian walkway extending from the north elevation of the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center • Master Plan may result in unknown modifications
Interns and Physicians Building	• Replacement of landscaped drop-off area, located north of the Interns and Physicians Building and west of the North Support Building, with parking • Replacement of walled courtyard, located south of the building, with parking	• Master Plan may result in unknown modifications
Dr. H. Claude Hudson Auditorium	• N/A	• Removal of pedestrian walkway extending from the MACC's east facade to the Dr. H. Claude Hudson Auditorium • Master Plan may result in unknown modifications



* Note: This figure has been adapted from HMC Architects. July 2010.

FIGURE 5.3.3.2-1
Project Impacts to Martin Luther King, Jr. Medical Center Campus Historic District

Tier I Impacts to Historical Resources

Tier I involves construction of two new buildings, the new MACC and the Ancillary Building, vacation of the existing MACC building, tenant improvements in existing buildings, and site improvements. These modifications will affect the historic district and its contributors but will leave the majority of the character-defining features intact:

- **Martin Luther King, Jr. Medical Center Campus Historic District**. The historic district will be affected by the demolition of a portion of the covered walkway that extends west from the MACC, replacement of walled courtyards and gardens at the Augustus F. Hawkins Comprehensive Mental Health Center and the Interns and Physicians Building, construction of two new buildings, and vacation of the MACC. However, the character-defining features of the four contributing buildings will be left intact, and the majority of the covered walkways would remain in situ. Original landscaping will be retained at the historic campus entrance east of the MACC along Willowbrook Avenue and south of the Augustus F. Hawkins Comprehensive Mental Health Center. The new construction will occur in the interior of the campus, which already hosts several non-contributing buildings and structures. Although these changes are not negligible, they do not compromise the physical features of the historic district to the extent that the district would lose its eligibility for inclusion in the CRHR.

- **Multi-Service Ambulatory Care Center (MACC).** The MACC will remain in situ but will be vacated. No changes to the exterior of this building are proposed; therefore, other than the colonnaded walkway extending west from the building, the character-defining features itemized in Section 5.3.2.2.2, *Martin Luther King, Jr. Medical Center Campus Historic District*, will remain intact. The building will retain sufficient integrity to convey its significance as a contributor the historic district.

- **Augustus F. Hawkins Comprehensive Mental Health Center.** No changes to the exterior of this building are proposed; therefore, the majority of the character-defining features itemized in Section 5.3.2.2.2, *Martin Luther King, Jr. Medical Center Campus Historic District*, will remain intact. Replacement of the adjacent walled courtyard will negatively affect the integrity of the setting of the building. However, the building will retain sufficient integrity to convey its significance as a contributor the historic district.

- **Interns and Physicians Building.** Tenant improvements would be performed in the Interns and Physicians Building. No changes to the exterior of this building are proposed; therefore, the majority of the character-defining features itemized in Section 5.3.2.2.2, *Martin Luther King, Jr. Medical Center Campus Historic District*, will remain intact. Replacement of the adjacent walled courtyard will negatively affect the integrity of the setting of the building. However, the building will retain sufficient integrity to convey its significance as a contributor the historic district.

- **Dr. H. Claude Hudson Auditorium**. No changes to the exterior of this building are proposed; therefore, the character-defining features itemized in Section 5.3.2.2.2, *Martin Luther King, Jr. Medical Center Campus Historic District*, will remain intact. The building will retain its integrity and will continue to convey its significance as a contributor the historic district.

Tier II Impacts to Historical Resources

Tier II entails the development of a campuswide master plan, the components of which are conceptual at this time. Tier II would have the potential to build out approximately 1,814,696 square feet of development on the proposed project site with mixed uses including medical office, commercial, retail, office space, recreation, and other development in support of the medical center. In addition, up to 100 residential units, to be developed at a multifamily density consistent with surrounding residential area multifamily development densities, are proposed in Tier II. Tier II components would also entail the reuse or replacement of the existing MACC building. Tier II may result in substantial adverse impacts to at least two historical resources, the Martin Luther King, Jr. Medical Center Campus Historic District and the Multi-Service Ambulatory Care Center (MACC):

- **Martin Luther King, Jr. Medical Center Campus Historic District**. Redevelopment of the Martin Luther King, Jr. Medical Center Campus has the potential to result in demolition or alteration of the four contributing buildings and the remaining appurtenant features that contribute to the historic district to the extent that the significance of the district would be materially impaired. No plans for the Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, or Dr. Claude H. Hudson Auditorium are known at this time. The MACC may be reused or demolished and replaced with other development. In association with the demolition of the MACC, the covered walkways connecting it to the Augustus F. Hawkins Comprehensive Mental Health Center and the Dr. H. Claude Hudson Auditorium would also be demolished. The MACC is the focal point of the historic district. It is the largest building on the campus and the one most closely associated with the historic function of the campus. Demolition of the MACC would result in a loss of integrity of the historic district and it would no longer be eligible for inclusion in the CRHR.

- **Multi-Service Ambulatory Care Center (MACC).** The MACC may be reused or replaced (demolished) as a result of Tier II. If the MACC is retained and reused, impacts to this historical resource would be less than significant if any modifications to character-defining features conformed to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and associated guidelines. Demolition or alterations not in conformance with the Standards would result in substantial adverse impacts to this historical resource. If the MACC building is not removed, this impact would be anticipated to be less than significant with respect to this building.

- **Augustus F. Hawkins Comprehensive Mental Health Center.** No plans for this historical resource have been formulated under Tier II; however, the master plan and comprehensive redevelopment of the campus have the potential to result in alterations to the existing building. In addition, if the MACC is demolished, the covered walkway that links it to this building would also be demolished. Impacts to this historical resource would be less than significant if any modifications to character-defining features conformed to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and associated guidelines. Alterations not in conformance with the Standards would result in substantial adverse impacts to this historical resource.

- **Interns and Physicians Building.** No plans for this historical resource have been formulated under Tier II; however, the master plan and comprehensive redevelopment of the campus have the potential to result in alterations to the existing building. Impacts to this historical resource would be less than significant if any modifications to character-defining features conformed to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and associated guidelines. Alterations not in conformance with the Standards would result in substantial adverse impacts to this historical resource.

- **Dr. H. Claude Hudson Auditorium**. No plans for this historical resource have been formulated under Tier II; however, the master plan and comprehensive redevelopment of the campus have the potential to result in alterations to the existing building. In addition, if the MACC is demolished, the covered walkway that links it to this building would also be demolished. Impacts to this historical resource would be less than significant if any modifications to character-defining features conformed to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and associated guidelines. Alterations not in conformance with the Standards would result in substantial adverse impacts to this historical resource.

Cumulative Impacts to Historical Resources

The incremental impact of the proposed project when evaluated in relation to the closely related past, present, or reasonably foreseeable probable future projects would be expected to contribute to cumulative impacts to cultural resources related to the loss of historic resources. The proposed project would result in the loss of limited resources with similar historic contexts regarding the history of Willowbrook and the direct linkage with the McCone Commission's recommendation for a new hospital in south Los Angeles in the wake of the 1965 civil unrest.

5.3.4 Mitigation Measures

No significant adverse impacts to historical resources have been identified as a result implementation of the Tier I project. Potentially significant adverse impacts to historical resources have been identified in relation to five historical resources as a result of implementation of the Tier II project:, the Martin Luther King, Jr. Medical Center Campus Historic District, MACC building, Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium. Three mitigation measures have been identified in association with Tier II to reduce impacts to the maximum extent practicable.

5.3.4.1 Mitigation Measure Cultural-2

Tier II impacts to four significant historical resources (MACC building, Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium) and the integrity of the Martin Luther King, Jr. Medical Center Campus Historic District shall be reduced to below the level of significance through utilization of the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines of Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* for any proposed alterations, including all site work, structural upgrades, architectural, and mechanical systems improvements and repairs. The work shall conform to the standards and guidelines for "rehabilitation." Conformance with the Secretary of the Interior's Standards shall be monitored by an architectural historian or historic architect who meets the Secretary of the Interior's Professional

Qualification Standards. Completion of this mitigation measure shall be monitored and enforced by the County of Los Angeles.

5.3.4.2 Mitigation Measure Cultural-3

Tier II impacts resulting from demolition or substantial alteration of significant historical resources not in conformance with the Secretary of the Interior's Standards shall be reduced to the maximum extent feasible through archival documentation of as-found condition. Prior to the initiation of construction activities, the County of Los Angeles shall ensure that documentation of the Martin Luther King, Jr. Medical Center Campus Historic District, MACC building, Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and/or Dr. H. Claude Hudson Auditorium is completed in accordance with Historic American Buildings Survey (HABS) requirements for donated material. The documentation shall be in the form of a Historic American Building Survey and shall comply with the *Secretary of the Interior's Standards for Architectural and Engineering Documentation*. The documentation shall include large-format photographic recordation, detailed historic narrative report, measured architectural drawings, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be offered as donated material to Historic American Building Survey for inclusion in the Library of Congress. Archival copies of the documentation also would be available at the Martin Luther King, Jr. Medical Center campus and maintained by the County of Los Angeles.

5.3.4.3 Mitigation Measure Cultural-4

Impacts resulting from the loss of integrity of the Martin Luther King, Jr. Medical Center Campus Historic District such that its significance is materially impaired will be reduced to the maximum extent feasible through the development of a retrospective exhibit detailing the history of the Martin Luther King, Jr. Medical Center Campus Historic District, its significance, and its important details and features. The retrospective exhibit shall be in the form of a physical exhibit installed on the Martin Luther King, Jr. Medical Center Campus, which is located either within a building or on a freestanding kiosk or comparable structure or installation on the property. The exhibit should commemorate the historic appearance of the district and provide the public with sufficient information to understand its historic significance.

The exhibit shall be prepared by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The exhibit should be completed within a period of no more than two years from the date of completion of Tier II of the proposed project.

5.4 HUMAN REMAINS

5.4.1 Human Remains Context

The interment of human remains among California Native Americans can be classified into three methods: inhumation (burial), cremation, and a combination of both inhumation and cremation. The preferred method varied depending on the region and cultural group, and some groups practiced both methods simultaneously depending of the situation in which the individual died. With interment came the practice of grave goods, a practice favored by most of the tribes in

California. Grave goods usually consisted of beads of various materials, knifes, projectile points, and exotic trade items among other objects.

Interment of human remains among pioneers and homesteaders also varied between inhumation and cremation. The internment method chosen was a result of the circumstances and location at the time of death, as well as the religion or cultural beliefs. In the late-nineteenth and early twentieth centuries, cemeteries were few and often located at some distance. Burial on the homestead grounds was often a preferred alternative.

5.4.2 Human Remains Resource Characterization

Reviews of historic maps,[182,183] along with the results of the records search with the NAHC,[184] indicate that there are no known Native American or historic period cemeteries, nor known informal Native American burials, within the proposed project site. Monitoring for the construction of the Alameda Corridor Project within the cultural resources study area did result in the discovery of two human burial sites located approximately 0.85 miles east of the proposed project site.

5.4.3 Human Remains Impacts Analysis

5.4.3.1 Significance Thresholds

While a significance threshold for impacts to human remains is not explicitly stated in CEQA, Appendix G of the CEQA Guidelines indicates that any disturbance of human remains could potentially be considered an impact to cultural resources, particularly with respect to Native American graves and burials.

5.4.3.2 Impacts

The proposed project would not be expected to directly or indirectly disturb human remains, including those interred outside of formal cemeteries. The results of the archaeological record search, review of historic maps,[185,186] and the NAHC Sacred Lands File search,[187] indicate that no historic period or Native American burial grounds are located within the proposed project site. However, two sites of human burials were discovered in the vicinity. It is anticipated that ground-disturbing activities, which would include, but are not limited to, drilling, excavation, trenching, and grading, for the proposed project may exceed 20 feet. Although there are no known burial sites within the proposed project site, the potential disruption of human remains from of an unanticipated discovery during ground-disturbing activities constitutes a significant impact requiring the consideration of mitigation measures.

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[182] U.S. Geological Survey. 1964. 7.5-*Minute Series South Gate, California, Topographic Quadrangle*. Reston, VA.

[183] U.S. Geological Survey. 1964. 7.5-*Minute Series Inglewood, California, Topographic Quadrangle*. Reston, VA.

[184] Singleton, Dave, Native American Heritage Commission, Sacramento, California. 02 November 2009. Letter to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

[185] U.S. Geological Survey. 1964. 7.5-*Minute Series South Gate, California, Topographic Quadrangle*. Reston, VA.

[186] U.S. Geological Survey. 1964. 7.5-*Minute Series Inglewood, California, Topographic Quadrangle*. Reston, VA.

[187] Singleton, Dave, Native American Heritage Commission, Sacramento, California. 02 November 2009. Letter to Chris Purtell, Sapphos Environmental, Inc., Pasadena, CA.

5.4.4 Human Remains Mitigation Measure

5.4.4.1 Mitigation Measure Cultural-5

Although the discovery of human remains is not anticipated during ground-disturbing activities for the proposed project, a process has been delineated for addressing the unanticipated discovery of human remains:

- Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met:
    - The Los Angeles County Coroner has determined that no investigation of the cause of death is required, and
- Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

5.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of mitigation measure Cultural-1 would reduce any potential significant impacts to cultural resources related to an adverse change in the significance of a unique paleontological resource discovered under Tier I or Tier II to below the level of significance.

Implementation of mitigation measure Cultural-2 would reduce Tier II impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, MACC building, Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium as a result of Tier II of the proposed project to below the level of significance.

Implementation of mitigation measures Cultural-3 and Cultural-4 would reduce Tier II impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, MACC building, Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium as a result of Tier II of the proposed project to the maximum extent feasible. However, the demolition of a historical resource still would remain a significant adverse impact.

Implementation of mitigation measure Cultural-5 would reduce any potential significant impacts to human remains discovered under Tier I or Tier II to below the level of significance.

APPENDIX A
GLOSSARY OF TERMS

APPENDIX A
GLOSSARY OF TERMS

This glossary provides definitions of architectural terms used in various environmental documentation produced in support of the Martin Luther King, Jr. Medical Center Campus. These definitions were obtained from recognized literature in the field of historic resources. A list of reviewed literature is provided in the References section below.

Bay: Within a structure, a regularly repeated spatial element defined by beams or ribs and their supports.

Béton brut: Refers to concrete left in its natural state after its formwork has been removed. Literally translated from the French as "raw concrete."

Bracket: Any overhanging member projecting from a wall or other body to support a weight, such as a cornice, acting outside the wall.

Brutalist: A style of architecture that prioritized simplicity and function in form and materials. Often constructed of rough unfinished concrete, Brutalist buildings typically utilized prefabricated construction techniques and exposed structural elements, such as steel beams. Forms are monolithic and monumental. Windows may be small and/or nonfunctional. Many Brutalist buildings convey a sense of stark austerity and appear solid, raw, and unfinished. Considered easy to construct and maintain, the Brutalist style was widely popular for government, civic, and institutional buildings during the 1960s and 1970s.

Brick Vernacular: A vernacular building using brick as its structural system.

Building code: Law setting forth minimum standards for the construction and use of buildings to protect the public health and safety.

California Register of Historical Resources: The California Register of Historical Resources is the State of California's official list of cultural resources worthy of preservation. The California Register program encourages public recognition and protection of resources of architectural, historical, archeological, and cultural significance; identifies historical resources for state and local planning purposes; determines eligibility for state historic preservation grant funding; and affords certain protections under the California Environmental Quality Act. Properties listed in the California Register include districts, sites, buildings, structures, and objects that are significant in California history, architecture, archaeology, engineering, and culture. The California Register is administered by the California Department of Parks and Recreation.

Casement window: A window sash that swings open along its entire length, usually on hinges fixed to the sides of the opening into which it is fitted.

Character-defining feature: *Character* refers to all those visual aspects and physical features that make up the appearance of every historic building. Character-defining elements include the overall shape of the building, its materials, craftsmanship, decorative details, interior spaces, and features, and the various aspects of its site and environment.

Colonnade: A row of columns, typically carrying an entablature.

Contributor: A site, building, or structure in a historic district that generally has historic, architectural, cultural, or archaeological significance.

Coping: A protective cap, top, or cover of wall, parapet, pilaster, or chimney; often of stone, terracotta, concrete, metal, or wood. May be flat but commonly sloping, double-beveled, or curved to shed water so as to protect masonry below from penetration of water from above. Most effective if extended beyond wall face and cut with a drip.

Corbel: In masonry, a projection or one of a series of projections, each stepped progressively farther forward with height; anchored in a wall, story, column, or chimney; used to support an overhanging member above or, if continuous, to support overhanging courses; may support an ornament of similar appearance.

Corbel brick course: A masonry course acting as a corbel, or an ornament of similar appearance.

Cornice: Any molded horizontal projection that crowns or finishes the top of a wall where it meets the edge of the roof; sometimes ornamented. The exterior trim of a structure where the wall and roof meet. The third or uppermost division of an entablature, resting on the frieze. An ornamental molding that forms the top member of a door or window frame, usually of wood or plaster. An ornamental molding that usually extends around the walls of a room just below the ceiling.

Elevation: A drawing showing the vertical elements of a building, either exterior or interior, as a direct projection onto a vertical plane. The vertical distance above or below some established reference level.

Eligible property: Property that meets the criteria for inclusion in the National Register of Historic Places but is not formally listed.

Facade: The exterior face of a building that is considered to be the architectural front, sometimes distinguished from the other faces by more elaborate architectural and/or ornamental details.

Fenestration: The design and arrangement of windows in a building.

Freestanding: A term descriptive of a structural element that is fixed at its lower end but not constrained throughout its vertical height.

Guidelines: A reference to *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (Guidelines). The Guidelines have been prepared to assist in applying the Secretary of the Interior's Standards to all project work; consequently, they are not meant to give case-specific advice or address exceptions or rare instances. Therefore, it is recommended that the advice of qualified historic preservation professionals be obtained early in the planning stage of the project. Such professionals may include architects, architectural historians, historians, historical engineers, archaeologists, and others who have experience in working with historic buildings. The Guidelines pertain to both exterior and interior work on historic buildings of all sizes, materials, and types.

Historic district: An area that generally includes within its boundaries a significant concentration of properties linked by architectural style, historical development, or a past event.

Hyphen: A connection between two buildings.

Integrity: The authenticity of physical characteristics from which properties obtain their significance.

Le Corbusier: Pseudonym of the profoundly influential Swiss architect, urban theorist, and painter (1887–1966), born Charles-Édouard Jeanneret at La-Chaux-de-Fonds in French Switzerland. One of the most recognized architects of the 20th century, Le Corbusier is renowned for his architectural projects and theoretical works. He is closely associated with the pioneering forms of his iconic residences, notably Villa Savoye (1931), which were typically cubist in proportion, white, and supported wholly or partially on cylindrical concrete stilts or pillars, known as pilotis. As a theorist, Le Corbusier published and promoted numerous urban plans, notably Ville Contemporaine (1922), Plan Voisin (1925), and Ville Radieuse (1935). He was a charter member of CIAM (Congres Intemationaux d'Architecture Modeme), whose principal area of concern was architecture's relation to economic and political spheres. Le Corbusier developed his own system of architectural proportion, which became an integral part of his practice after World War II. A prolific author, Le Corbusier's books include *Towards a New Architecture* (1923), *The City of Tomorrow* (1925), and *When the Cathedrals Were White* (1937).

Lintel: A horizontal structural member that spans the top of an opening such as a window; supports the weight of the wall directly above it.

Massing: The overall bulk, size, physical volume, or magnitude of a structure.

Monitor: A superstructure that straddles the ridge of a roof or that crowns a roof or dome; may be glazed to provide light below or may be louvered to provide ventilation below.

National Register of Historic Places: The National Register of Historic Places is the nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect the nation's historic and archaeological resources. Properties listed in the National Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. The National Register is administered by the National Park Service, which is part of the U.S. Department of the Interior.

Noncontributor: A feature consisting of a site, building, or structure located within a historic district that is not recognized as contributing to the historic, architectural, cultural, or archaeological significance of the district.

Ornament: In architecture, a detail of shape, texture, and/or color—such as an embellishment or decoration—that is deliberately exploited to attract the attention of an observer.

Panel: A flat, usually rectangular, section of a surface that is either sunk or raised within a margin or framework.

Parapet: A low-guarding wall at any point of sudden drip, as at the edge of a terrance, roof, battlement, balcony, and so on. In an exterior wall, fire wall, or party wall, the part entirely above the roof.

Pent roof: A roof formed like an inclined plane, the slope being all on one side.

Period of significance: The span of time during which significant events and activities occurred. Events and associations with historic properties are finite; most properties have a clearly definable period of significance.

Pier: A column designed to support concentrated load. Also known as a member, usually in the form of a thickened section, which forms an integral part of a wall; usually placed at intervals along the wall to provide lateral support or to take concentrated vertical loads.

Pile: A shaft driven into the ground, typically a heavy timber, metal, or concrete that functions to transfer building loads and provide support structural support for foundations.

Preservation: The act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses on the ongoing maintenance and repair of historic materials and features rather than on extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Reconstruction: The act or process of depicting, by means of new construction, the form, features, and detailing of a nonsurviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

Rehabilitation: The act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

Restoration: The act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Ribbon Window: A horizontal band of windows separated only by mullions.

Standards: Refers to *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, & Reconstructing Historic Buildings* (Standards). The Standards makes recommendations for maintaining, repairing, and replacing historic materials, as well as designing new additions or making alterations; as such, the Standards cannot, in and of itself, be used to make essential decisions about which features of a historic property should be saved and which might be changed. But once an appropriate treatment is selected, the Standards provides philosophical consistency to the work. There are Standards for four distinct, but interrelated, approaches to the treatment of historic properties: preservation, rehabilitation, restoration, and reconstruction.

Steel-frame construction: Construction in which the structural supporting elements consist of some combination of steel beams, steel girders, and/or steel columns that are rigidly joined at their intersections.

Striated: Marked with stripes, grooves, or ridges. From the Latin, *striatus*, meaning furrowed.

Truss: A combination of structural members, usually in some form of triangular arrangement that provides a rigid framework for supporting roofs, floors, and the like.

Utilitarian: An approach to construction predicated on function rather than appearance and, as such, cannot not be described in terms of a standard set of character-defining features. Utilitarian buildings and structures utilize materials and structure appropriate to the intended use. Although often undistinguished and unremarkable, at its best, the utilitarian building or structure may be an honest and even an elegant expression of function and engineering.

Vernacular architecture: Architecture that makes use of common regional forms and materials at a particular place and time; sometimes includes strong ethnic influences of an immigrant population. Usually modest, unassuming, and unpretentious, and often a mixture of traditional and more modern styles or a hybrid of several styles. Houses were often owner-built by people familiar with local materials, regional climatic conditions, and local building customs and techniques, as described under folk literature. In contrast, industrial vernacular architecture has been the work of architects as well as by owner-builders; their designs often have been based on examples from pattern books, using readily available manufactured components described in catalogs.

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APPEDNDIX B
CALIFORNIA HISTORIC RESOURCES INVENTORY
DPR 523 FORMS

STRUCTURES CONTRIBUTING TO HISTORIC DISTRICT

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI#**

BUILDING, STRUCTURE, AND OBJECT RECORD

Page 1 **of** 2 ***NRHP Status Code:** 3D

***Resource Name or #** (Assigned by recorder) *Augustus F. Hawkins Comprehensive Mental Health Center*

B1. Historic Name: *Augustus F. Hawkins Comprehensive Mental Health Center*
B2. Common Name: *Augustus F. Hawkins Comprehensive Mental Health Center*
B3. Original Use: *Medical Building* **B4. Present Use:** *Medical Building*
***B5. Architectural Style:** *Brutalism*
***B6. Construction History**: (Construction date, alterations, and date of alterations) *Constructed in 1979*

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date: Original Location:** *N/A*
***B8. Related Features:**

Character-defining features of the Augustus F. Hawkins Comprehensive Mental Health Center are consistent with the Brutalism style: Ample use of concrete with vertically striated, unfinished detailing; Monumental horizontal massing with overhanging upper floor; small, recessed, fixed, tinted windows; recessed primary entrance; elevated pedestrian walkway extending from south elevation to the MACC; original landscaping (walled courtyard with pathways, sunken garden along south elevation, low planter wall along north façade.

B9a. Architect: *Adrian Wilson and Associates; Carey K. Jenkins; Nielsen, Moffatt, and Wolverton* **b. Builder:** *Robert McKee, Inc.*
***B10. Significance: Theme:** *Development of the Willowbrook Area (1893-1980); Development of the Martin Luther King, Jr. Medical Center Campus (1965–1971); Operation of the Martin Luther King, Jr. Medical Campus (1972–2010)*
Area: *Willowbrook, County of Los Angeles* **Period of Significance:** *1968-1979* **Property Type:** *Building*

Applicable Criteria: *A/1* (Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

(See Continuation Sheet 2 of 2)

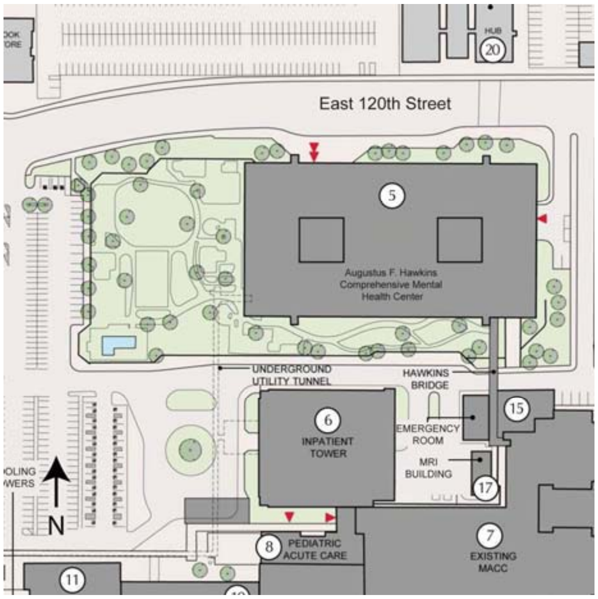
B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:** *County of Los Angeles. Accessed 9 October 2009. Los Angeles County Health Services, MLK-MACC. Available at: http://www.ladhs.org/wps/portal/KingHomepage; Dr. Martin Luther King, Jr. General Hospital. 4 May 1968. Groundbreaking Ceremonies. County of Los Angeles; Ebony Magazine. December 1974. "Watts Finally Gets a Hospital," pp. 124–134; Goff, Tom. 16 February 1966. "Supervisors Vote to Build Hospital in L.A. Riot Area." Los Angeles Times, p. 3; Los Angeles Times. Spiegel, Claire. 22 October 1979. "Willowbrook: A Life Style About to Be Displaced by Progress," p. C1; Governor's Commission on the Los Angeles Riots. Accessed 20 October 2009. "Violence in the City: an End or a Beginning?" Available at: http://www.usc.edu/libraries/archives/cityinstress/mccone/contents.html; Los Angeles Times. 27 March 1972. "Dream Fulfilled: Martin Luther King Hospital Registers Its First Patients," p. 3; Los Angeles Sentinel. 16–22 December 2004. "History of King/Drew Medical Center," p. A1; Windsor, Charles E. November 1972, "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." Journal of the National Medical Association, 64 (6): 544–547.*

B13. Remarks:

***B14. Evaluator:** *Marlise Fratinardo*
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***Date of Evaluation:** *November 25, 2009*



(This space reserved for official comments.)

State of California — The Resources Agency
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Primary #
HRI#
Trinomial

Page 2 **of** 2 ***Resource Name or #** (Assigned by recorder) *Martin Luther King, Jr. Medical Center Campus Historic District*
***Recorded by:** *Leslie J. Heumann and Marlise Fratinardo* ***Date:** *July 14, 2010* ☒ **Continuation** ☐ **Update**

***D6. Significance (continued from page 1):**
The Augustus F. Hawkins Comprehensive Mental Health Center is a significant contributing building of the Martin Luther King, Jr. Medical Campus Historic District. The building was constructed as a component of the Martin Luther King, Jr. Medical Center Campus, a medical care and postgraduate medical teaching facility, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of health care services between South Los Angeles and the rest of the City of Los Angeles. As an inpatient and outpatient mental healthcare facility, the building provides medical services.

Historical research indicates the Martin Luther King Jr. Medical Center Campus was planned and constructed between 1968 and 1972. The main buildings of the Martin Luther King, Jr. Medical Center Campus were constructed in phases during the late 1960s and 1970s. The earliest improvements included the three wings of the MACC, the Central Plant, and the Medical Records and Laundry Building, which were all operational by 1972. In 1973, the North and South Support buildings and the Dr. H. Claude Hudson Auditorium were built. The Interns and Physicians Building was constructed circa 1974. A second phase of the Central Plant building was completed in 1975, followed by the Augustus F. Hawkins Comprehensive Mental Health Center in 1979.

The building is a highly characteristic example of the Brutalism style. Brutalism style buildings, considered easy to construct and maintain, were widely popular for government, civic and institutional buildings built during the 1960s and 1970s and thus use of Brutalist architecture reflects the building's public function. The main buildings of the medical center campus, including the Augustus F. Hawkins Comprehensive Mental Health Center, exhibit Brutalist elements. In the ensuing years, subsequently constructed buildings and structures located on the project site refer broadly to the Brutalism design precedent. The building exhibits few exterior and interior alterations since its construction and retains integrity in its location, design, setting, materials, workmanship, feeling and association.

The Augustus F. Hawkins Comprehensive Mental Health Center satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Historic District, the building meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional significance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest. In addition, the Augustus F. Hawkins Comprehensive Mental Health Center may become eligible for listing in the NHRP/CRHR under Criterion C/3 when it reaches 50 years of age as a good example of a Brutalism style building.

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PRIMARY RECORD

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Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 2 ***Resource Name or #:** *Augustus F. Hawkins Comprehensive Mental Health Center*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Augustus F. Hawkins Comprehensive Mental Health Center is located along the north streetscape at the center of the block bounded by 120th Street to the north, Wilmington Avenue to the east, Compton Avenue to the west, and the southern boundary of the Martin Luther King, Jr. Medical Center Campus to the south. The three-story building has a partial basement level and a rectangular plan. The building sits on a foundation of reinforced concrete piles that support reinforced-concrete shear walls. The building is distinguished by its large size and monolithic north façade along 120th Street. A highly characteristic example of the Brutalism style, the building's unusual massing, weighted upwards, incorporates Brutalist elements in its ample use of reinforced concrete with striated unfinished detailing, small deeply recessed recessed fixed tinted windows, general appearance of solidity, and lack of ornamentation. (See Continuation Sheet 2 of 2)

***P3b. Resource Attributes:** *HP41: Hospital*
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View Southwest, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *1979 according to Los Angeles Sentinel. 16–22 December 2004. "History of King/Drew Medical Center," p. A1.*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

***P10. Survey Type:** *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

CONTINUATION SHEET

Primary #
HRI#
Trinomial

Page 2 **of** 2 ***Resource Name or # (Assigned by recorder)** *Augustus F. Hawkins Comprehensive Mental Health Center*

***Recorded by:** *Marlise Fratinardo* ***Date:** *November 25, 2009* ☒ **Continuation** ☐ **Update**

***P3a. Description: (continued from page 1):**

Landscape elements include a low planter wall that extends along the building's north facade and continues beyond the building to the west, which consists of a thickly planted assortment of compact trees, ornamental shrubs, and landscape plantings that contribute to the building's architectural and functional character. A secondary entrance located on the building's south elevation is accessed via a pedestrian bridge that passes over a sunken garden containing numerous examples of evergreens and ornamental vegetation. To the west, the sunken garden transitions into a landscaped recreational area with a swimming pool, handball courts, and a small playground. The surrounding setting of the Martin Luther King, Jr. Medical Center Campus is extant.

No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction and its character-defining features are intact. The building's exterior appearance continues to convey its original design and reflects its period of construction. The property is in good condition.

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DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 2 ***Resource Name or #:** *Dr. H. Claude Hudson Auditorium*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **;M.D.** **B.M.**

c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*

d. UTM: Zone: *10;* mE/ mN (G.P.S.)

e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Dr. H. Claude Hudson Auditorium is located near the southern boundary of the Martin Luther King, Jr. Medical Center Campus, bounded by 120th Street to the north, Wilmington Avenue to the east, Compton Avenue to the west, and the southern boundary of the Martin Luther King, Jr. Medical Center Campus to the south. Sited directly adjacent to a secondary entrance on the east façade of the Multi-service Ambulatory Care Center building (MACC), the Auditorium's west-facing façade is oriented towards the MACC and is connected to the MACC by a covered walkway, which establishes the spatial relationship between the Auditorium and the MACC. The one-story building has a square plan. The building sits on a concrete foundation that supports concrete walls. As an example of a New Formatlism style building, the Auditorium's square plan, low massing, brick panel detailing, flat roof with cantilevered eaves, oversized beams and soffit detailing complement the Brutalism-inspired design of the MACC. The east elevation of the Auditorium is located on the edge of a small hill, where an angular concrete stairway with a metal railing descends into a parking lot located at the foot of the hill. Landscape elements associated with the Auditorium include the covered walkway, landscape plantings, original outdoor lighting, and the east stairway. (See Continuation Sheet 2 of 2)

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View Southwest, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1973, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

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DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

Page 2 **of** 2 ***Resource Name or # (Assigned by recorder)** *Dr. H. Claude Hudson Auditorium*

***Recorded by:** *Marlise Fratinardo* ***Date:** *November 25, 2009* ☒ **Continuation** ☐ **Update**

***P3a. Description: (continued from page 1):**
No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction and its character-defining features are intact. The building's exterior appearance continues to convey its original design and reflects its period of construction. The Auditorium is associated with the postgraduate medical teaching function of the Martin Luther King, Jr. Medical Center Campus. The property is in good condition.

State of California — The Resources Agency **Primary #**
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BUILDING, STRUCTURE, AND OBJECT RECORD

Page 1 **of** 2 ***NRHP Status Code:** 3D

***Resource Name or #** (Assigned by recorder) *Dr. H. Claude Hudson Auditorium*

B1. Historic Name: *Dr. H. Claude Hudson Auditorium*
B2. Common Name: *Dr. H. Claude Hudson Auditorium*
B3. Original Use: *Auditorium* **B4. Present Use:** *Auditorium*
***B5. Architectural Style:** *New Formalism*
***B6. Construction History**: (Construction date, alterations, and date of alterations) *ca. 1973*

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date: Original Location:** *N/A*

***B8. Related Features:**

Character-defining features of the Dr. H. Claude Hudson Auditorium are consistent with the New Formalism style: single, freestanding block with square plan and low massing; heavy, flat overhanging roof, with cantilevered eaves, extended beams, and coffer-like treatment of soffits; raised piers suggestive of columns; symmetrical façade; and smooth concrete walls and brick panel detailing.

B9a. Architect: *Adrian Wilson and Associates; Carey K. Jenkins; Nielsen, Moffatt, and Wolverton* **b. Builder:** *Robert McKee, Inc.*

***B10. Significance: Theme:** *Development of the Willowbrook Area (1893-1980); Development of the Martin Luther King, Jr. Medical Center Campus (1965–1971); Operation of the Martin Luther King, Jr. Medical Campus (1972–2010)*
Area: *Willowbrook, County of Los Angeles* **Period of Significance:** *1968-1979* **Property Type:** *Building*

Applicable Criteria: *A/1* (Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

(See Continuation Sheet 2 of 2)

B11. Additional Resource Attributes: (List attributes and codes)

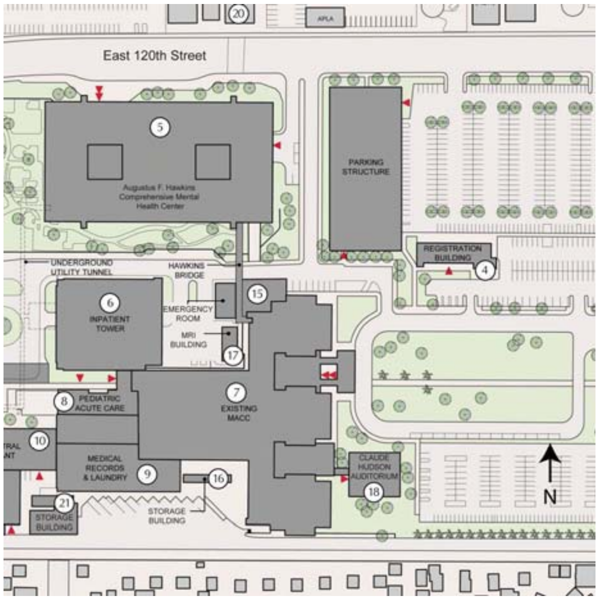
***B12. References:** *County of Los Angeles. Accessed 9 October 2009. Los Angeles County Health Services, MLK-MACC. Available at: http://www.ladhs.org/wps/portal/KingHomepage; Dr. Martin Luther King, Jr. General Hospital. 4 May 1968. Groundbreaking Ceremonies. County of Los Angeles; Ebony Magazine. December 1974. "Watts Finally Gets a Hospital," pp. 124–134; Goff, Tom. 16 February 1966. "Supervisors Vote to Build Hospital in L.A. Riot Area." Los Angeles Times, p. 3; Los Angeles Times. Spiegel, Claire. 22 October 1979. "Willowbrook: A Life Style About to Be Displaced by Progress," p. C1; Governor's Commission on the Los Angeles Riots. Accessed 20 October 2009. "Violence in the City: an End or a Beginning?" Available at: http://www.usc.edu/libraries/archives/cityinstress/mccone/contents.html; Los Angeles Times. 27 March 1972. "Dream Fulfilled: Martin Luther King Hospital Registers Its First Patients," p. 3; Los Angeles Sentinel. 16–22 December 2004. "History of King/Drew Medical Center," p. A1; Windsor, Charles E. November 1972, "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." Journal of the National Medical Association, 64 (6): 544–547.*

B13. Remarks:

***B14. Evaluator:** *Marlise Fratinardo*
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***Date of Evaluation:** *November 25, 2009*

(This space reserved for official comments.)



State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

Page 2 **of** 2 ***Resource Name or #** (Assigned by recorder) *Dr. H. Claude Hudson Auditorium*
***Recorded by:** *Leslie J. Heumann and Marlise Fratinardo* ***Date:** *July 14, 2010* ☒ **Continuation** ☐ **Update**

***D6. Significance (continued from page 1):**
The Dr. H. Claude Hudson Auditorium is a significant contributing building of the Martin Luther King, Jr. Medical Campus Historic District. The building was constructed as a component of the Martin Luther King, Jr. Medical Center Campus, a medical care and postgraduate medical teaching facility, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of health care services between South Los Angeles and the rest of the City of Los Angeles. As an auditorium, the building reflects the property's educational function.

Historical research indicates the Martin Luther King Jr. Medical Center Campus was planned and constructed between 1968 and 1972. The main buildings of the Martin Luther King, Jr. Medical Center Campus were constructed in phases during the late 1960s and 1970s. The earliest improvements included the three wings of the MACC, the Central Plant, and the Medical Records and Laundry Building, which were all operational by 1972. In 1973, the North and South Support buildings and the Dr. H. Claude Hudson Auditorium were built. The Interns and Physicians Building was constructed circa 1974. A second phase of the Central Plant building was completed in 1975, followed by the Augustus F. Hawkins Comprehensive Mental Health Center in 1979.

The main buildings of the medical center campus exhibit Brutalist elements. The design of the Dr. H. Claude Hudson Auditorium departs somewhat from the emphatically Brutalist architecture of the other three district contributors by merging the Brutalism inspired use of concrete and solid, enclosed volumes with elements associated with the "New Formalism" style of the 1960s and 1970s. The building exhibits few exterior and interior alterations since its construction and retains integrity in its location, design, setting, materials, workmanship, feeling and association.

The Dr. H. Claude Hudson Auditorium satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Historic District, the building meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional significance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest.

State of California — The Resources Agency **DEPARTMENT OF PARKS AND RECREATION**	**Primary #** **HRI #**
PRIMARY RECORD	**Trinomial** **NRHP Status Code**

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Page 1 **of** 2 ***Resource Name or #:** *Interns and Physicians Building*

P1. Other Identifier: *Dr. Julius W. Hill Interns and Resident Physicians Building*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**

c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*

d. UTM: Zone: *10;* mE/ mN (G.P.S.)

e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) *The Interns and Physicians Building is located in the southwest portion of the Martin Luther King, Jr. Medical Center Campus bounded by 120th Street to the north, Wilmington Avenue to the east, Compton Avenue to the west, and the southern boundary of the Martin Luther King, Jr. Medical Center Campus to the south. The six-story building has a T-shaped plan that consists of two perpendicular towers, which point east-west and north-south. The building sits on a foundation of reinforced concrete that support concrete walls. The building incorporates elements of the Brutalism style in its ample use of reinforced concrete with striated unfinished detailing, small recessed fixed tinted windows, geometric repetition in its fenestration, and a square monumental window located above the building's primary entrance. Landscape elements include a concrete block retaining wall that bounds a courtyard, which contains a swimming pool, game courts for tennis and basketball, and a grass lawn. A long concrete colonnade extends from the building's east facade, traverses numerous buildings, and terminates at the MACC. The surrounding setting of the Martin Luther King, Jr. Medical Center Campus is extant. (See Continuation Sheet 2 of 2)*

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View Southwest, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1975, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
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Primary #
HRI#
Trinomial

Page 2 **of** 2 ***Resource Name or # (Assigned by recorder)** *Interns and Physicians Building*

***Recorded by:** *Marlise Fratinardo* ***Date:** *November 25, 2009* ☒ **Continuation** ☐ **Update**

***P3a. Description: (continued from page 1):**
No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction and its character-defining features are intact. The building's exterior appearance continues to convey its original design and reflects its period of construction. The Interns and Physicians Building, used as a dormitory for students involved in the Physician Assistant Program of the Charles R. Drew Postgraduate Medical School and reflects the function of the Martin Luther King, Jr. Medical Center Campus as a medical teaching facility. The property is in good condition.

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BUILDING, STRUCTURE, AND OBJECT RECORD

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***NRHP Status Code:** 3D

***Resource Name or #** (Assigned by recorder) *Interns and Physicians Building*

B1. Historic Name: *Interns and Physicians Building*
B2. Common Name: *Interns and Physicians Building*
B3. Original Use: *Medical Building* **B4. Present Use:** *Medical Building*
***B5. Architectural Style:** *Brutalism*
***B6. Construction History**: (Construction date, alterations, and date of alterations) *Constructed in 1975*

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:** *N/A*
***B8. Related Features:**

Character-defining features of the Interns and Physicians Building are consistent with the Brutalism style: ample use of concrete with vertically striated, unfinished detailing; small, recessed, fixed, tinted windows; flat roof; geometric repetition in fenestration; monumental window above primary entrance; concrete colonnade extending from east façade; original landscaping (walled courtyard and drop-off area).

B9a. Architect: *Adrian Wilson and Associates; Carey K. Jenkins; Nielsen, Moffatt, and Wolverton* **b. Builder:** *Robert McKee, Inc.*
***B10. Significance: Theme:** *Development of the Willowbrook Area (1893-1980); Development of the Martin Luther King, Jr. Medical Center Campus (1965–1971); Operation of the Martin Luther King, Jr. Medical Campus (1972–2010)*
Area: *Willowbrook, County of Los Angeles* **Period of Significance:** *1968-1979* **Property Type:** *Building*

Applicable Criteria: *A/1* (Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

(See Continuation Sheet 2 of 2)

B11. Additional Resource Attributes: (List attributes and codes)

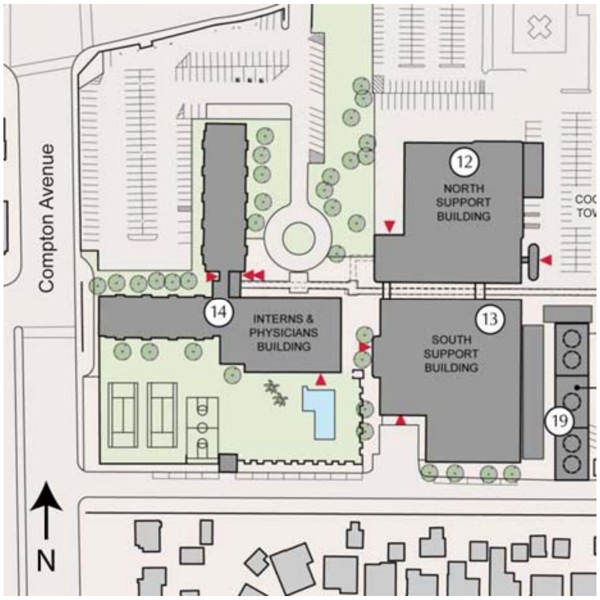
***B12. References:** *County of Los Angeles. Accessed 9 October 2009. Los Angeles County Health Services, MLK-MACC. Available at: http://www.ladhs.org/wps/portal/KingHomepage; Dr. Martin Luther King, Jr. General Hospital. 4 May 1968. Groundbreaking Ceremonies. County of Los Angeles; Ebony Magazine. December 1974. “Watts Finally Gets a Hospital,“ pp. 124–134; Goff, Tom. 16 February 1966. “Supervisors Vote to Build Hospital in L.A. Riot Area.“ Los Angeles Times, p. 3; Los Angeles Times. Spiegel, Claire. 22 October 1979. “Willowbrook: A Life Style About to Be Displaced by Progress,” p. C1; Governor‘s Commission on the Los Angeles Riots. Accessed 20 October 2009. “Violence in the City: an End or a Beginning?“ Available at: http://www.usc.edu/libraries/archives/cityinstress/mccone/contents.html; Los Angeles Times; Moore, Jack L. MD. 1984. “In Memoriam. Julius Wanser Hill.“ Journal of the National Medical Association, 76 (4); 27 March 1972. “Dream Fulfilled: Martin Luther King Hospital Registers Its First Patients,” p. 3; Los Angeles Sentinel. 16–22 December 2004. “History of King/Drew Medical Center,” p. A1; Windsor, Charles E. November 1972, “A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital.“ Journal of the National Medical Association, 64 (6): 544–547.*

B13. Remarks:

***B14. Evaluator:** *Marlise Fratinardo*
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***Date of Evaluation:** *November 25, 2009*

(This space reserved for official comments.)



State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

Page 2 **of** 2 ***Resource Name or #** (Assigned by recorder) *Interns and Physicians Building*

***Recorded by:** *Leslie J. Heumann and Marlise Fratinardo* ***Date:** *July 14, 2010* ☒ **Continuation** ☐ **Update**

***D6. Significance (continued from page 1):**

The Interns and Physicians Building is a significant contributing building of the Martin Luther King, Jr. Medical Campus Historic District. The building was constructed as a component of the Martin Luther King, Jr. Medical Center Campus, a medical care and postgraduate medical teaching facility, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of health care services between South Los Angeles and the rest of the City of Los Angeles. As an dormitory for medical students, the building reflects the property's educational function.

Historical research indicates the Martin Luther King Jr. Medical Center Campus was planned and constructed between 1968 and 1972. The main buildings of the Martin Luther King, Jr. Medical Center Campus were constructed in phases during the late 1960s and 1970s. The earliest improvements included the three wings of the MACC, the Central Plant, and the Medical Records and Laundry Building, which were all operational by 1972. In 1973, the North and South Support buildings and the Dr. H. Claude Hudson Auditorium were built. The Interns and Physicians Building was constructed circa 1974. A second phase of the Central Plant building was completed in 1975, followed by the Augustus F. Hawkins Comprehensive Mental Health Center in 1979. Dedicated in 1974, the Interns and Physicians Building was named for Dr. Julius Wanser Hill, the first African-American physician to complete his internship and residency at the Los Angeles County/University of Southern California Medical Center, Los Angeles. In 1961, Dr. Hill was appointed to the Los Angeles County Health Commission, where he served until his death in 1983.

The building is a characteristic example of the Brutalism style. Brutalism style buildings, considered easy to construct and maintain, were widely popular for government, civic and institutional buildings built during the 1960s and 1970s and thus use of Brutalist architecture reflects the building's public function. The main buildings of the medical center campus, including the Interns and Physicians Building, exhibit Brutalist elements. In the ensuing years, subsequently constructed buildings and structures located on the project site refer broadly to the Brutalism design precedent. The building exhibits few exterior and interior alterations since its construction and retains integrity in its location, design, setting, materials, workmanship, feeling and association.

The Interns and Physicians Building satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Historic District, the building meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional significance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest.

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PRIMARY RECORD

Primary #
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Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 2 ***Resource Name or #:** *Multi-service Ambulatory Care Center (MACC)*

P1. Other Identifier: *King/Drew Medical Center*
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Multi-service Ambulatory Care Center (MACC) is located in the center of the Martin Luther King, Jr. Medical Center Campus, bounded by 120th Street to the north, Wilmington Avenue to the east, Compton Avenue to the west, and the southern boundary of the Martin Luther King, Jr. Medical Center Campus to the south. Sited at the far west end of a large grassy lawn, the MACC occupies a commanding location within the site, conveying the prominence of its hospital function to visitors entering the facility from the property's main entrance at Wilmington Avenue. All components of the the MACC building are composed of reinforced concrete construction. The building sits on a foundation of cast-in-place concrete drilled piles that support reinforced concrete beams and columns. The lateral-force-resisting system is composed of reinforced concrete shear walls. (See Continuation Sheet 2 of 2)

***P3b. Resource Attributes:** *HP41: Hospital*
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View West, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *1972 according to Los Angeles Times. 27 March 1972. "Dream Fulfilled: Martin Luther King Hospital Registers Its First Patients," p. B3.*

☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

***P10. Survey Type:**
Intensive Survey

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
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Primary #
HRI#
Trinomial

Page 2 of 2 *Resource Name or # (Assigned by recorder) *Multi-service Ambulatory Care Center (MACC)*

***Recorded by:** *Marlise Fratinardo* ***Date:** *November 25, 2009* ☒ **Continuation** ☐ **Update**

***P3a. Description: (continued from page 1):**

Distinguished by its large size and monolithic east façade, the six-story building with a penthouse is comprised of three structurally independent buildings: Central Tower, North Tower, and South Tower that protrude from the east facade. A characteristic example of the Brutalism style, the building's design utilizes geometric repetition. Vertically striated concrete exterior framing, a series of balconies, the three independent towers, and repetititve bands of windows are located on the building's east façade and south elevation, providing a sense of solidity and weighted volumes that are associated with Brutalist style architecture.

The building's primary entrance is recessed with a deeply cantilevered canopy. Landscape elements—including the central lawn crossed by a single paved sidewalk, an allée of tall palms to the south of the property, and ornamental trees and shrubs located along the building's primary façade—serve to further emphasize the building's role as the primary care facility of the Martin Luther King, Jr. Medical Center Campus. The three pedestrian walkways associated with the MACC (consisting of a low covered walkway extending from the MACC's east facade to the Dr. H. Claude Hudson Auditorium, an elevated walkway constructed of reinforced concrete, providing pedestrian access from the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center, and a walkway extending from the west elevation of the MACC, constructed of reinforced concrete columns, and traversing past several medical campus buildings before terminating at the Dr. Julius W. Hill Interns and Physicians Building) contribute to the property's architectural and functional character. The surrounding setting of the Martin Luther King, Jr. Medical Center Campus is extant.

No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction and its character-defining features are intact. The building's exterior appearance continues to convey its original design and reflects its period of construction. As a hospital, the MACC is a key property type associated with the property's overall function as a medical care facility and postgraduate medical teaching facility. The property is in good condition.

State of California — The Resources Agency **Primary #**
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BUILDING, STRUCTURE, AND OBJECT RECORD

Page 1 **of** 2 ***NRHP Status Code:** 3D

***Resource Name or #** (Assigned by recorder) *Multi-service Ambulatory Care Center (MACC)*

B1. Historic Name: *Multi-service Ambulatory Care Center (MACC)*
B2. Common Name: *MACC*
B3. Original Use: *Medical Building* **B4. Present Use:** *Medical Building*
***B5. Architectural Style:** *Brutalism*
***B6. Construction History**: (Construction date, alterations, and date of alterations) *Constructed from 1968 to 1972*

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date: Original Location:** *N/A*
***B8. Related Features:**

Character-defining features of the Multi-service Ambulatory Care Center (MACC) are consistent with the Brutalism style: ample use of concrete (e.g., vertically striated concrete supports and exterior framing); monolithic massing; geometric repetition (e.g., the plan configuration consisting of three identical towers, repetitive bands of windows, and a series of balconies located on the building's facade); recessed primary entrance with deeply cantilevered canopy; minimal ornamentation; overall simplicity of form; original landscaping (elongated central lawn crossed by a single path).

B9a. Architect: *Adrian Wilson and Associates; Carey K. Jenkins; Nielsen, Moffatt, and Wolverton* **b. Builder:** *Robert McKee, Inc.*
***B10. Significance: Theme:** *Development of the Willowbrook Area (1893-1980); Development of the Martin Luther King, Jr. Medical Center Campus (1965–1971); Operation of the Martin Luther King, Jr. Medical Campus (1972–2010)*
Area: *Willowbrook, County of Los Angeles* **Period of Significance:** *1968-1979* **Property Type:** *Building*

Applicable Criteria: *A/1* (Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

(See Continuation Sheet 2 of 2)

B11. Additional Resource Attributes: (List attributes and codes)

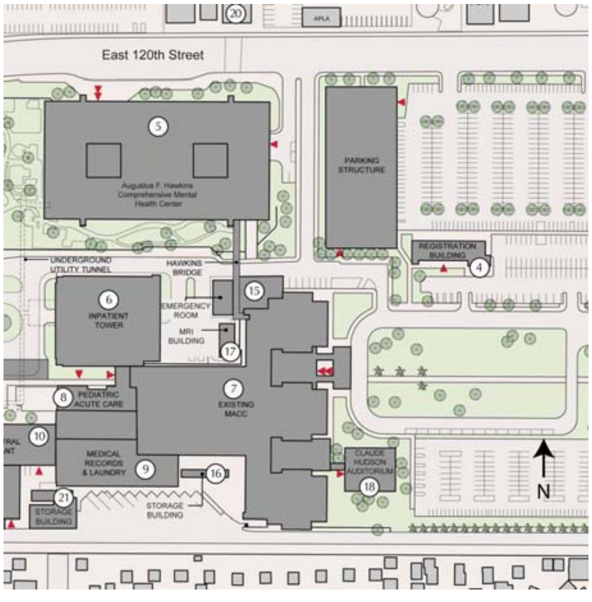
***B12. References:** *County of Los Angeles. Accessed 9 October 2009. Los Angeles County Health Services, MLK-MACC. Available at: http://www.ladhs.org/wps/portal/KingHomepage; Dr. Martin Luther King, Jr. General Hospital. 4 May 1968. Groundbreaking Ceremonies. County of Los Angeles; Ebony Magazine. December 1974. "Watts Finally Gets a Hospital," pp. 124–134; Goff, Tom. 16 February 1966. "Supervisors Vote to Build Hospital in L.A. Riot Area." Los Angeles Times, p. 3; Los Angeles Times. Spiegel, Claire. 22 October 1979. "Willowbrook: A Life Style About to Be Displaced by Progress," p. C1; Governor's Commission on the Los Angeles Riots. Accessed 20 October 2009. "Violence in the City: an End or a Beginning?" Available at: http://www.usc.edu/libraries/archives/cityinstress/mccone/contents.html; Los Angeles Times. 27 March 1972. "Dream Fulfilled: Martin Luther King Hospital Registers Its First Patients," p. 3; Los Angeles Sentinel. 16–22 December 2004. "History of King/Drew Medical Center," p. A1; Windsor, Charles E. November 1972, "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." Journal of the National Medical Association, 64 (6): 544–547.*

B13. Remarks:

***B14. Evaluator:** *Marlise Fratinardo*
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***Date of Evaluation:** *November 25, 2009*

(This space reserved for official comments.)



State of California — The Resources Agency
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Trinomial

Page 2 **of** 2 ***Resource Name or #** (Assigned by recorder) *Multi-service Ambulatory Care Center (MACC)*
***Recorded by:** *Leslie J. Heumann and Marlise Fratinardo* ***Date:** *July 14, 2010* ☒ **Continuation** ☐ **Update**

***D6. Significance (continued from page 1):**

The Multi-service Ambulatory Care Center (MACC) is a significant contributing building of the Martin Luther King, Jr. Medical Campus Historic District. The building was constructed as a component of the Martin Luther King, Jr. Medical Center Campus, a medical care and postgraduate medical teaching facility, which was built as a direct response to the findings of the McCone Commission that was organized to examine the causes of the 1965 civil unrest that began in nearby Watts. The McCone Commission found that South Los Angeles was severely lacking in access to medical services and recommended the immediate construction of a comprehensive hospital to remedy the stark disparities in the availability of health care services between South Los Angeles and the rest of the City of Los Angeles. As an inpatient and outpatient healthcare facility, the building provides medical services.

Historical research indicates the Martin Luther King Jr. Medical Center Campus was planned and constructed between 1968 and 1972. The main buildings of the Martin Luther King, Jr. Medical Center Campus were constructed in phases during the late 1960s and 1970s. The earliest improvements included the three wings of the MACC, the Central Plant, and the Medical Records and Laundry Building, which were all operational by 1972. In 1973, the North and South Support buildings and the Dr. H. Claude Hudson Auditorium were built. The Interns and Physicians Building was constructed circa 1974. A second phase of the Central Plant building was completed in 1975, followed by the Augustus F. Hawkins Comprehensive Mental Health Center in 1979.

The building is a characteristic example of the Brutalism style. Brutalism style buildings, considered easy to construct and maintain, were widely popular for government, civic and institutional buildings built during the 1960s and 1970s and thus use of Brutalist architecture reflects the building's public function. The main buildings of the medical center campus, including the Augustus F. Hawkins Comprehensive Mental Health Center, exhibit Brutalist elements. In the ensuing years, subsequently constructed buildings and structures located on the project site refer broadly to the Brutalism design precedent. The building exhibits few exterior and interior alterations since its construction and retains integrity in its location, design, setting, materials, workmanship, feeling and association.

The Multi-service Ambulatory Care Center (MACC) satisfies the definition of a historical resource pursuant to CEQA [State CEQA Guidelines Section 15064.5(3)]. As a contributing building to the Martin Luther King, Jr. Medical Center Historic District, the building meets Criterion A/1 for listing in the NRHP/CRHR for its exceptional significance in association with the history and development of the Willowbrook area and its direct linkage with the McCone Commission's recommendation for the construction of a new hospital facility in South Los Angeles in the wake of the 1965 civil unrest.

State of California — The Resources Agency **Primary #**
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DISTRICT RECORD

Trinomial

Page *1* **of** *5* ***NRHP Status Code:** *3S*

***Resource Name or #** (Assigned by recorder)**:** *Martin Luther King, Jr. Medical Center Campus Historic District*

D1. Historic Name: *Martin Luther King, Jr. General Hospital* **D2. Common Name:** *Martin Luther King, Jr. Hospital, King-Drew Medical Center*

***D3. Detailed Description** (Discuss overall coherence of the district, its setting, visual characteristics, and minor features. List all elements of district.): *The Martin Luther King, Jr. Medical Center Campus Historic District is comprised of four buildings and seven appurtenant elements located on the existing 38-acre Martin Luther King, Jr. Medical Center Campus, at 12021 Wilmington Avenue in the community of Willowbrook, in the unincorporated territory of the County of Los Angeles, California. Related by function, period of significance (1968–1979), physical placement, and complementary architectural styles, the district contributors convey intentionality as the key spaces of the Martin Luther King, Jr. Medical Center Campus. The historic district's four buildings are representative of the property's historical function as a medical center and campus and include inpatient, outpatient, and emergency facilities, a dormitory for medical students, and an auditorium. The historic district's seven appurtenant elements consist of site plan and landscaping that contribute to the property's feel and character as a medical center campus. The appurtenant elements include: a distinctive elongated entrance lawn and roadway; a sunken garden; walled courtyards; a recreation area; and circulation routes for pedestrians and vehicles. (See Continuation Sheet 2 of 5)*

***D4. Boundary Description** (Describe limits of district and attach map showing boundary and district elements.): *The district boundaries were established by outlining the four buildings and seven appurtenant elements that comprise the primary spaces of the Martin Luther King, Jr. Medical Center Campus. The period of significance begins with the groundbreaking of the Martin Luther King Jr. General Hospital in 1968 and ends with the 1979 completion of the Augustus F. Hawkins Comprehensive Mental Health Center.*

***D5. Boundary Justification:** *The district boundaries contain a group of buildings and appurtenant elements that were constructed between 1968-1979 and retain a sense of time and place associated with the development of the Martin Luther King, Jr. Medical Center.*

***D6. Significance: Theme:** *Development of the Martin Luther King, Jr. Medical Campus (1965–1971); Operation of the Martin Luther King, Jr. Medical Campus (1972–2010)* **Area:** *Los Angeles County*
Period of Significance: *1968-1979* **Applicable Criteria:** *A/1* (Discuss district's importance in terms of its historical context as defined by theme, period of significance, and geographic scope. Also address the integrity of the district as a whole.)
The current evaluation found that the Martin Luther King, Jr. Medical Center Campus Historic District is significant under Criterion A of the National Register of Historic Places (NRHP), and Criterion 1 of the California Register of Historical Resources (CRHR) for its association with development of the Martin Luther King, Jr. Medical Center Campus. The Martin Luther King, Jr. Medical Center Campus is significant for its exceptional importance in relation to the Civil Rights movement in Los Angeles, as epitomized by the 1965 civic unrest in the Watts area and resultant McCone Commission's recommendations. The Martin Luther King, Jr. Medical Center Campus demonstrates exceptional importance as a rare, surviving community development project with a direct historical linkage to the 1965 civil unrest and is also significant as a major milestone in the history and development of the Willowbrook area.

The development of the Martin Luther King, Jr. Medical Center Campus was a direct result of the County of Los Angeles Board of Supervisor's approval of recommendations of the McCone Commission to respond to the civil unrest that had occurred in the Watts-Willowbrook area in 1965. On August 11, 1965, California Highway Patrol officers arrested a man named Marquette Frye for suspected drunken driving in the Watts neighborhood in South Los Angeles. A subsequent confrontation erupted in civil unrest. Over the following six days, violence left 34 persons dead, over 1,000 persons injured, damaged over 600 buildings, and burned business districts. The McCone Commission, established in the wake of the civil disturbance to investigate its causes, identified the lack of access to health care in the historically underserved area of South Central Los Angeles as one of the primary contributing factors to the civil disturbance, along with high unemployment and limited educational opportunities. (See Continuation Sheet 3 of 5)

***D7. References** (Give full citations including the names and addresses of any informants, where possible.):

Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107. (See Continuation Sheet 4 of 4)

***D8. Evaluator:** *Leslie J. Heumann and Marlise Fratinardo* **Date:** *July 14, 2010*
Affiliation and Address: *Sapphos Environmental, Inc., 430 North Halstead Street, Pasadena, CA 91107*

State of California — The Resources Agency
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Page *2* **of** *5* ***Resource Name or #** (Assigned by recorder) *Martin Luther King, Jr. Medical Center Campus Historic District*

Recorded by: *Leslie J. Heumann and Marlise Fratinardo* ***Date:** *July 14, 2010* ☒ Continuation ☐ Update

***D3. Detailed Description (continued from page 1):**

The appurtenant elements either physically connect individual buildings, expand building functions into the surrounding landscape, or express the property's function as a medical center campus. There are three pedestrian walkways that connect the four historic district contributors. The walkways enabled medical personnel and students to travel expeditiously around the campus. The MACC, for example, is connected to the Dr. H. Claude Hudson Auditorium via a low covered walkway that extends from the MACC's east façade, which provides a physical link between the medical (MACC) and assembly (Auditorium) uses. Existing gardens and courtyards are closely associated with building functions. For example, the Interns and Physicians Building, a medical student dormitory, includes a walled courtyard and recreation area for medical students.

The character-defining features of the Martin Luther King, Jr. Medical Center Campus Historic District are listed below. All building names are listed in chronological order by construction date. Additional information on the buildings is provided in the attached DPR 523A forms. The corresponding map gives the exact location of the buildings within the district boundaries.

Contributing Buildings	***Date Constructed***
Multi-service Ambulatory Care Center (MACC)	1968
Dr. H. Claude Hudson Auditorium	1973
Interns and Physicians Building	1975
Augustus F. Hawkins Comprehensive Mental Health Center	1979

Appurtenant Elements

- Elongated lawn located east of the MACC, which is bounded by a primary entrance road
- Sunken garden and walled courtyard located south and west of the Augustus F. Hawkins Comprehensive Mental Health Center
- Walled courtyard and recreation area located south of the Interns and Physicians Building
- Drop-off area located north of the Interns and Physicians Building and west of the North Support Building
- Pedestrian walkway extending from the MACC's east facade to the Dr. H. Claude Hudson Auditorium
- Pedestrian walkway extending from the north elevation of the MACC to the Augustus F. Hawkins Comprehensive Mental Health Center
- Pedestrian walkway extending from the east facade of the Interns and Physicians Building to the MACC

The remaining extant 17 buildings located on the Martin Luther King, Jr. Medical Center Campus were identified as noncontributors to the Historic District because they are less than 50 years old, were constructed outside the 1968-1979 period of significance, do not exhibit exceptional importance related to the recommendation of the McCone Commission, reflect ancillary functions of the medical center campus, or lack aspects of integrity due to alterations.

Non-Contributing Buildings	***Date Constructed***
Central Plant	Phase I: late1960s; Phase II: 1975
Medical Records and Laundry	1972
North Support Building	1973
South Support Building	ca. 1973
Plant Management Building	1979
Cooling Towers	ca. 1979
Genesis Clinic	ca. 1979
Oasis Clinic (old)	ca. 1979
Hub Clinic	ca. 1980
MRI Building	ca. 1980
Storage Building (1,060 sq. ft)	ca. 1980
Storage Building (2,533 sq. ft.)	ca. 1980
Emergency Room	ca. 1985
Oasis Clinic (new)	ca. 1995
Registration Building	ca. 1990
Pediatric Acute Care	1992
Inpatient Tower	1993

State of California — The Resources Agency **DEPARTMENT OF PARKS AND RECREATION**	**Primary #** **HRI#**
CONTINUATION SHEET	**Trinomial**

Page *3* **of** *5* ***Resource Name or #** (Assigned by recorder) *Martin Luther King, Jr. Medical Center Campus Historic District*

***Recorded by:** *Leslie J. Heumann and Marlise Fratinardo* ***Date:** *July 14, 2010* ☒ Continuation ☐ Update

***D6. Significance (continued from page 1):**

As part of the national civil rights movement that culminated in the 1960s, the civil disturbances in and around Watts in 1965 were a pivotal moment in the history of Los Angeles County. The McCone Commission and its recommendations represented a turning point in local governance, when the County made a concerted effort to redress the inequalities that the McCone Commission identified as some of the underlying causes of the upheaval. The Martin Luther King, Jr. Medical Center was a centerpiece of the County's response and as such has exceptional importance as a physical manifestation of significant historical events of the 1960s in Los Angeles. Furthermore, the name it bears represents one of the most visible local efforts to commemorate a prophet of the national civil rights movement, Dr. Martin Luther King, Jr. The new campus, the largest development project in the area since the 1965 civil disturbance, was intended to serve multiple roles as a medical facility and economic engine, rectifying past inequalities regarding medical services, employment, and educational facilities in South Central Los Angeles.

Originating during a turbulent era in the history of Los Angeles County and the nation, the construction of the Martin Luther King, Jr. Medical Center Campus represented the hopes and aspirations of South Central Los Angeles residents and Los Angeles County officials. In fulfilling the mandate of the McCone Commission, the Martin Luther King, Jr. Medical Center Campus project incorporated an active program of community involvement efforts. Hospital staff regularly attended various local community meetings and the community participated in the plans for the development and operation of the hospital. As a result of community outreach efforts, medical service needs that expanded beyond the facility's initial vision were identified and led to the acquisition by the County of Los Angeles of an additional 16 acres north of 120th Street to create a comprehensive "Area Health Education Center." Demonstrating the project's responsiveness to the provision of local community services, the MACC incorporated spaces for educational and assembly uses, including 50,000 square feet for classrooms and conference rooms. This space was intended for use in providing employment training for local residents and continuing education classes for health professionals at the facility.

The development of the Martin Luther King, Jr. Medical Center Campus represented a major shift in the history and development of the Willowbrook area, which, prior to the project, was a relatively undistinguished community that still retained substantial vestiges of its original rural uses. The new hospital inspired high hopes as an economic generator and top-notch medical facility that would provide abundant opportunities in an area of considerable need, or, as stated by Martin Luther King, Jr. Medical Center Administrator Charles E. Windsor in 1972,

> *This multimillion dollar project is being set in the middle of desert of deprivation offering hope and light where there has been none, offering opportunities in fields heretofore unknown to the residents in this area, and offering medical services of a quality which would be desirable even in the most prosperous of communities.*[1]

Planning efforts for the hospital represented the area's largest construction project since the 1965 civil unrest. The project's primary building, known today as the MACC, estimated at $23.5 million, was promoted not only as an opportunity to increase the availability of medical care in South Los Angeles but as an important new source of local employment. Supervisor Hahn personally monitored the ethnic and racial composition of the project's construction workers to ensure that employment reflected the predominantly African American demographic of the area. Priority was also given to African Americans for hospital staff positions.

In ensuing years, the presence of a Los Angeles County hospital employed approximately 3,000 workers, provided opportunities for medical professional training and development, and spurred numerous additional development projects in Willowbrook, which included a large scale redevelopment plan, dozens of new homes, the Kenneth Hahn Shopping Plaza and a new water system.

Historical research indicates the Martin Luther King Jr. Medical Center Campus was planned and constructed between 1968 and 1972. Three Los Angeles firms were selected to collaboratively design the new facility: Adrian Wilson and Associates; Carey K. Jenkins; and Nielsen, Moffatt, and Wolverton. The initial buildings, including the MACC, of the Martin Luther King Jr. Medical Center Campus were built by contractor Robert E. McKee, Inc. As the hospital's primary patient care facility, the MACC, exhibits elements of the Brutalism style, which was a popular choice for public and institutional buildings constructed during the 1960s and 1970s. In the ensuing years, subsequently constructed buildings and structures located on the project site refer broadly to the Brutalism design precedent embodied in the MACC. (See Continuation Sheet 4 of 5)

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[1] *Windsor, Charles E. November 1972, "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." Journal of the National Medical Association, Vol. 64, No. 6, pp. 544–547.*

Primary #
HRI#
Trinomial

***Resource Name or #** (Assigned by recorder) *Martin Luther King, Jr. Medical Center Campus Historic District*

***Recorded by:** *Leslie J. Heumann and Marlise Fratinardo* ***Date:** *July 14, 2010* ☒ Continuation ☐ Update

***D6. Significance (continued from page 3):**

The main buildings of the Martin Luther King, Jr. Medical Center Campus were constructed in phases during the late 1960s and 1970s. The earliest improvements included the three wings of the MACC, the Central Plant, and the Medical Records and Laundry Building, which were all operational by 1972. In 1973, the North and South Support buildings and the Dr. H. Claude Hudson Auditorium were built. The Interns and Physicians Building was constructed circa 1974. A second phase of the Central Plant building was completed in 1975, followed by the Augustus F. Hawkins Comprehensive Mental Health Center in 1979. No building permits were located that provided specific dates of subsequent buildings; however, several support buildings, such as the Cooling Towers, Oasis Clinic, Storage Buildings, and the Hub Clinic were built during the 1970s and 1980s. The early 1990s brought several new buildings to the Medical Center: the Registration Building, Inpatient Tower, Pediatric Acute Care, Emergency Room, and the MRI Building.

Page *5* **of** *5* ***Resource Name or #** (Assigned by recorder) *Martin Luther King, Jr. Medical Center Campus Historic District*
***Recorded by:** *Leslie J. Heumann and Marlise Fratinardo* ***Date:** *July 14, 2010* ☒ Continuation ☐ Update

***D7. References (continued from page 1)** (Give full citations including the names and addresses of any informants, where possible.):

County of Los Angeles. Accessed 9 October 2009. Los Angeles County Health Services, MLK-MACC. Available at: http://www.ladhs.org/wps/portal/KingHomepage

Dr. Martin Luther King, Jr. General Hospital. 4 May 1968. Groundbreaking Ceremonies. County of Los Angeles.

Ebony Magazine. December 1974. "Watts Finally Gets a Hospital," pp. 124–134.

Goff, Tom. 16 February 1966. "Supervisors Vote to Build Hospital in L.A. Riot Area." Los Angeles Times, p. 3.

Los Angeles Times. Spiegel, Claire. 22 October 1979. "Willowbrook: A Life Style About to Be Displaced by Progress," p. C1.

Governor's Commission on the Los Angeles Riots. Accessed 20 October 2009. "Violence in the City: an End or a Beginning?" Available at: http://www.usc.edu/libraries/archives/cityinstress/mccone/contents.html

Los Angeles Times. 27 March 1972. "Dream Fulfilled: Martin Luther King Hospital Registers Its First Patients," p. 3.

Los Angeles Sentinel. 16–22 December 2004. "History of King/Drew Medical Center," p. A1.

Windsor, Charles E. November 1972, "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." Journal of the National Medical Association, 64 (6): 544–547.

STRUCTURES NOT CONTRIBUTING TO HISTORIC DISTRICT

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Genesis Clinic*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Genesis Clinic, circa 1979, is located in the eastern portion of the Martin Luther King, Jr. Medical Center Campus, bounded by 120th Street to the north, Wilmington Avenue to the east, Compton Avenue to the west, and the southern boundary of the Martin Luther King, Jr. Medical Center Campus to the south. Constructed of reinforced concrete, the one-story building is rectangular in plan with a flat roof that is shielded from view by a large overhanging metal parapet. The primary entrance on the west façade is accessed by a concrete stepped stoop with a ramp and metal handrail. The immediate setting of the building consists of a parking lot and small playground. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View East, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1979, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Oasis Clinic (old)*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Oasis Clinic, circa 1979, is located in the eastern portion of the Martin Luther King, Jr. Medical Center Campus, bounded by 120th Street to the north, Wilmington Avenue to the east, Compton Avenue to the west, and the southern boundary of the Martin Luther King, Jr. Medical Center Campus to the south. Constructed of reinforced concrete, the west-facing one-story building is rectangular in plan with a flat metal roof that is shielded from view by a large hipped parapet with overhanging eaves. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) *View East, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1979, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Oasis Clinic (new)*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**

c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*

d. UTM: Zone: *10;* mE/ mN (G.P.S.)

e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) *The Oasis Clinic, circa 1995, is located north of East 120th Street in an area that is primarily occupied by the Charles Drew University of Medicine and Science. The west-facing building is rectangular in plan and is constructed of reinforced concrete. The building sits upon a concrete foundation. Concrete walls support the building's flat roof. Minimally ornamented, the building's west facade has a concrete walkway, a metal door, and fixed metal windows. The (south) street-facing elevation has no windows and a single solid metal door. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.*

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View North, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1995, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Registration Building*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**

c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*

d. UTM: Zone: *10;* mE/ mN (G.P.S.)

e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Registration Building, circa 1990, is located in the eastern portion of the Martin Luther King, Jr. Medical Center Campus along the primary road leading to the MACC. The south-facing building is rectangular in plan and constructed of reinforced concrete, with concrete walls supporting a flat roof. Two large concrete pilasters with a vertically striated pattern project from the building's facade, one at the southwest corner and another directly west of the building's primary entrance. A continuous panel of fixed, mirrored windows is located on the second floor of the building's facade. Visitor parking, landscape plantings, and the grassy lawn located to the east of the MACC provide the setting for the Registration Building. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) *View North, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1990, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Inpatient Tower*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**

c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*

d. UTM: Zone: *10;* mE/ mN (G.P.S.)

e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Inpatient Tower, circa 1993, is located to the northwest of the MACC in the central portion of the Martin Luther King, Jr. Medical Center Campus. The west-facing building has a square plan and is constructed with a superstructure of structural steel and reinforced concrete. The building's foundation is composed of cast-in-place concrete-drilled piles. Concrete walls support the building's flat roof, which supports a helipad. Bands of fixed, tinted windows with alternating bands of concrete are located on all elevations of the building. A vehicular drop-off structure extends from the building's west facade, which consists of a massive concrete colonnade with a flat roof that is supported by thick columns. No building permits, original plans, or construction drawings were found for this building. The building exhibits no exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View East, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1993, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Pediatric Acute Care*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**

c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*

d. UTM: Zone: *10;* mE/ mN (G.P.S.)

e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Pediatric Acute Care, circa 1992, is located in a small opening between the Central Plant and Laundry Building to the south and the Inpatient Tower to the north. The MACC is adjacent to the building's east elevation. The north-facing building is rectangular in plan and is constructed of structural steel and reinforced concrete. The building's foundation is composed of cast-in-place concrete-drilled piles. Concrete walls support the building's flat roof. Fixed metal windows are located on the building's north-facing facade. The building is sheltered by a large pavilion with a flat roof known as the Denzel Washington Pediatric Pavilion. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View North, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1992, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

0. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Medical Records and Laundry*

P1. Other Identifier: *n/a*
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Medical Records and Laundry, constructed in 1972, is one of a series of south-facing ancillary buildings oriented along the service road that defines the southern border of the Martin Luther King, Jr. Medical Center Campus where service uses are concentrated. Constructed of reinforced concrete, the one-story building has an L-shaped plan with a flat roof. The building's foundation system is composed of cast-in-place concrete drilled piles. An example of functional, utilitarian architecture, the building has few windows and minimal detailing. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View North, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1972, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Central Plant*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Central Plant is one of a series of south-facing ancillary buildings oriented along the service road that defines the southern border of the Martin Luther King, Jr. Medical Center Campus where service uses are concentrated. The one-story building has a T-shaped plan with a flat roof. The building's foundation system is composed of cast-in-place concrete drilled piles. Reinforced concrete walls support a reinforced concrete slab roof supported by a steel girder. An example of functional, utilitarian architecture, the building has few windows and minimal detailing, with the exception of concrete walls scored with a rectangular pattern. Paved areas for loading and the landscaped service road provide the setting for the Central Plant building. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View East, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa late 1960s, 1975 according to Windsor, Charles E. November 1972. "A Summary of the History and Plan for Development of the Los Angeles County Martin Luther King, Jr. General Hospital." Journal of the National Medical Association, 64 (6): pp. 544–547.*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

***P10. Survey Type:** *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Plant Management Building*

P1. Other Identifier: *n/a*
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Plant Management Building, circa 1979, is one of a series of south-facing ancillary buildings oriented along the service road that defines the southern border of the Martin Luther King, Jr. Medical Center Campus where service uses are concentrated. The one-story building has a square plan with a flat roof. The building's foundation system is composed of cast-in-place concrete drilled piles. Reinforced concrete walls support a reinforced concrete overhanging slab roof. An example of functional, utilitarian architecture, the building has few windows and minimal detailing, with the exception of concrete walls scored with a rectangular pattern. The building's south-facing facade has a series of double metal doors that provide access to various maintenance shop uses. A loading dock extends the length of the facade. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View Northeast, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1979, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code
Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *North Support Building*

P1. Other Identifier: *n/a*
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) *The North Support Building is located in the western portion of the Martin Luther King, Jr. Medical Center Campus. The building's east-facing facade is oriented toward large parking lots that are located to the north and east of the building. The two-story building is square in plan with a flat roof. The foundation system is composed of cast-in-place concrete drilled piles. Reinforced concrete walls support a reinforced concrete slab roof. Constructed in two phases, the original building (1975) consisted of a lower full level and a partial second floor. In the late 1980s, the second floor was expanded to cover the entire first floor. An example of functional, utilitarian architecture, the building has ribbon windows on the second floor, and a recessed entrance covered by a concrete column. Detailing is otherwise minimal. Paved parking areas provide the setting for the Central Plant building. No building permits were located. The building's condition is good. The building's second floor addition in the 1980s compromised the original design and massing of the building and is a significant alteration. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.*

***P3b. Resource Attributes:** *HP41: Hospital*
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) *View South, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1975, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *South Support Building*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** ; **M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The South Support Building, circa 1973, is one of a series of south-facing ancillary buildings oriented along the service road that defines the southern border of the Martin Luther King, Jr. Medical Center Campus where service uses are concentrated. The one-story building has an L-shaped plan with a flat roof. The building's foundation system is composed of cast-in-place concrete drilled piles. Reinforced concrete walls support a reinforced concrete slab roof. An example of functional, utilitarian architecture, the building has a band of ribbon windows on the second floor of the south facade overlooking a loading dock that is located in the southwest portion of the building. The building has minimal detailing, with the exception of concrete walls scored with a rectangular pattern. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View Northeast, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1973, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Emergency Room*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**

c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*

d. UTM: Zone: *10;* mE/ mN (G.P.S.)

e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The one-story Emergency Room, circa 1985, is connected to the north portion of the MACC building and extends to the north. The building is rectangular in plan and is constructed of concrete. The building sits upon a concrete foundation. The immediate setting of the building consists of the MACC and a one-way service road traveling from the facade (east) of the MACC building to the Emergency Room. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View Southeast, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1985, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Storage Building (1,060 square feet)*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The 1,060 square-foot one-story Storage Building, circa 1980, is located south of the MACC building along the service road that defines the property's southern border where service uses are concentrated. The building is rectangular in plan, with low massing, metal doors, and is constructed of concrete with a flat roof. The building sits upon a concrete foundation. The immediate setting of the building consists of the MACC and loading docks associated with the Medical Records and Laundry Building. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View North, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1980, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency **DEPARTMENT OF PARKS AND RECREATION**	**Primary #** **HRI #**
PRIMARY RECORD	**Trinomial** **NRHP Status Code**

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *MRI Building*

P1. Other Identifier: *n/a*
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The one-story MRI Building, circa 1980, is located directly north of the MACC building. The west-facing building is rectangular in plan, with low massing, metal doors, and is constructed of concrete with a flat roof. The building sits upon a concrete foundation. The immediate setting of the building consists of the MACC. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View East, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1980, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Cooling Towers*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The one-story Cooling Towers building houses the cooling towers that function to remove excess heat and provide heat, ventilation, and air conditioning to the MACC. The Cooling Towers are located in the south portion of the Martin Luther King, Jr. Medical Center Campus along the service road that defines the property's southern border. The windowless building is rectangular in plan constructed of concrete and sits upon a concrete foundation. The building's east and west concrete exterior walls are scored in a vertically striated pattern. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) *View Northwest, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1979, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Hub Clinic*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**

c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*

d. UTM: Zone: *10;* mE/ mN (G.P.S.)

e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This one-story Hub Cilnic, circa 1980, is located north of East 120th Street in an area that is primarily occupied by the Charles Drew University of Medicine and Science. The south-facing building is rectangular in plan and is constructed of wood. The building sits upon a concrete foundation. Wood walls support the building's flat roof. An elevated concrete pad enclosed by a metal rail, with a short stairway and a ramp, provides access to the building's primary entrance. Minimally ornamented, the building's facade has a solid metal door and metal sliding windows. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View North, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1980, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 1 ***Resource Name or #:** *Storage Building (2,533 square feet)*

P1. Other Identifier: *n/a*

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** *Los Angeles, California*
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **; M.D.** **B.M.**
c. Address: *12021 Wilmington Ave* City: *Los Angeles, California* Zip: *90059-3099*
d. UTM: Zone: *10;* mE/ mN (G.P.S.)
e. Other Locational Data: *Los Angeles County Parcel No. 6149-028-903 Elevation: 86 to 88 above MSL*

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The 2,533 square-foot one-story Storage Building, circa 1980, is located south of the Central Plant and Medical Records and Laundry Building, along the service road that defines the property's southern border where service uses are concentrated. The building is rectangular in plan and is constructed of concrete with a flat slab concrete roof with overhanging eaves. The building sits upon a concrete foundation. Minimally ornamented, a wide band of rusticated concrete detailing, intended to resemble stone, wraps the building. A rolling metal garage door and a metal sliding window are located on the building's east elevation. No building permits, original plans, or construction drawings were found for this building. The building exhibits few exterior alterations since its construction.

***P3b. Resource Attributes:** *HP41: Hospital*
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing **(Photo required for buildings, structures, and objects.)**

P5b. Description of Photo: (View, date, accession #) *View West, October 25, 2009*

***P6. Date Constructed/Age and Sources:** *circa 1980, estimated*
☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Los Angeles County
Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

***P8. Recorded by:**
Marlise Fratinardo
Sapphos Environmental, Inc.
430 North Halstead
Pasadena, CA 91107

***P9. Date Recorded:**
November 25, 2009

P10. Survey Type: *Intensive Survey*

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Martin Luther King, Jr. Medical Center Campus Redevelopment Cultural Resources Technical Report. August 2010. On file at Sapphos Environmental, Inc., Pasadena, CA 91107.*

***Attachments:** ☒NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

APPENDIX C
RÉSUMÉS OF KEY PERSONNEL

Marie C. Campbell, MA

Master of Arts, Geography, Geomorphology/Biogeography, University of California, Los Angeles, 1988

Principal/President

- *Ensure technical and procedural adequacy pursuant to NEPA, CEQA, and other federal, state, and local statutes and regulations*
- *Provide strategy for regulatory permit compliance*
- *Agency coordination*
- *Coordination with special interests*
- *Identify opportunities for issue resolution*
- *Public outreach*
- *Quality assurance / quality control*
- *Milestone compliance*

Years of Experience: 25+

Relevant Experience/
Speaking Engagements:

- *Board Member, California Wind Energy Association*
- *Past Chapter Director, Los Angeles Association of Environmental Professionals*
- *Lecturer on the California Environmental Quality Act (CEQA) before the Association of Environmental Professionals and the Los Angeles County Chief Executive Office Staff*
- *Lecturer at Cal Poly Pomona*
- *Quality assurance manager for Long Beach Memorial Medical Center*
- *Project manager for Los Angeles Grand Avenue and Environs EIR*
- *Technical expert to successfully support clients in 12 CEQA lawsuits*

Ms. Marie Campbell, principal of Sapphos Environmental, Inc., is an environmental compliance specialist with more than 25 years of experience in managing public- and private-sector projects requiring strategic planning, environmental compliance documentation, and resource management planning. In particular, Ms. Campbell has extensive experience with complex and controversial alternative energy projects, including the 300-megawatt PdV Wind Energy Project, which was unanimously approved by the Kern County Board of Supervisors in July 2008, and the Lompoc Wind Energy Project, which was unanimously approved by the Santa Barbara County Board of Supervisors in May of 2009. Success of these projects was reinforced by the strong working relationships Ms. Campbell built between the many diverse parties who had an interest in the projects. Ms. Campbell managed the coordination between agencies, special interests, and the public to resolve issues and meet project goals and milestones.

Ms. Campbell has served as project manager or senior technical advisor for numerous challenging and high-profile projects, including the Hollywood Bowl Shell Rehabilitation and Acoustical Improvements EIR, Addendum No. 2 to the First Street Properties (Walt Disney Concert Hall) EIR, the Los Angeles Plaza de Cultura y Arte EIR, Grand Avenue and Environs EIR, Bonelli Regional County Park Master Plan EIR, and Deane Dana Friendship Community Regional County Park EIR. Many of these projects involved the preparation of joint environmental documents with multiple agencies. Ms. Campbell has developed strong working relationships with numerous regulatory oversight agencies, including the South Coast Air Quality Management District, Regional Water Quality Control Board, Department of Toxic Substances Control, U.S. Fish and Wildlife Service, and California Department of Fish and Game.

Although the majority of projects for which environmental compliance documents have been prepared have not involved litigation, the strategic planning and compliance advice provided by Ms. Campbell have been critical to the success of Sapphos Environmental, Inc.'s clients in each of the 13 cases (on 11 projects) that were subject to litigation. In each case, Sapphos Environmental, Inc.'s client prevailed, and the project was able to proceed as analyzed.

Throughout her career, Ms. Campbell has been actively engaged in community service. Ms. Campbell established the Sapphos Foundation, through the California Community Foundation, as a means of supporting community service efforts that are meaningful to her clients, employees, and family. She serves on the board of the Pasadena Mothers' Club Family Learning Center and is honored to be the recipient of their 2009 Corporate Responsibility Award.

Leslie Heumann

Master of Arts, Architecture, University of California, Los Angeles (1976–1978; incomplete)

Bachelor of Arts, History, University of California, Los Angeles, 1975

Section 106 Essentials, Advistory Council on Historic Preservation, 2009

Cultural Resources Manager; Architectural Historian

- *Historic resources surveys*
- *NRHP nominations*
- *Historic resources impact analyses in support of NEPA and CEQA, and Section 106 of the NHPA*
- *Historic American Buildings Survey documentation*
- *Secretary of the Interior's Standards for the Treatment of Historic Properties*
- *Historic schools modernization issues*

Years of Experience: 33

Relevant Experience:

- *Cultural Resources Technical Report, PdV Wind Energy Project (Sapphos Environmental, Inc., August 11, 2006)*
- *Fatal Flaw Analysis for a wind energy project in the Southern Sierras, Kern County (Sapphos Environmental, Inc., May 24, 2006)*
- *Cultural Resources Technical Report, for a wind energy project in the Southern Sierras, Kern County (Sapphos Environmental, Inc., 2009)*
- *Historic Resources Technical Reports (Multiple projects: Shoreline Gateway, Long Beach, 2006; Main Street Redevelopment Corridor, Alhambra, 2006; South Pasadena Downtown Revitalization, 2007)*

Ms. Leslie Heumann manages the multidisciplinary cultural resources group at Sapphos Environmental, Inc. An architectural historian with more than 33 years of experience covering all aspects of historic architectural evaluation, documentation, and preservation, she specializes in coordination of historic resources surveys, assessment of historic significance, and preparation of documentation pursuant to the California Environmental Quality Act (CEQA), National Historic Preservation Act (NHPA), and National Environmental Policy Act (NEPA). She satisfies the Secretary of the Interior's professional qualification standards as an architectural historian.

As cultural resources manager, Ms. Heumann has overseen the analysis of cultural resources with respect to paleontological, archaeological, and historical resources, Native American Sacred Sites, and human remains. Recent projects have entailed the characterization of baseline conditions, determination of project impacts, and recommendation of mitigation and avoidance measures in support of 6,440-acre and 15,182-acre wind energy projects in Kern County, California, and a 9,664-acre dust mitigation project in Owens Valley, California. These efforts have encompassed comprehensive records searches, Phase I archaeological surveys, and preparation of cultural resources technical reports and have enabled clients to achieve project objectives while avoiding and/or minimizing potential project impacts on cultural resources. Ms. Heumann has coordinated with a variety of entities, including the Bureau of Land Management, the California State Lands Commission, the Office of Historic Preservation, and the Native American Heritage Commission in connection with these studies.

In her capacity as an architectural historian, Ms. Heumann has undertaken the identification, evaluation, and documentation of historic resources for an extensive body of properties in the Southwest, including California, Texas, Arizona, Nevada, and Hawaii. She has directed intensive- and reconnaissance-level historic resources surveys for the Cities of Beverly Hills, Los Angeles, Santa Monica, Glendale, Pasadena, Long Beach, Rancho Mirage, Santa Ana, and Upland, among others. She is an expert in Section 106 of the NHPA and has prepared historic property surveys, findings of effects, and Memoranda of Agreement for California Department of Transportation projects in Upland and Alhambra, a Vandenberg Air Force Base facility, and a historic ranch complex on the site of a proposed housing development in the Santa Clarita Valley.

Additional areas of expertise include Historic American Buildings Survey documentation, application of the Secretary of the Interior's Standards for the Treatment of Historic Properties, and historic schools modernization issues. Ms. Heumann is currently overseeing a multimillion-dollar effort to assess the feasibility for reuse of 73 buildings and structures comprising a former poor farm that has been formally determined eligible for inclusion in the National Register of Historic Places (NRHP). She has authored several nominations to the NRHP, most recently for the Bungalow Heaven district of Pasadena. At present, she is part of an elite team of specialists that is developing a Historic Context Statement for the City of Los Angeles.

Ms. Heumann often provides expert testimony to local planning and cultural resources commissions and city councils and has had the opportunity to share her knowledge through speaking at numerous conferences and gatherings, most recently at the 2008 national conference of the Association of Environmental Professionals.

Marlise Fratinardo, MLA

Master of Landscape Architecture (Historic Preservation Certificate), University of Colorado, Denver, 2006

Graduate Study, Landscape Architecture and Urbanism, Delft University of Technology, The Netherlands, 2005

Bachelor of Arts, Anthropology
Bryn Mawr College,
Bryn Mawr, PA, 1993

Senior Cultural Resources Coordinator

- *CEQA/NEPA documentation*
- *National Register of Historic Places Nominations*
- *Preparation of historic resources surveys*
- *Secretary of the Interior's Standards for the Treatment of Historic Properties documentation*
- *Preservation economics*
- *Cultural landscapes*

Years of Experience: 8

Relevant Experience:

- *Martin Luther King, Jr. Hospital Cultural Resources Technical Report (in progress)*
- *Rancho Los Amigos National Rehabilitation Center Cultural Resources Technical Report (in progress)*
- *LA Plaza de Cultura y Artes Section 106 Compliance Report (in progress)*

Marlise Fratinardo, senior cultural resources coordinator for Sapphos Environmental, Inc., has more than eight years of professional and academic experience in the practice of historic preservation, urban planning, and applied architectural history in the United States and abroad. Ms. Fratinardo's qualifications meet and exceed the Secretary of the Interior's Professional Qualification Standards in Architectural History, History, and Historic Preservation Planning.

As an architectural historian, Ms. Fratinardo has extensive experience in evaluating the significance of a diverse range of building types and landscapes. In addition to preparing assessments for projects in Los Angeles, Santa Monica, Laguna Beach, West Hollywood, Santa Clarita, and Pasadena, she participated in a comprehensive survey and cultural resources analysis of the RMS Queen Mary in Long Beach, California. Ms. Fratinardo contributed to the Wilshire Center/Koreatown Redevelopment Area Historic Resources Survey for the City of Los Angeles, in which she utilized tablet PCs to collect survey data, established eligibility requirements, developed the survey's historic overview, and conducted significance evaluations for surveyed properties. She has demonstrated experience in CEQA/NEPA documentation, particularly in developing historical resources sections, technical reports, and mitigation recommendations to reduce impacts to historical resources.

In her capacity as an urban planner, Ms. Fratinardo has advised local governments and community groups on the process of integrating historic preservation goals into local planning efforts by participating in the development of historic preservation ordinances, design standards, unified development codes and growth management plans that addressed community character, aesthetics, and local identity for municipalities throughout the United States. A specialist in preservation economics, she prepared two comprehensive statewide studies on the economic benefits of historic preservation on behalf of the Colorado Historical Society and the Michigan Historic Preservation Network.

Her professional background includes numerous projects aimed at the protection and revitalization of historic areas. She has demonstrated experience in preparing National Register of Historic Places nominations and rehabilitation grant applications, including a successful grant application ($200,000) for a historic rehabilitation project in Rio Blanco County, Colorado. As a participant in the US/ICOMOS International Exchange Program, she worked in partnership with TURATH Heritage Management Consultants and community members to develop a historic preservation plan for a rehabilitation project in Al-Houson, Jordan.

Ms. Fratinardo's areas of interest include cultural landscapes, preservation economics, urban infill development, parks, streetscapes, and infrastructure. She is a member of the U.S. National Committee of the International Council on Monuments and Sites (US/ICOMOS), Historic Gardens and Cultural Landscapes Committee, and the Los Angeles Conservancy.

Laura G. Carías, MA

Master of Arts, Public History, California State University, Sacramento, 2006

Cultural Resources Coordinator

- *Historic resources surveys and assessments*
- *Secretary of the Interior's Standards for the Treatment of Historic Properties*
- *Conduct and implement cultural resources mitigation, including HABS documentation*
- *Developing Historic Contexts*

Years of Experience: 4

Relevant Experience:

- *Rancho Los Amigos Historic District*
- *American Beet Sugar Factory Historic Structures Report*
- *Santa Paula Train Depot and Mill Rehabilitation and Restoration*
- *Long Beach Press Telegram Mitigation*
- *Countywide Historic Inventory Survey for the County of Sutter*
- *Packing historical inventory for Patriotic Hall, Los Angeles*

Ms. Laura G. Carías, cultural resources coordinator for Sapphos Environmental, Inc., has four years of experience in the field of historic cultural resources evaluation and identification, documentation, and preservation. She specializes in coordination of historic resources surveys, Historic American Buildings Survey (HABS) documentation, assessment of historic significance, and preparation of documentation to support the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and National Historic Preservation Act (NHPA). Ms. Carias satisfies the Secretary of the Interior's professional standards as an architectural historian.

Ms. Carías has assisted in the preliminary assessment of various types of historic resources. Ms. Carias has performed, or contributed to intensive and reconnaissance level historic resources surveys for the Cities of Pomona, Glendale, Huntington Park, and San Juan Bautista as well as Sutter County. Ms. Carías has conducted extensive archival research throughout Los Angeles, Riverside, San Bernardino, San Diego, Sacramento, and Solano Counties. Ms. Carias has also assisted in authoring historic structures report for the Santa Paula Depot in Santa Paula, Ventura County, and the American Sugar Beet Factory in Chino, San Bernardino County.

Ms. Carías's experience encompasses historical resources projects throughout Southern California. She has researched and analyzed contexts for a wide variety of property types. For City of Ontario in County of San Bernardino, she conducted the research for the historic context for the City's historic citrus industry. Ms. Carias also has assisted with Historic Structures Report for the American Beet Sugar Factory in Chino both with the written report and the fieldwork.

Since working at Sapphos Environmental, Inc, Ms. Carías has assisted with writing sections of the report and the Historic Context for the Rancho Los Amigos Historic District report as well as the research and report writing for a variety of projects, including the proposed Long Beach Kroc Community Center and the proposed Los Angeles Unified School District expansion for the Bellingham Elementary School. Currently, she is managing the mitigation efforts for Rancho Los Amigos Data Center project which include HABS documentation, oral history interviews and commemorative exhibit and kiosk designs.

Ms. Carías's educational background includes public history, architectural history, Oral History methods, and archival management. She is a member of the Los Angeles Conservancy, California Council for the Promotion of History and the California Preservation Foundation.

Christopher W. Purtell

Master of Arts, Archaeology Science, California State University, Fullerton (in progress; degree expected in 2011)

Bachelor of Arts, Anthropology/Archaeology, California State University, Dominguez Hills, 1992

Senior Cultural Resources Coordinator / Archaeologist

- *Environmental analysis in support of CEQA, NEPA, and NHPA*
- *Archaeological principal investigator*
- *Project management of archaeological studies*
- *Phase I ,II, and III archaeological investigations*
- *Prehistoric and historic laboratory analysis*
- *Coordination with Native American Heritage Commission*
- *Archaeological construction monitoring*
- *Archaeological record search*
- *Rock art analysis*
- *Ethnographic research*

Years of Experience: 5

Relevant Experience:

- *Phase I surveys, Avalon I Alternative Energy Project, Manzana Wind Energy Project, Hoffman Summit Wind Energy Project, and PdV Wind Energy Project*
- *Phase I survey for 2008 Owens Valley PM$_{10}$ Planning Area Demonstration Attainment State Implementation Plan Subsequent Environmental Impact Report*
- *Phase I survey of 932 acres of the Vasquez Rocks Natural Area Park*
- *LA Plaza de Cultura y Artes*

Mr. Christopher Purtell is a senior cultural resources coordinator / archaeologist for Sapphos Environmental, Inc. Mr. Purtell has five years of experience in project management, environmental compliance, archaeological survey, excavation, monitoring, laboratory analysis, and documentation. His qualifications meet the Secretary of the Interior's Professional Qualifications Standards in Archaeology.

As a senior cultural resources coordinator, Mr. Purtell has undertaken and contributed to work efforts for prehistoric and historic archaeology in the Great Basin and Mojave Desert pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). As a field director, Mr. Purtell has managed field crews in intensive pedestrian surveys, excavations, and laboratory analyses. He has co-authored cultural analyses for Fatal Flaw studies; environmental compliance documents, such as Initial Studies, Environmental Impact Reports, and Cultural Resources Technical Reports; and has compiled California Department of Parks and Recreation (DPR) site records. He has successfully coordinated with a variety of lead and regulatory agencies, including the Bureau of Land Management (BLM) among others.

Mr. Purtell has conducted archaeological research in California, Western Mexico, Baja California, and the North Coast of Peru. He specializes in lithic trajectories and technologies, and received the 2007–2008 Professional Distinction Award for Field and Laboratory Analysis from the California State University, Fullerton, Graduate School of Anthropology. Additional research interests include geographic information system (GIS) studies on prehistoric migration patterns, the archaeology of San Nicolas Island and Baja California, and California rock art. Mr. Purtell's recent work assignments have included cultural resources monitoring at the 9,212-acre site of the 2008 Owens Valley PM$_{10}$ Planning Area Demonstration of Attainment State Implementation Plan in Inyo County, California, for the Great Basin Unified Air Pollution Control District; cultural resources task manager for the 8,300-acre Avalon I Alternative Energy Project; and project manager for cultural resources monitoring at LA Plaza de Cultura y Artes in El Pueblo de Los Angeles Historic District in downtown Los Angeles.

Mr. Purtell's professional experience includes over 20 years as a business director and program manager in the manufacturing of aerospace airframe components prior to his cultural resources management work. Mr. Purtell has extensive working knowledge in program management practices, quality management principles, and International Organization for Standardization 9002 quality procedures and applications, which are international in scope, and which have given him the necessary knowledge and expertise to manage complex cultural resources projects.

Roberta L. Thomas, MA

Master of Arts, Archaeology Science, California State University, Long Beach, 2009

Bachelor of Arts, Anthropology/Archaeology, University of Oklahoma, Norman, Oklahoma, 2005

Cultural Resource Analyst

- *Phase I archaeological surveys*
- *Implementation of study design consistent with project objectives*
- *Research design*
- *Excavation*
- *Data recording and interpretation*
- *Native American coordination*
- *NAGPRA compliance*
- *Geophysical surveys with GPR and conductivity*

Years of Experience: 2

Relevant Experience:

- *Playa Vista Development, Los Angeles County, California Phase I survey, laboratory analysis, Native American coordination, and repatriation of Native American remains*
- *Bolsa Bay Archaeological Project, Huntington Beach, California Osteology lab supervisor: repatriation preparation and special studies analysis*
- *Kern County Wind Development Projects, California Phase I survey and recordation of sites and isolates*

Ms. Roberta Thomas, resource analyst at Sapphos Environmental, Inc., has more than two years of experience in the field of archaeology, including Native American coordination, pedestrian surveys, artifact analysis, and laboratory analysis. Ms. Thomas has worked closely with Native American monitors to perform quality assurance checks, as well as prepare human remains for repatriation.

Ms. Thomas has participated in many projects, including Phase I archaeological survey of Rapa Nui (Easter Island), data documentation, quality assurance checks, curation, repatriation of Native American remains, and artifact photography of the Playa Vista site, Los Angeles, and repatriation preparation, quality assurance checks, and special studies research and preparation of the Bolsa Bay site, Huntington Beach, California. Currently, Ms. Thomas is preparing site documentation and participating in a Phase I survey for two wind energy projects being developed in Kern County.

As a graduate student, Ms. Thomas spent three field seasons (five to six weeks each) working on Rapa Nui (Easter Island) to help teach the Rapa Nui Archaeological Field School. Her duties included, but were not limited to, project planning and coordination, and instruction on pedestrian survey, mapping, artifact/feature documentation, and small-scale excavation. During the second field season, Ms. Thomas began research and collection of materials necessary to complete her Master's thesis. For this project, Ms. Thomas used time of flight- laser ablation-inductively coupled-plasma mass spectrometry to elementally source obsidian artifacts to their origins on the island.

Ms. Thomas's professional experience includes a working knowledge of Native American Graves Protection and Repatriation Act (NAGPRA) procedures, applications, and compliance. She is also familiar with remote-sensing techniques and instrumentation, such as ground-penetrating radar, magnetometry, resistivity, and conductivity. Most recently, she was in charge of planning and tracking all the special studies analyses: obsidian sourcing, C14 dating, pollen and protein residue analysis, and so on.

Karl R. Huebchen, MA

Master of Arts, Anthropology, University of Cincinnati, Ohio

Bachelor of Arts, Anthropology University of Cincinnati, Ohio

Senior Cultural Resources Coordinator

- *Phase I, II, and III archaeological field projects*
- *Archaeological monitoring and compliance*
- *Implementation of study design consistent with project objectives*
- *Research design*
- *Excavation*
- *Data recording and interpretation*
- *Ethnographic research*
- *Preparation of CEQA/NEPA documents*
- *Native American and agency coordination*

Years of Experience: 19

Relevant California Experience:

- *Avalon I Wind Energy Project, Phase I Archaeological Survey, Kern County, California (in progress)*
- *Pacific Wind Energy Project, Technical Report*
- *Phase II and Phase III Archaeological Investigations in Support of the Vasquez Rocks Natural Area Park Interpretive Center, County of Los Angeles, California (in progress)*

Mr. Karl Huebchen, senior cultural resources coordinator for Sapphos Environmental, Inc., has more than 19 years of professional experience as an archaeologist. He is a Registered Professional Archaeologist (RPA). His qualifications meet and exceed the Secretary of the Interior's Professional Qualification Standards in Archaeology.

Mr. Huebchen has worked in more than 20 states on a variety of archaeological survey, testing, and data recovery projects. With a broad knowledge of prehistoric material culture, he has authored or coauthored numerous cultural resources management reports for compliance with both state and federal historic preservation laws. He has demonstrated experience in environmental documentation, particularly in developing archaeological resources sections for NEPA documents, technical reports, and mitigation recommendations to reduce impacts to archaeological resources.

As a project manager, Mr. Huebchen has conducted background research, led field investigations, mobilized field crews, coordinated with subcontractors and agencies, and drafted consultation letters. He has led numerous archaeological field crews and has been responsible for shovel test and test unit excavation/documentation, site location, mapping, and photography. He has contributed to archaeological investigations located along U.S. 93, Mohave County, Arizona, to examine the information potential associated with the Historic State Highway System, as well as the McCarthy Road Maintenance Project in Alaska; the Upper Basin Archaeological Research Project (UBARP); Kaibab National Forest, Arizona; and the Fort Ancient State Memorial in Warren County, Ohio.

A specialist in prehistoric ceramics, Mr. Huebchen has prepared a variety of cultural materials and documentation for curation, including ceramics, lithics, bone, and historic artifacts. His interests include dynamics and systematics related to the late prehistoric cultures of the Midwest and the contact period between Native Americans and early Spanish explorers in the Southeast. He has extensive experience in archival research, geographic information system applications, artifact analysis, and statistical analysis.

Mr. Huebchen is a member of the Society for Historic Archaeology, the Society for American Archaeology, the Southeastern Archaeological Conference, the National Trust for Historic Preservation, and the Midwest Archaeological Conference.

APPENDIX F
NOISE TECHNICAL IMPACT REPORT

MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

NOISE IMPACT TECHNICAL REPORT

PREPARED FOR:

COUNTY OF LOS ANGELES
CHIEF EXECUTIVE OFFICE
KENNETH HAHN HALL OF ADMINISTRATION
500 WEST TEMPLE STREET
LOS ANGELES, CALIFORNIA 90802

PREPARED BY:

SAPPHOS ENVIRONMENTAL, INC.
430 NORTH HALSTEAD STREET
PASADENA, CALIFORNIA 91107

AUGUST 2010

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SECTION ES
EXECUTIVE SUMMARY

This Noise Impact Technical Report has been prepared in support of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment project (proposed project). This technical report addresses the potential for the proposed project to result in noise-related impacts on the 38-acre proposed project site located in the unincorporated area of the Willowbrook community within the County of Los Angeles, California, as well as sensitive receptors located in the surrounding area.

This report was prepared to address the noise issues identified in the Initial Study (IS) that require further analysis to identify the significance levels of potential impacts from the proposed project pursuant to the California Environmental Quality Act (CEQA). The goal of the proposed project is to implement new campus improvements to reopen a fully functional medical campus that meets community needs for quality health care. Construction of the proposed project would entail a Tier I and Tier II development program. Tier I involves project-level development of the new Multi-Service Ambulatory Care Center (MACC) and the Ancillary Building, tenant improvements in existing buildings, site improvements, and the potential relocation of the Magnetic Resonance Imaging (MRI) Building. Tier II of the proposed project would entail the development of a campus-wide Master Plan. Tier II would have the potential to build out approximately 1,814,696 square feet of development on the proposed project site with mixed uses including medical office, general offices, commercial, retail, recreation, and other development in support of the campus. In addition, up to 100 residential units would be developed at a density consistent with surrounding residential area development densities.

The key findings of this Noise Impact Technical Report are as follows:

- Construction activities related to the proposed project have the potential to result in significant impacts related to noise and vibration.
- Operational activities related to the proposed project have the potential to result in significant impacts related to noise.
- Four mitigation measures are recommended to reduce the anticipated noise impacts associated with the proposed project:
    - Implementation of mitigation measures Noise-1 and Noise-2 would reduce construction noise at residential properties; however, noise impacts from construction, while temporary, would remain significant and unavoidable at residences to the south of the proposed project boundary.
    - Implementation of mitigation measure Noise-3 would reduce significant impacts related to vibration during construction to below the level of significance.
    - Implementation of mitigation measure Noise-4 would reduce significant impacts related to mechanical noise to below the level of significance.
- Noise generated by construction of the proposed project, while temporary, would remain significant and unavoidable.

1.1 PURPOSE AND SCOPE

The Noise Technical Impact Report was undertaken by Sapphos Environmental, Inc. for the County of Los Angeles (County) in support of the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment project (proposed project). The purpose of this study is to evaluate potential noise impacts associated with the proposed project, to propose mitigation measures for any significant noise impacts caused by implementation of the proposed project, and to document the findings of significance and non-significance of potential impacts. The Noise Technical Impact Report focuses on all phases (i.e., construction, operation, and maintenance) of the proposed project, as well as on the potential cumulative impacts of the proposed project.

1.2 PROPOSED PROJECT LOCATION

The proposed project site is located on the existing 38-acre Martin Luther King, Jr. Medical Center Campus, at 12021 Wilmington Avenue in the unincorporated area of Willowbrook, County of Los Angeles, California (Figure 1.2-1, *Project Location Map*).

The proposed project site is located approximately 3 miles north of State Route 91 (SR-91; Artesia Freeway), approximately 3 miles northeast of Interstate 710 (I-710; Long Beach Freeway), approximately 2 miles east of Interstate 110 (I-110; Harbor Freeway), less than 1 mile south of East Imperial Highway, and less than 1 mile south of Interstate 105 (I-105; Glen Anderson Freeway) (Figure 1.2-2, *Regional Vicinity Map*). The proposed project site can be accessed from East 120th Street or from Wilmington Avenue.

The proposed project site is bounded on the north by East 120th Street, on the east by Wilmington Avenue, on the south by East 122nd Street, and on the west by Compton Avenue of Los Angeles (Figure 1.2-1). The proposed project site is less than 1 mile north of the City of Compton and less than 1 mile west of the City of Lynwood (Figure 1.2-3, *Local Vicinity Map*). The proposed project site is also less than 1 mile south of the City of Los Angeles.

The proposed project site appears on the U.S. Geological Survey (USGS) 7.5-minute series South Gate topographic quadrangle (Figure 1.2-4, *Topographic Map with USGS 7.5-Minute Quadrangle Index*).[1] Elevations at the proposed project site range from 86 feet above mean sea level (MSL) to 88 feet above MSL. The topography of the site can be generally characterized as flat.

1.3 PROPOSED PROJECT COMPONENTS

The proposed project entails two tiers. Tier I would involve development of a new Multi-Service Ambulatory Care Center (MACC) and the Ancillary Building. Tier I would also include tenant improvements to the following existing buildings: North Support Building, South Support Building, and the Plant Management Building; site improvements; and potential relocation of the Magnetic Resonance Imaging (MRI) Building.

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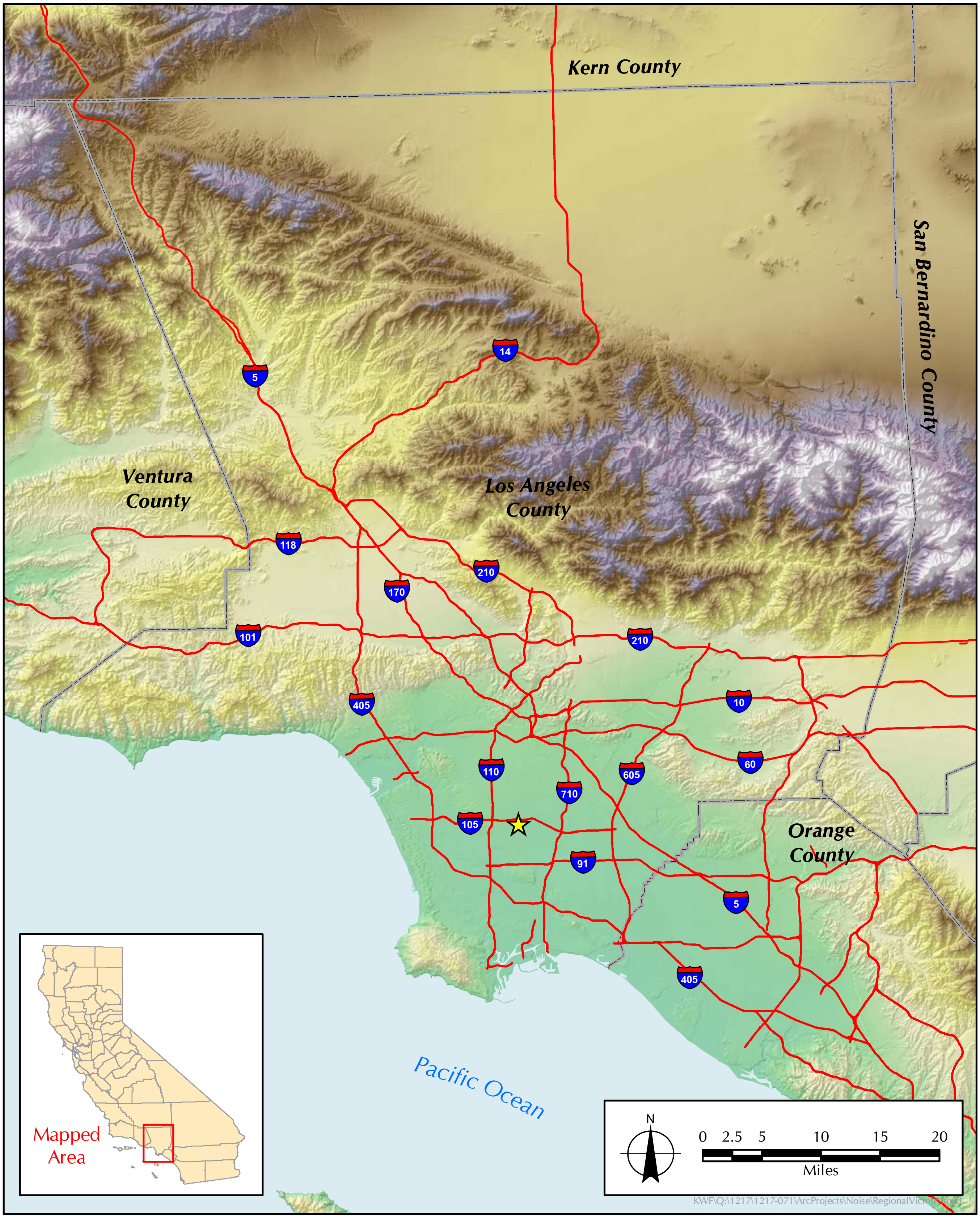
[1] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

SOURCE: ESRI, SEI

FIGURE 1.2-1

Project Location Map



★ Proposed Project Location

FIGURE 1.2-2

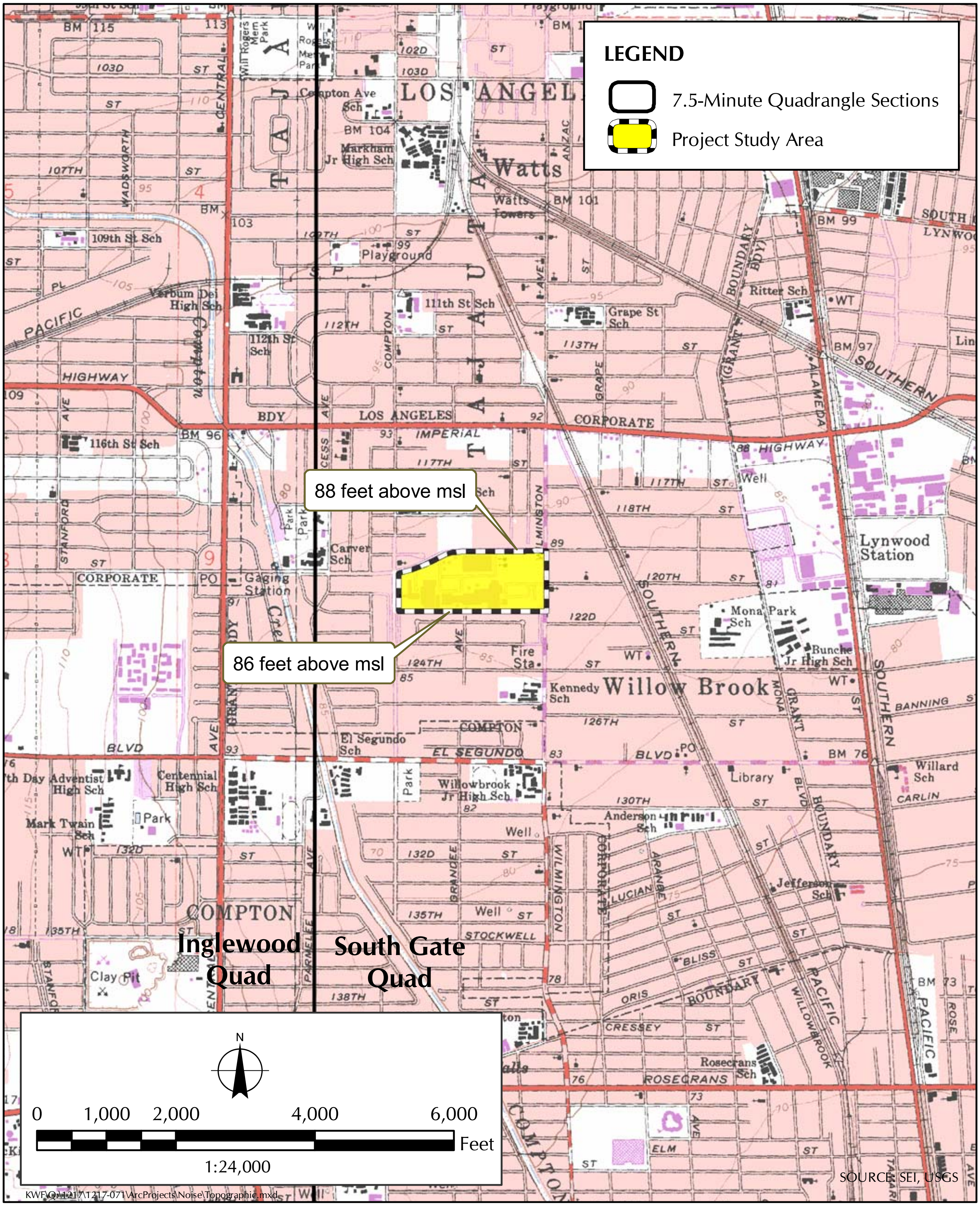
Regional Vicinity Map

SOURCE: SEI, GlobeXplorer

KWF\Q:\1217\1217-071\ArcProjects\Noise\LocalVicinity.mxd

FIGURE 1.2-3

Local Vicinity Map



SOURCE: SEI, USGS

KWF\Q:\1217\1217-071\ArcProjects\Noise\Topographic.mxd

FIGURE 1.2-4

Topographic Map with USGS 7.5-Minute Quadrangle Map Index

Tier II of the proposed project would entail the reuse or replacement of the existing MACC Building (which will be vacant following construction of the new MACC Building in Tier I) and reuse or replacement of the Emergency Room, Storage Building, and Cooling Towers.[2] Tier II construction would entail additional master-planned mixed-use development, which might potentially include medical offices, general offices, commercial and retail space, residential units, recreational areas, and other development that is appurtenant to and compatible with the primary land use in support of the campus.

1.3.1 Tier I: Project Development

Tier I of the proposed project would entail the development of two new buildings: the new MACC and the Ancillary Building, as well as tenant improvements in existing buildings, site improvements, and potential relocation of the MRI Building. A project-level Environmental Impact Report (EIR) analysis will be provided for Tier I.

Multi-Service Ambulatory Care Center Building

The proposed MACC Building would be a four-story building consisting of approximately 132,000 square feet of floor area. This building would house the walk-in clinic, outpatient imaging, outpatient surgery, and various other outpatient clinics currently operating in the existing MACC. The proposed building would most likely be of structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. Similar to the proposed Ancillary Building, the lateral-force–resisting system of the MACC Building can be any one of the following: moment frames, braced frames, or a combination of the two. The lateral-force–resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

Ancillary Building

The proposed Ancillary Building would be a two-story structure consisting of approximately 24,700 square feet of floor area. This building would house the campus kitchen and cafeteria and administrative offices. The building would be constructed to the east of the new MACC. A new pedestrian foot bridge would be provided at the east end of the building for connection to the existing Inpatient Tower for the transportation of materials and supplies. The bridge would most likely be constructed of steel with a seismic joint at the Inpatient Tower.

The new building would most likely be structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. The lateral-force–resisting system for the building can be any one of the following: moment frames, braced frames, or a combination of the two. It is anticipated that the lateral-force–resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

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[2] Although the functions of these buildings would be substituted.

Tenant Improvements

The tenant improvements would be performed in the North Support Building to provide space for the MACC administrative departments. The South Support Building would be reorganized to serve as the main warehouse for the MACC. The South Support Building may also serve as a central distribution center for other Los Angeles County health-care facilities in the area. Other tenant improvements would be performed in the Interns and Physicians and Plant Management Buildings for support functions to the MACC.

Site Improvements

The site work would consist of a new parking terrace, relocated entrance to the facility, new parking lots, re-striping of existing lots, and new landscaping at the entry of the new MACC and its surrounding area. A space for an emergency generator and a service yard with technical dock positions that connect mobile radiology equipment would also be provided.

1.3.2 Tier II: Master Plan Development

Tier II of the proposed project would entail the development of a campus-wide master plan. It is anticipated that the development described in the master plan would prepare the proposed project site for future mixed-use campus support development that would provide the health services necessary to respond to and address the needs of the community. Tier II would potentially build out approximately 1,814,696 square feet of development on the proposed project site with mixed uses including medical office, commercial, retail, office space, recreation, and other development in support of the campus. In addition, up to 100 residential units, to be developed at a multi-family density consistent with surrounding residential area multi-family development densities, are proposed in Tier II. Although the buildings would be vacated as part of Tier I, Tier II would entail the reuse or replacement of the existing MACC building, Emergency Room, Storage Building, and Cooling Towers. The Tier II components are conceptual at this time, and will therefore only be discussed on a programmatic level in the EIR, as permitted under CEQA. Once the detailed future development plans for Tier II components are prepared, consistent with the guidelines for programmatic EIRs under CEQA, the projects will be examined in light of the programmatic EIR analysis to determine whether an additional environmental document must be prepared.

1.4 CONSTRUCTION SCENARIO

1.4.1 Tier I Construction Scenario

Tier I of the proposed project would require approximately 37 months to complete, including the construction of the new MACC and Ancillary Buildings, tenant improvements, site improvements, and potential relocation of the MRI Building (November 2010 to December 2013). Construction at the proposed project site is anticipated to be in accordance with all federal, state, regional, and County regulations, including the National Pollution Discharge Elimination System[3] and the County General Plan.[4]

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[3] U.S. Environmental Protection Agency. 2009. *National Pollution Discharge Elimination System*. Available at: http://cfpub.epa.gov/npdes/

[4] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

It is anticipated that Tier I construction for the proposed project may require the type of equipment listed below (Table 1.4.1-1, *Anticipated Construction Equipment*).

TABLE 1.4.1-1
ANTICIPATED CONSTRUCTION EQUIPMENT

Approximate Quantity	Type of Equipment or Vehicle	Approximate Duration of On-site Construction Activity (in months)
2	Man lift	3
4	Pickup truck	8
2	Hand compactor	5
2	Crane	3
1	Concrete mixer	4
1	Backhoe	3
40–60	Crew members	8
50	Crew vehicles (maximum)	8
1	Pile Driver	6
1	Large Bulldozer	3
2	Dozer	3
1	Front-end loader	1
1	Water truck	2
1	Grader	1
5	Dump truck	6
16	Concrete mix truck	9
1	Roller	1
3	Fork lift / grade all	3

Site preparation and construction of the proposed project would be in accordance with all federal, state, and County building codes. Daily construction activities would be subject to County noise regulations. All construction-related activities would be scheduled in compliance with the County Noise Ordinance, which prohibits construction activities and operation of construction equipment between the hours of 8:00 p.m. and 7:00 a.m., Monday through Friday, or at any time on Sunday or holidays. Work conducted on Saturdays would commence at 7:00 a.m. and cease no later than 5:00 p.m. Noise levels exceeding 65 dBA (decibels, A-weighted sound levels) for single-family residences and 70 dBA for multi-family residences during construction hours are prohibited.

The construction contractor would ensure that source-reduction techniques and development of recycling programs for construction and operation of the proposed project are considered and implemented whenever possible.[5] In addition, employee vehicles, construction equipment and vehicles, and storage and materials used at the proposed project site would be located in a designated staging area to minimize impacts to the site, pedestrians, and medical center employee or visitor traffic.

It is anticipated that there would be grading activities associated with the development of Tier I of the proposed project. It is anticipated that the export/import of material and deep-soil excavation would be undertaken during construction of the proposed project. It is further anticipated that excavation may exceed 20 feet, but would not be expected to be greater than 60 feet deep. It is

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[5] *Los Angeles County Code*, Title 12, "Environmental Protection," Chapter 20.87.08.060, "Approval of Recycling and Reuse Plan." Available at: http://ordlink.com/codes/lacounty/index.htm

anticipated that a geotechnical engineer would be available for observation and testing of the earthwork-related tasks to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered would be evaluated by the proposed project engineering geologist and the soil engineer.[6] The existing access roads to the proposed project site and the streets surrounding the proposed project site will be used to transport import/export and other construction-related materials to and from the proposed project site.

The construction contractor would be required to incorporate best management practices (BMPs) consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[7] Should the construction period continue into the rainy season, supplemental erosion measures would need to be implemented, including, but not limited to, the following:

- Mulching
- Geotextiles and mats
- Earth dikes
- Temporary drains and gullies
- Silt fence
- Straw-bale barriers
- Sandbag barrier
- Brush or rock filter
- Sediment trap

The anticipated construction period would begin in November 2010 and conclude in December 2013. BMPs to control surface runoff and soil erosion would be required for construction occurring during rainy periods.

Construction equipment would be turned off when not in use. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would use exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times. It is currently anticipated that an average of 150 construction workers would be on site at any given time during the construction of the proposed project.

Construction-related ingress and egress to the proposed project site would occur primarily off East 120th Street to the north or Wilmington Avenue to the east.

1.4.2 Tier II Construction Scenario

Tier II of the proposed project consists of a campus-wide Master Plan and up to 1,814,696 square feet of development on the proposed project site. The potential construction scenario for Tier II may be a multi-phase process to be completed concurrently with construction of Tier I. The longest scenario is to develop Tier II within a 10-year timeframe, between 2010 and 2020. This analysis approach of the construction scenario has been developed based on an aggressive scenario (which allows the proposed project site to be developed to the maximum extent possible) to allow the

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[6] URS. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

[7] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

consideration of a reasonable worst-case scenario if the County chooses to develop up to 1,814,696 square feet.

The type and quantity of equipment that would potentially be used in construction of Tier II would vary for each component of the tier. However, for the purposes of this analysis, it is anticipated that development of Tier II would require up to eight phases using equipment comparable to the equipment described in Table 1.4.1-1 for each phase. Site preparation and construction of the proposed project would be in accordance with all federal, state, and County building codes.

Any construction equipment used during the development of Tier II would be turned off when not in use. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would use exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times. It is currently anticipated that up to 150 construction workers would be on site at any given time during the construction of the proposed project.

Construction-related ingress and egress to the proposed project site would occur primarily off East 120th Street to the north or Wilmington Avenue to the east.

SECTION 2.0
NOISE ANALYSIS

The noise analysis in this section evaluates the potential noise impacts associated with the construction, operation, and maintenance activities of the proposed project. A relevant regulatory framework is used to determine the consistency of the proposed project with state and local laws governing the regulations of noise and the level of significance of noise impacts of the proposed project. Mitigation measures are subsequently provided for noise impacts identified to be potentially significant. The information used in this analysis is based on a review of relevant literature and technical reports (see Section 4.0, References, for a list of reference materials consulted).

2.1 NOISE TERMINOLOGY

The following is a brief discussion of noise terminology used in this assessment.

- *Sound:* A vibratory disturbance created by a vibrating objects, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- *Noise:* Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- *Decibel (dB):* A unit-less measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.

- *A-weighted Decibel (dBA)*: Overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- *Equivalent Sound Level (L_{eq})*: The equivalent steady-state sound or vibration level, which in a stated period of time would contain the same acoustical or vibration energy.

- *Ambient:* The total of all noise in the environment other than the noise from the source of interest. This term is used interchangeably with *background noise*.

- *Frequency:* The number of times per second that the sine wave of sound repeats itself, or that the sine wave of a vibrating object repeats itself. Expressed in hertz (Hz).

- *Vibration*: Vibration is the mechanical motion of earth or ground, building, or other type of structure, induced by the operation of any mechanical device or equipment located upon or affixed thereto. For purposes of this report, the calculated magnitude of vibration is expressed in terms of the peak particle velocity (PPV) in the unit of inches per second. PPV is the maximum velocity experienced during a vibration event.

2.2 NOISE AND VIBRATION CHARACTERISTICS AND METHODS OF MEASUREMENT

2.2.1 Noise

Noise is defined as unwanted sound. The human response to environmental noise is subjective and varies considerably from individual to individual. Sensitive receptors, such as residential areas, convalescent homes, schools, auditoriums, and other similar land uses, may be affected to a greater degree by increased noise levels than industrial, manufacturing, or commercial facilities are affected. The effects of noise can range from interference with sleep, concentration, and communication, to the causation of physiological and psychological stress, and at the highest intensity levels, hearing loss.[8]

The method commonly used to quantify environmental noise involves evaluation of all frequencies of sound, adjusted to reflect the constraints of human hearing. Since the human ear is less sensitive to low and high frequencies than to midrange frequencies, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called "A-weighting." A measured noise level is called the A-weighted sound level measured in A-weighted decibels, written as dBA. In practice, environmental noise is measured using a sound-level meter that includes an electronic filter corresponding to the A-weighted frequency spectrum (Table 2.2.1-1, *Common Noise Levels and Loudness*).

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[8] U.S. Environmental Protection Agency, Office of Noise Abatement and Control. August 1978. *Noise: A Health Problem*. August 1978. Washington, DC.

TABLE 2.2.1-1
COMMON NOISE LEVELS AND LOUDNESS

Noise Source	A-weighted Sound Level (dBA)	Subjective Loudness
Near jet engine	130	Threshold of pain
	120	
Rock-n-roll band	110	Deafening
Jet flyover at 1,000 feet	100	
Loud auto horn at 10 feet Power mower	90	
Motorcycle at 25 feet Food blender	80	Very loud
Garbage disposal	70	
Living room music Human voice at 3 feet	60	Loud
	50	
Residential air conditioner at 50 feet	40	Moderate
Bird calls	30	
Quiet living room	20	
Average whisper	10	Faint
Rustling leaves	0	Very faint Threshold of human audibility

SOURCE: Cowan, James P. 1993. *Handbook of Environmental Acoustics*. Hoboken, NJ: John Wiley and Sons.

There are several statistical tools used to evaluate and compare noise level measurements. To account for the fluctuation in noise levels over time, noise impacts are commonly evaluated using time-averaged noise levels. L_{eq} are used to represent the noise level experienced over a stated period of time averaged as a single noise level. Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, an artificial decibel increment is added to quiet-time noise levels to create a 24-hour noise descriptor, or a 24-hour L_{eq}, which is the community noise equivalent level (CNEL).[9] The day-night level (L_{dn}) standard also adds an artificial decibel increment to the sound level during nighttime hours, but does not adjust the sound level during evening hours.

Another measure used to characterize noise exposure is the variation in sound levels over time, measured by percentage exceedance level. L10 is the A-weighted sound level that is exceeded 10 percent of the measurement period, and L90 is the level exceeded 90 percent of the measurement period. L50 is the median sound level. Additional statistical measures include L_{min} and L_{max}, the minimum and maximum sound levels, respectively, measured during a stated measurement period.

These descriptions of noise are based on the sound level at the point of measurement. When determining potential impacts to the environment, the noise level at the receptor is considered. Noise is attenuated as it propagates from the source to the receptor. Attenuation is the reduction in the level of sound resulting from the absorption by the topography of an area (i.e., paved or vegetated surface), atmosphere, distance, barriers, and other factors. Attenuation is also logarithmic rather than linear, so that for stationary sources like the proposed project, noise levels decrease approximately 6 dBA for every doubling of distance. For linear sources, such as streets, noise levels decrease by between 3 and 5 dBA for every doubling of distance.

To estimate a receptor's subjective reaction to a new noise is to compare the new noise with the existing noise environment, the "ambient" noise level, to which the receptor has become adapted. An increase of 1 dBA over the ambient noise level cannot be perceived unless it occurs in carefully controlled laboratory experiments; a 3-dBA increase is considered as a just-perceivable difference; an increase of at least 5 dBA is a noticeable change, thereby causing community response and often being considered a significant impact; and a 10-dBA increase is subjectively heard as approximately a doubling in loudness, thereby almost always causing an adverse community response.

The assessment of the noise impact depends on the environment, the nature and level of noise-generating activities, the pathway through which the noise travels, the sensitivity of the receptor, the period of exposure, and the exceedance of the noise level over the ambient level.

2.2.2 Vibration

Vibration is an oscillatory motion in terms of displacement, velocity, or acceleration. It refers to the minimum ground- or structure-borne motion that causes a normal person to be aware of the vibration by means such as, but not limited to, sensation by touch or visual observation of moving objects. The effects of groundborne vibration include fellable movements of building floors, rattling of windows, and shaking of items on shelves or hangings on the walls. In extreme cases, vibration can cause damage to buildings. The noise radiated from the motion of room surfaces is called groundborne noise (Table 2.2.2-1, *Typical Levels of Groundborne Vibration*). The vibration motion

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[9] City of Los Angeles. 2006 *L.A. CEQA Thresholds Guide*. "I. Noise." Available at: http://www.lacity.org/ead/eadweb-aqd/Thresholds/I-Noise.pdf

normally does not provoke the same adverse human reactions as noise unless there is an effect associated with the shaking of a building. In addition, vibration noise can only occur inside buildings. Similar to the propagation of noise, vibration propagated from the source to the receptor depends on the receiving building (i.e., the weight of the building), soil conditions, layering of the soils, the depth of groundwater table, and so on.

TABLE 2.2.2-1
TYPICAL LEVELS OF GROUNDBORNE VIBRATION

Response	Velocity Level [a]	Typical Sources (at 50 feet)
Minor cosmetic damage of fragile buildings	100	Blasting from construction projects
Difficulty with tasks such as reading a video display terminal (VDT) screen	90	Bulldozers and other heavy tracked construction equipment
Residential annoyance, infrequent events	80	Rapid transit, upper range
Residential annoyance, frequent events	70	High speed rail, typical
Approximate threshold for human perception	60	Bus or truck, typical
	50	Typical background vibration

NOTE:
a. Root mean square (RMS) vibration velocity level in VdB relative to 10^{-6} inches/second
SOURCE: Nelson, J.T., and H.J. Saurenman. December 1983. *State-of-the-Art Review: Prediction and Control of Groundborne Noise and Vibration from Rail Transit Trains, U.S. Department of Transportation, Urban Mass Transportation Administration, Report Number UMTA-MA-06-0049-83-4, DOT-TSC-UMTA-83-3.*

2.3 REGULATORY FRAMEWORK

2.3.1 State

In the State of California, Senate Bill 860 (the Noise Element Guidelines), which became effective January 1, 1976, directed the California Office of Noise Control within the State Department of Health Services to prepare Guidelines for the Preparation and Content of Noise Elements of the General Plan.[10] These guidelines provide information concerning the noise environment in the community that should be considered in the land use planning process. As part of this publication, Land Use Compatibility Standards were developed in four categories: Normally Acceptable, Conditionally Acceptable, Normally Unacceptable, and Clearly Unacceptable. These categories were based on earlier work completed by the Department of Housing and Urban Development. The interpretation of the four categories is as follows:

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[10] California Department of Health Services, Office of Noise Control. February 1976. *Guidelines for the Preparation and Content of Noise Elements of the General Plan*. Sacramento, CA.

Normally Acceptable: Specified land use is satisfactory without special insulation.

Conditionally Acceptable: New development requires detailed analysis of noise insulation requirements.

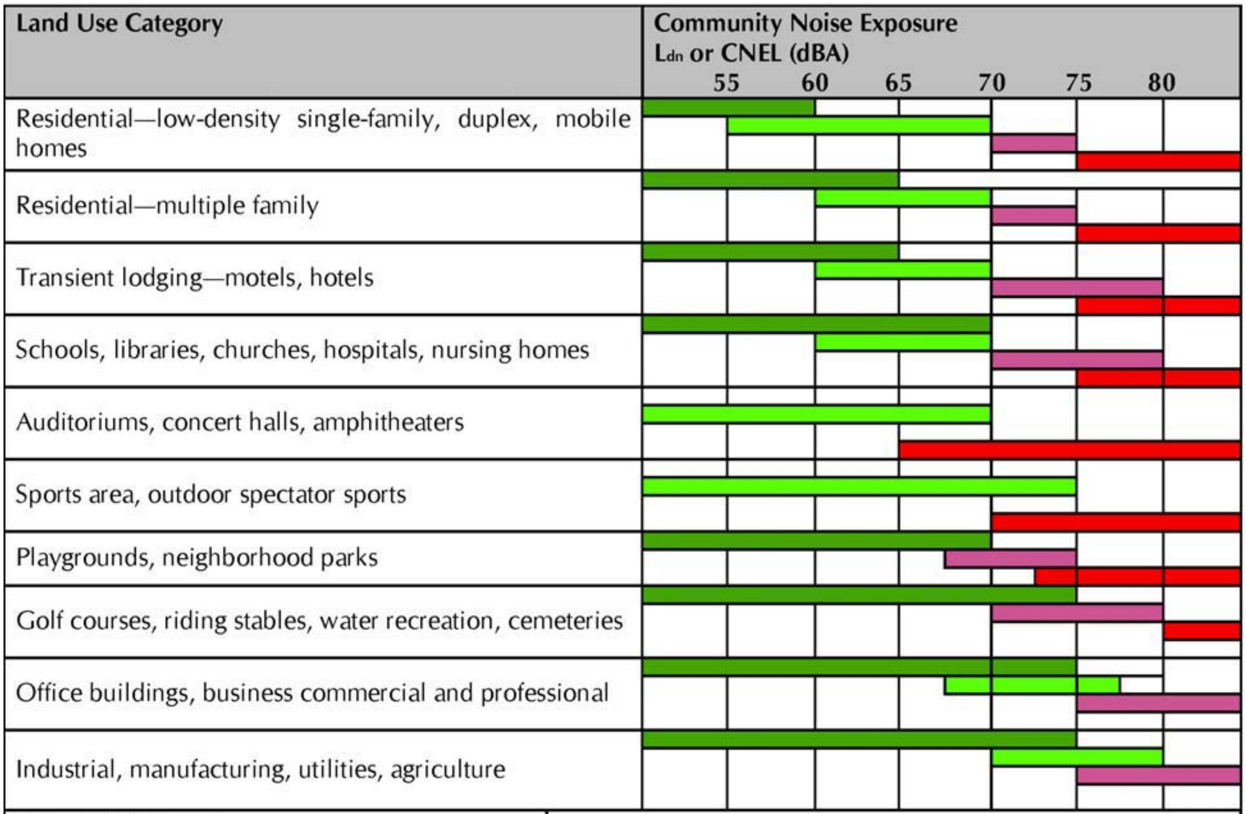
Normally Unacceptable: New development is discouraged and requires a detailed analysis of insulation features.

Clearly Unacceptable: New development should not be undertaken.

The Land Use Compatibility Matrix for Community Noise Environments, as established by the State of California, defines and assigns CNEL values to four categories of acceptance.

The State Uniform Building Code (Title 24, Part 2, California Code of Regulations) establishes uniform minimum noise insulation performance standards to protect persons within new hotels, motels, dormitories, long-term care facilities, apartment houses, and residential units other than detached single-family residences, from the effects of excessive noise, including, but not limited to, hearing loss or impairment and interference with verbal communication and sleep. Residential structures to be located where the CNEL or L_{dn} is 60 dBA or greater are required to provide sound insulation to limit the interior CNEL to a maximum of 45 dBA. An acoustical analysis report, prepared by a person experienced in the field of acoustical engineering, is required for the issuance of a building permit for these structures. Conversely, land use changes that result in increased noise levels of 60 dBA or greater at residences must be considered in the evaluation of impacts on ambient noise levels. Table 2.3.1-1, *Land Use Compatibility for Community Noise Environments*, depicts noise levels for a variety of uses.

TABLE 2.3.1-1
LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS



INTERPRETATION:

🟩 **Normally acceptable** Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.	🟪 **Normally unacceptable** New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
🟩 **Conditionally acceptable** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction with closed windows and fresh air supply systems or air conditioning will normally suffice.	🟥 **Clearly unacceptable** New construction of development should not be undertaken.

NOTES:

L_{dn} = Day-Night Level

CNEL = Community Noise Equivalent Level

dBA = decibels in A-weighted sound levels

SOURCE:

California Department of Health Services, Office of Noise Control. February 1976. *Guidelines for the Preparation and Content of Noise Elements of the General Plan*. Sacramento, CA.

2.3.2 Regional

County of Los Angeles

The County Noise Control Ordinance provides for designation of noise-sensitive zones but does not define specific land uses for these zones.[11] Instead, Section 12.08.260 of the ordinance defines a "noise-sensitive zone" as any area designated, pursuant to Part 4 of the chapter, for the purpose of ensuring a state of exceptional quiet. Section 12.08.470 of the ordinance refers to the use of these zones at individual institutions or facilities that have been designated by the local health officer. These zones must be indicated by the display of conspicuous signs in at least three separate locations within 164 meters (0.1 mile) of the institution or facility.

Operational Noise

The County does not set land use standards for noise in the Noise element of the General Plan. However, the County has adopted the Noise Control Ordinance, which specifies exterior noise standards (Table 2.3.2-1, *County of Los Angeles Exterior Noise Standards*).[12] The exterior noise levels presented in the final column of Table 2.3.2-1 indicate the average hourly dBA to be maintained for each designated noise zone land use.

TABLE 2.3.2-1
COUNTY OF LOS ANGELES EXTERIOR NOISE STANDARDS

Noise Zone	Designated Noise Zone Land Use (Receptor Property)	Time Interval	Exterior Noise Level[1]
I	Noise-sensitive Area[2]	Anytime	45 dBA
II	Residential Area	10:00 p.m. – 7:00 a.m. (Nighttime)	45 dBA
		7:00 a.m. – 10:00 p.m. (Daytime)	50 dBA
III	Commercial Area	10:00 p.m. – 7:00 a.m. (Nighttime)	55 dBA
		7:00 a.m. – 10:00 p.m. (Daytime)	60 dBA
IV	Industrial Area	Anytime	70 dBA

NOTES:
1. Required average hourly noise standard.
2. Noise-sensitive area is designated to ensure exceptional quiet.

SOURCE: County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

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[11] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

[12] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

The County Noise Control Ordinance includes five standards for governing exterior noise levels:

> **Standard No. 1** shall be the exterior noise level that may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable noise level stated above, or if the ambient L_{50} exceeds the foregoing level, then the ambient L_{50} becomes the exterior noise level for Standard No. 1.
>
> **Standard No. 2** shall be the exterior noise level that may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable noise level stated above, plus 5 dB, or if the ambient L_{25} exceeds the foregoing level, then the ambient L_{25} becomes the exterior noise level for Standard No. 2.
>
> **Standard No. 3** shall be the exterior noise level that may not be exceeded for a cumulative period of more than 5 minutes in any hour. Standard No. 3 shall be the applicable noise level stated above, plus 20 dB, or if the ambient $L_{8.3}$ exceeds the foregoing level, then the ambient $L_{8.3}$ becomes the exterior noise level for Standard No. 3.
>
> **Standard No. 4** shall be the exterior noise level that may not be exceeded for a cumulative period of more than 1 minute in any hour. Standard No. 4 shall be the applicable noise level stated above, plus 15 dB, or if the ambient $L_{1.7}$ exceeds the foregoing level, then the ambient $L_{1.7}$ becomes the exterior noise level for Standard No. 4.
>
> **Standard No. 5** shall be the exterior noise level that may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level stated above, plus 20 dB, or if the ambient L_0 exceeds the foregoing level, then the ambient L_0 becomes the exterior noise level for Standard No. 5.

Construction Noise

The County Noise Control Ordinance also includes the following construction noise restrictions:

- Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work is prohibited between the weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays, such that the sound creates a noise disturbance across a residential or commercial property line, except for emergency work of public service utilities or by a variance issued by the health officer.[13]

- The contractor shall conduct construction activities in such a manner that the maximum noise levels for non-scheduled, intermittent, short-term operation of mobile equipment and that for repetitively scheduled and relatively long-term operation of stationary equipment at affected structures will not exceed those listed in Table 2.3.2-2, *Maximum Construction Noise Levels*, at any time.

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[13] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

- All mobile or stationary equipment or machinery powered by internal combustion engines will be equipped with suitable exhaust and air-intake silencers in proper working order.

- In case of a conflict between this noise ordinance and any other ordinance regulating construction activities, provisions of any specific ordinance regulating construction activities will take precedence.

TABLE 2.3.2-2
MAXIMUM CONSTRUCTION NOISE LEVELS

Noise Source / Time Frame	**Residential Structures**		
	Single-family Residential	**Multi-family Residential**	**Semi-residential / Commercial**
Mobile Equipment: Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment			
Daily – 7:00 a.m. to 8:00 p.m. (except Sundays and legal holidays)	75 dBA	80 dBA	85 dBA
Daily – 8:00 p.m. to 7:00 a.m., Sundays and legal holidays	60 dBA	64 dBA	70 dBA
Stationary Equipment: Maximum noise level for repetitively scheduled and relatively long-term operation (more than 10 days) of stationary equipment			
Daily – 7:00 a.m. to 8:00 p.m. (except Sundays and legal holidays)	60 dBA	65 dBA	70 dBA
Daily – 8:00 p.m. to 7:00 a.m., Sundays and legal holidays	50 dBA	55 dBA	60 dBA
Noise Source / Time Frame	**Business Structures**		
Mobile Equipment: Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment			
Daily – all hours (including Sundays and legal holidays)	85 dBA		

SOURCE: County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101).

However, the County Noise Control Ordinance includes a list of activities that are exempt, including the following:

- The emission of sound for the purpose of alerting persons to the existence of an emergency, or the emission of sound in the performance of emergency work.

- The use of warning devices necessary for the protection of public safety, such as police, fire, and ambulance sirens, and train horns.[14]

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[14] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

Vibration

The threshold of vibration set forth by the County is presumed to be a motion velocity of 0.01 inches per second over the range of 1 to 100 Hertz.[15]

2.3.3 Summary of Project Noise Requirements

Based on the existing regulatory framework at both the County and City levels, the proposed project is required to comply with permitted noise level limits (Table 2.3.4-1, *Summary of Noise Requirements for the Proposed Project*).

TABLE 2.3.3-1
SUMMARY OF NOISE REQUIREMENTS FOR THE PROPOSED PROJECT

Activity	Maximum Permitted Noise Level
Construction[1]	County requirements • Single-family residential area: 75 dBA • Multi-family residential area: 80 dBA • Commercial area: 85 dBA
Operation[2]	Daytime (7:00 a.m. to 10:00 p.m.) County requirements • Residential area: 50 dBA • Commercial area: 60 dBA Nighttime (10:00 p.m. to 7:00 a.m.) County requirements • Residential area: 45 dBA • Commercial area: 55 dBA
Vibration	County requirements • 0.01 inch per second over the range of 1 to 100 Hertz

NOTES:
1. Construction is assumed to occur between the hours of 7:00 a.m. and 7:00 p.m. from Monday through Saturday.
2. The proposed project is assumed to be in operation 24 hours a day.

2.4 EXISTING CONDITIONS

2.4.1 Noise

The existing noise environment in the vicinity of the proposed project site is typical of urban areas and is characterized by noise levels generated by vehicular traffic on nearby streets and highways, occasional aircraft flyway, dogs barking, and lawn mowers.

To analyze the significance of noise and vibration levels associated with the proposed project's construction and operation, the existing noise levels (the ambient noise level at the proposed project site) were measured. Ambient noise levels were measured on April 6, 2010, during a typical weekday at sensitive receptors to the north, east, south, and west of the proposed project

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[15] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

site (Figure 2.4.1-1, *Measured Ambient Noise Levels in the Vicinity of the Proposed Project*). The measured ambient noise levels ranged from 55.2 dBA to 70.2 dBA (Table 2.4.1-1, *Measured Ambient Noise Levels in the Proposed Project Vicinity)*. The measurements are 20-minute L_{eq} noise levels.

TABLE 2.4.1-1
MEASURED AMBIENT NOISE LEVELS IN THE PROPOSED PROJECT VICINITY

Location	Ambient Noise Level
North (119th Street)	66.2 dBA
East (Wilmington Avenue)	69.7 dBA
South (122nd Street)	55.2 dBA
West (Compton Avenue)	70.2 dBA

2.5 IMPACT ANALYSIS

2.5.1 Introduction

Noise sources and noise levels associated with the construction and operation of the proposed project include:

- **Demolition/Construction Noise Levels:** In general, construction activities would be carried out in phases during the two tiers of the proposed project and each phase has its own noise characteristics based on the mix of construction equipment in use. Construction would commence at 7:00 a.m. and cease no later than 7:00 p.m. on weekdays and Saturdays. Construction work would not be conducted outside of these hours or on Sundays and federal holidays.

- **Operation Noise Levels:** The proposed project's operational noise levels fall into three categories:

    - **Building operations:** Noise generated by building operations typically includes noise from mechanical and electrical systems associated with the proposed project.

    - **Hospital activities:** Noise generated by hospital activities would be expected to be consistent with current levels and would typically be minimal beyond the boundaries of the buildings, as most activities will be inside the hospital buildings. Therefore, there would be no impact.

    - **Increased traffic:** Noise generated by increased traffic volume resulting from expansion of the hospital capacity would result in an increase in ambient noise levels at nearby roadways.

2.5.2 Noise Receptors

The noise levels of the proposed project were evaluated at noise receptors in the vicinity of the proposed project site (Figure 2.5.2-1, *Noise Receptors*, and Table 2.5.2-1, *Noise-sensitive Receptor Points in the Vicinity of the Proposed Project*).

SOURCE: SEI, GlobeXplorer

FIGURE 2.4.1-1

Measured Ambient Noise Levels in Proposed Project Vicinity

SOURCE: SEI, GlobeXplorer

FIGURE 2.5.2-1

Noise Receptors

- School (Figure 2.5.2-1, Receptor 1): The King/Drew Magnet High School of Medicine and Science (King Drew High School) is located north of the proposed project site, across 119th Street.

- Residential Land Uses (Figure 2.5.2-1, Receptors 2A, 2B, and 2C): Residential areas are located to the east, south, and west of the proposed project site.

TABLE 2.5.2-1
NOISE-SENSITIVE RECEPTOR POINTS IN THE VICINITY OF THE PROPOSED PROJECT

Type of Receptor	Label in Figure 2.5.2-1	Direction	Shortest Distance to the Proposed Project Site
School	1	North (Across 119th Street)	95 feet
Residential	2A	East (across Wilmington Avenue)	100 feet
	2B	South (across 122nd Street)	50 feet
	2C	West (across Compton Avenue)	90 feet

2.5.3 Generation of Noise Levels in Excess of Standards

The impact to noise related to exposure or generation of noise levels in excess of established standards from the proposed project would be expected to remain significant and unavoidable with the incorporation of mitigation measures.

Noise from Construction and Demolition

The proposed project entails two phases, Tier I and Tier II. Tier I would entail construction of two new buildings and site and tenant improvements (site improvements would entail the removal of pavement). Tier II would entail the reuse or replacement of various campus buildings and structures (replacement may include demolition), along with potential new development of a total floor area of up to 1,814,696 square feet (a footprint of up to approximately 725,878 square feet). The proposed project would result in a net reduction in building floor area in Tier I, and a total net new development of approximately 1,462,211 square feet of floor area after completion of Tier I plus Tier II.

Construction noise for the proposed project would occur in discreet phases. Table 2.5.3-1, *Construction Activity Noise Levels at 50 Feet*, presents average noise levels associated with various construction phases where all pertinent equipment is present and operating at a reference distance of 50 feet.

TABLE 2.5.3-1
CONSTRUCTION ACTIVITY NOISE LEVELS AT 50 FEET

Activity	Noise Level at 50 feet (dBA)
Ground clearing	84 ± 6 dBA
Excavations	89 ± 6 dBA
Foundations	78 ± 3 dBA
Erection of structures	85 ± 5 dBA
Finishing (i.e., paving)	89 ± 6 dBA

SOURCE: Bolt, Beranek, and Newman. December 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*. Washington, DC.

The distance at which impacts would be below the level of significance is predicted based on the construction activity noise levels presented in Table 2.5.3-1. Noise attenuates at a rate of approximately 6 dB per doubling of distance from a point source. The noise calculations are based on a formula that considers the ambient noise level and distance to the noise source:

$$L2 = L1 - 20\log(d2/d1)$$

where:

L1 = known sound level at d1
L2 = desired sound level at d2
d1 = distance of known sound level from the noise source
d2 = distance of the sensitive receptor from the noise source

This distance is then compared to the nearest noise receptor distance. This approach is used rather than predicting the noise levels at the nearest receptor because noise sources are not stationary. If the distance to the nearest noise receptor were greater than the distance at which impact would occur, there would be no negative impact (Table 2.5.3-2, *Predicted Distance at Which Construction Noise Impacts Would Be Below the Level of Significance*).

TABLE 2.5.3-2
PREDICTED DISTANCE AT WHICH CONSTRUCTION NOISE IMPACTS WOULD BE BELOW THE LEVEL OF SIGNIFICANCE

Construction Phase	**Distance at Which Impact Would Be Below the Level of Significance at Respective Land Uses***	
	Residential (75 dBA)	**Commercial (85 dBA)**
Ground clearing	160 feet	50 feet
Excavations	280 feet	90 feet
Foundations	80 feet	25 feet
Erection of structures	180 feet	50 feet
Finishing (i.e., paving)	280 feet	90 feet
Actual distance to nearest noise receptor	East (across Wilmington Avenue) 100 ft South (across 122nd Street) 50 ft West (across Compton Avenue) 90 ft	North (across 119th Street): 95 ft

NOTE:
* Noise levels will vary depending on the location of the construction activities on site.

The distance at which construction noise impacts would be below the level of significance for a commercial property for the different construction phases ranges from 25 to 90 feet (Table 2.5.3-2). Therefore, construction noise levels would not be expected to exceed 85 dBA at King Drew High School. Implementation of mitigation measures for construction noise would be expected to further reduce noise levels at King Drew High School.

As shown in Table 2.5.3-2, impacts to affected residential structures would be below the level of significance at a distance of 280 feet from the proposed project site. The nearest residential land use is approximately 50 feet south of the proposed project. In addition, visitors, staff, and other individuals at the hospital campus would be exposed to construction-related noise. Since residential structures are located to the east, south, and west within 280 feet of the proposed project site, and individuals at the proposed project site would be exposed to noise during construction related activities, consideration of mitigation measures would be required.

The proposed project would result in significant impacts from exposure of persons to, or generation of, noise during construction of the proposed project. The noise generated by the proposed project would potentially exceed County construction noise limits at sensitive receptors. Therefore, implementation of the proposed project would result in significant impacts from exposure of persons to, or generation of, noise, thus requiring the consideration of mitigation measures.

Operational Noise

Building Operation

Operation of the mechanical systems of the proposed project would generate noise. Potential building operation noise was calculated using typical heating, ventilation, and air conditioning (HVAC) equipment systems. Typical HVAC equipment noise levels are 55 dBA at 50 feet from the rooftop source without shielding.[16] Standard design features including shielding would reduce noise emissions to below the 55-dBA level. The nearest sensitive receptors to potential locations of HVAC equipment are residences located to the south of the proposed project site, at which the measured ambient noise level is 55.2 dBA. If HVAC equipment were located 50 feet from the residences to the south of the proposed project site, noise generated by the HVAC equipment would potentially exceed the 50-dBA daytime noise level limit and the 45-dBA nighttime noise level limit. However, it would not exceed the measured ambient noise level of 55.2 dBA. During nighttime hours, when noise from traffic is less than during daytime hours, noise from HVAC equipment at 50 feet from residences would be expected to have a less-than-significant impact. However, new buildings on the campus would be anticipated to be consistent with the existing campus layout and building setbacks. As a result, any anticipated increases in noise levels would be reduced. In addition, mitigation measures would be incorporated to ensure that noise levels from building operation are below the level of significance.

Traffic

The traffic study prepared for the proposed project was reviewed to determine off-site noise impacts from changes in traffic volumes along adjacent roadways resulting from implementation of the proposed project. With respect to roadway noise impacts from vehicles traveling to and from the proposed project site, the greatest project-related traffic would be generated during peak a.m. and p.m. hours.

Tier I of the proposed project would be expected to result in a net decrease in trips to the Martin Luther King, Jr. Medical Center Campus, as the tier would remove functions, programs, and operations of various campus buildings and structures. Therefore, Tier I of the proposed project would not result in an increase in noise levels from project-related traffic.

Tier II of the proposed project would be expected to result in an increase in traffic volumes at intersections in the vicinity of the proposed project site due to the new development and extended phased construction period. The two intersections that are located on the borders of the proposed

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[16] The anticipated location/positioning of the system represents a worst-case scenario, as the plans for the campus buildings were not available at the time that this report was completed.

project that would be anticipated to have traffic volume increases during the a.m. and p.m. peak hours are Compton Avenue at 118th Street and the intersection of Wilmington Avenue and 120th Street. Increased traffic could cause a perceptible change in noise levels if it were to result in an increase in ambient noise levels of greater than 3-dBA L_{dn}. Since traffic volumes would need to double to increase noise levels by more than 3 dBA in areas that already experience excessive noise from heavy traffic, the increases in traffic volumes associated with completion of Tier II of the proposed project would not be expected to result in significant impacts. Furthermore, mitigation measures for Tier II of the proposed project would mitigate significant traffic-related impacts to ensure the continued flow of traffic and to ensure that the implementation of the proposed project does not double the existing volume of traffic at these or other intersections within the proposed project vicinity. Implementation of the proposed project would result in less than a 3-dBA noise level increase, and as such, the traffic-related noise increases would not be expected to be perceptible. Therefore, increased noise levels generated by the anticipated increase in traffic levels from implementation of the proposed project would result in a less-than-significant impact.

2.5.4 Generation of Excessive Groundborne Vibration/Noise Levels

The proposed project would potentially result in significant impacts from groundborne vibration and groundborne vibration noise levels, which would be generated during construction activities. Operation of the proposed project would not generate substantial levels of vibration and therefore is not analyzed below. Construction activities can generate varying degrees of ground vibration, depending on the construction procedures, construction equipment used, and proximity to vibration-sensitive uses. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. Vibration is typically noticed nearby when objects in a building generate noise from rattling windows or picture frames. It is typically not perceptible outdoors and therefore impacts are based on the distance to the nearest building. The effect on buildings near a construction site varies depending on soil type, ground strata, and receptor building construction. The generation of vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight damage at the highest levels. Ground vibrations from construction activities rarely reach levels that can damage structures, but can achieve the audible and perceptible ranges in buildings close to a construction site. PPV is defined as the maximum instantaneous peak of the vibration signal. PPV is an appropriate measure for evaluating potential building damage during construction. Construction vibration impacts are assessed in terms of PPV.

The nearest sensitive land uses from the existing campus are the residences located approximately 50 feet south of the proposed project site. Vibration would primarily occur during the grading and foundation phases of construction (Table 2.5.4-1, *Vibration Velocities for Construction Equipment*).

TABLE 2.5.4-1
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT

Equipment	PPV at 25 feet (inches/second)*
Pile driving (impact)	0.644
Pile driving (sonic)	0.170
Caisson drilling	0.089
Large bulldozer	0.089
Loaded trucks	0.076

Anticipated vibration levels at the sensitive receptors were calculated using the following formula, which assumes that the source of vibration is a point source under normal propagation conditions:[17]

$$PPVequip = PPVref \times (25/D)^{1.5}$$

where:

PPV (equip) = peak particle velocity in inches per second of the equipment adjusted for distance
PPV (ref) = the reference vibration level in inches per second at 25 feet
D = the distance from the equipment to the receiver

To evaluate human annoyance from daytime construction activities, the potential construction equipment and the potential maximum PPV of each source were reviewed. Five common sources of PPV vibration that are typically used during construction-related activities were assessed: pile driving (impact), pile driving (sonic), caisson drilling, large bulldozer, and loaded trucks. Table 2.5.4-2, *Construction-related Vibration Levels at the Nearest Sensitive Receptor, Structural Damage*, lists the maximum vibration levels resulting from heavy construction equipment that have the potential to be experienced during construction related activities at the nearest sensitive receptor.

TABLE 2.5.4-2
CONSTRUCTION-RELATED VIBRATION LEVELS AT THE NEAREST SENSITIVE RECEPTOR, STRUCTURAL DAMAGE

Equipment	Maximum PPV in Inches/Second at Residences (50 feet from vibration source)	Significance Threshold (PPV in Inches/Second)	Exceeds Significance Threshold
Pile driving (impact)	0.2277	0.2	Yes
Pile driving (sonic)	0.0601	0.2	No
Caisson drilling	0.0315	0.2	No
Large bulldozer	0.0315	0.2	No
Loaded trucks	0.0269	0.2	No

The Federal Transit Administration has found that structural damage is possible when the PPV exceeds 0.2 inch per second. This criterion is the threshold at which there is a risk of damage to residential buildings. As shown in Table 2.5.4-2, proposed project construction activities would potentially result in PPV levels that exceed the Federal Transit Administration's criteria for vibration-induced structural damage at residences 50 feet away from the proposed project site if impact pile driving was used. Of the five sources of PPV reviewed for the analysis, only pile driving-related activities would exceed the significance threshold for PPV levels. Therefore, implementation of the proposed project would potentially result in significant impacts from generation of groundborne vibration (specifically, resulting from construction-related activities that require pile driving), thus requiring the consideration of mitigation measures.

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[17] Federal Transit Administration. May 2006. *Transit Noise and Vibration Impact Assessment*. Washington DC.

2.5.5 Substantial Permanent Increase in Ambient Noise Levels

The proposed project would be expected to result in less-than-significant impacts to noise in relation to permanent increases in ambient noise levels.

The County Noise Control Ordinance does not define "substantial." In general, one way to estimate a person's subjective reaction to a new noise is to compare the new noise with the existing noise environment to which the person has become adapted; for example, the increase over the "ambient" noise level. As stated earlier, a 5-dBA increase is often considered a significant increase and thus a significant impact. Therefore, an increase in noise levels of 5 dBA would be considered substantial.

Noise levels in the vicinity of the proposed project on a typical day range from 55.2 dBA to 70.2 dBA; therefore, significant impacts would occur when noise levels exceed 60.2 dBA. Increases in ambient noise levels would occur from building operations and increased traffic. Traffic noise, as discussed in Section 2.5.3, would not be expected to increase ambient noise levels by more than 3 dBA. As discussed in Section 2.5.3, building operation would potentially increase ambient noise levels at residences located south of the proposed project area; however, mitigation measures would be incorporated to ensure that noise levels from building operation are reduced to below the level of significance.

2.5.6 Substantial Temporary Increase in Ambient Noise Levels

The proposed project would be expected to result in temporary significant impacts to noise in relation to temporary or periodic increases in ambient noise levels during the construction of the proposed project. Construction of the proposed project would be expected result in temporary noise increases at nearby residences that exceed County thresholds for construction noise. Therefore, construction of the proposed project would temporarily result in significant impacts from increases in ambient noise levels, thus requiring the consideration of mitigation measures.

2.5.7 Project Located within an Airport Land Use Plan

The proposed project would not be expected to result in impacts to noise in relation to public airports. The proposed project site is located neither within 2 miles of a public or private airstrip nor within an airport land use plan. The nearest airport, the Compton/Woodley Airport, is located approximately 2.1 miles south of the proposed project site. The proposed project is relatively removed for the airport activities and would not be expected to result in significant impacts by exposing people residing or working in the proposed project area to excessive noise levels caused by airports or by the implementation of airport land use plans.

2.5.8 Project Located within Vicinity of Private Airstrip

The proposed project would not be expected to result in impacts to noise in relation to private airstrips. The proposed project would not be located near a private airstrip. The closest private airstrip is located more than 11 miles from the proposed project site. Therefore, the proposed project would not result in significant impacts from exposure of people residing or working in the project area to excessive noise levels caused by private airstrips.

2.5.9 Cumulative Impacts

The incremental impact of the proposed project, when added to the related past, present, or reasonably foreseeable, probable future projects listed in Section 2, Project Description, would not be expected to result in cumulative impacts from noise. If construction of the proposed project were to coincide with construction of nearby related projects, it would potentially result in noise level increases at nearby sensitive receptors beyond the proposed project that are considered isolated. As construction of the proposed project would be expected to result in significant noise impacts requiring the consideration of mitigation measures, cumulative increases in noise levels from construction of the proposed project when considered with related projects would not be an additional noise impact. However, the mitigation measures considered to reduce the construction noise levels would also reduce the contribution of the proposed project to potential cumulative construction noise impacts.

When determining the significance of noise levels from increased traffic, the anticipated traffic volumes at intersections in the vicinity of the proposed project for the year 2020 were based on projected future volumes of traffic from ambient growth. Therefore, determination of significance levels of traffic-related noise impacts considered the cumulative increase in future traffic noise levels at build out of the proposed project along with future ambient growth relative to the existing baseline, and were determined to be below the level of significance. The mechanical systems of the proposed project would not be expected to be audible to the north, east, and west of the proposed project site because ambient noise levels, primarily due to automobile traffic, would be sufficiently high that mechanical noise would not be perceptible.

SECTION 3.0
MITIGATION MEASURES

3.1 MITIGATION MEASURES

The mitigation measures outlined below shall be implemented for the construction and operation activities related to the proposed Martin Luther King, Jr. Medical Center Campus Redevelopment project (referred to as the *project* in the mitigation measures below).

3.1.1 Construction

Measure Noise-1

The County of Los Angeles shall require that the plans and specifications require that construction equipment shall be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the noise receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 dB. The height and length of the barriers or curtains shall be determined based on location of construction activity and receptor.

Due to the proximity of the source and receptors, the noise impact would depend on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during demolition and construction and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noise shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall consider the demolition and equipment mix that would be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels.

Measure Noise-2

Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment.

Measure Noise-3

The distance at which impact pile driving would not exceed a peak particle velocity of 0.2 inch per second at a residence would be 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving will not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving shall be used.

3.1.2 Operation

Measure Noise-4

The County of Los Angeles shall ensure that mechanical noise generated by the project is less than 45 dBA at residences located immediately south of the project. This shall be achieved by implementing one, or a combination of more than one, of the following strategies: utilizing quiet mechanical systems; placing mechanical systems away from residences (mechanical systems that produce a noise level of 55 dBA at 50 feet would need to be located a minimum of 160 feet from residences to bring mechanical noise levels below 45 dBA at residences); or utilizing insulating screens to break the line-of-sight between the mechanical systems and nearby residences.

3.1.3 Level of Significance after Mitigation

Implementation of mitigation measures Noise-1 and Noise-2 would reduce construction-related noise levels by a minimum of 10 dB. Based on the mitigated construction noise levels, the distance at which impacts would be below the level of significance is predicted. This distance is then compared to the distance of the nearest noise receptor. Since noise sources are not stationary, this approach is used rather than predicting the noise levels at the nearest receptor. If the distance to the nearest noise receptor is more than the "distance at which impact will occur," then there would be no negative impact (Table 3.1.3-1, *Predicted Distance at Which Mitigated Construction Noise Impacts Would Be Below the Level of Significance*).

TABLE 3.1.3-1
PREDICTED DISTANCE AT WHICH MITIGATED CONSTRUCTION NOISE IMPACTS WOULD BE BELOW THE LEVEL OF SIGNIFICANCE

	Distance at Which Impact Would Be Below the Level of Significance at Respective Land Uses*
Construction Phase	**Residential (75 dBA)**
Ground clearing	45 feet
Excavations	80 feet
Foundations	23 feet
Erection of structures	50 feet
Finishing (i.e., paving)	80 feet
Actual distance to nearest noise receptor	East (across Wilmington Avenue: 100 ft South (across 122nd Street): 50 ft West (across Compton Avenue): 90 ft

NOTE:
* Noise levels will vary depending on the location of the construction activities on the site.

As shown in Table 3.1.3-1, impacts to affected residential structures would be below the level of significance at a distance of 80 feet from the proposed project site. The nearest residential land use is approximately 50 feet south of the proposed project site. Implementation of mitigation measures Noise-1 and Noise-2 would reduce construction noise at residential properties to the east and west of the proposed project site to below the level of significance; however, construction noise levels would exceed the permissible 75-dBA level at residences south of the proposed project site that are within 80 feet of the proposed project site. Therefore, noise impacts from construction, while temporary, would remain significant and unavoidable.

Implementation of mitigation measure Noise-3 would reduce significant impacts related to vibration during construction to below the level of significance.

Implementation of mitigation measure Noise-4 would reduce significant impacts related to mechanical noise to below the level of significance.

SECTION 4.0
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APPENDIX G
STORM WATER ANALYSIS FOR TIER I DEVELOPMENT

MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

LOS ANGELES COUNTY

STORMWATER ANALYSIS FOR TIER I DEVELOPMENT

JULY 2010

Prepared By
Moffatt & Nichol
3780 KILROY AIRPORT WAY, SUITE 600
Long Beach, CA 90806
MN FILE: 7181

MARTIN LUTHER KING JR.
MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT
STORMWATER ANALYSIS FOR TIER I DEVELOPMENT

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APPENDIX A

- LEED STORMWATER DESIGN REQUIREMENTS

MARTIN LUTHER KING JR.
MEDICAL CARE CAMPUS REDEVELOPMENT PROJECT
STORMWATER ANALYSIS FOR TIER I DEVELOPMENT

Purpose

The County of Los Angeles is seeking Leadership in Energy and Environmental Design (LEED) certification on a proposed 132,000 square foot hospital structure and a 24,700 square foot ancillary structure that will be constructed on the Martin Luther King Jr. Medical Center Campus. This Stormwater Analysis is intended to satisfy the LEED – Sustainable Sites (SS) Credit 6.1 Stormwater Design -Quantity Control and Sustainable Sites Credit 6.2 Stormwater Design - Quality Control. Copies of SS-6.1 and SS-6.2 requirements are included in Appendix A, *LEED Stormwater Design Reqirements*.

Project Description

The proposed Martin Luther King Jr. Medical Center Campus Redevelopment project consists of two tiers. This Stormwater Analysis Report involves only the Tier I phase. The Tier I Pre and Post Project site for development are depicted in Figure 1. The Tier I phase of the proposed project development includes the design and construction of the new 132,000 square foot Multi-service Ambulatory Care Center (MACC) building, a 24,700 square foot Ancillary Building and adjacent parking lots and site improvements.

Sustainable Sites Credit 6.1

The SS Credit 6.1 Stormwater Design - Quantity Control requirement is intended to limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from stormwater runoff and eliminating contaminants.

Analysis

The Tier I Phase of the proposed project site surface area falls into the SS Credit 6.1 Case 2 Classification with existing imperviousness of greater than 50%. The existing buildings and existing paved parking lots cover the greater part of the Tier I Phase proposed project area. The requirement for Case 2 projects is to implement a stormwater management plan that results in a 25% decrease in the volume of stormwater runoff leaving the site from the 2-year 24 hour design storm. On this site it will not be possible to reduce impervious cover, however, it is possible to reduce pollution from on-site stormwater runoff, eliminate contaminants, provide stormwater storage and increase on-site infiltration.

The drainage on the existing Tier I Project site is served by existing storm drains with grating catch basins located in the parking lots with storm drain pipes that connect to existing County storm drains in 120th Street on the north, Compton Avenue on the west and the alley on the south.

Recommendations

The stormwater management plan shall incorporate a subsurface stormwater collection chamber that will store 25% of the volume of the on-site stormwater runoff from the 2 year 24-hour design storm under the post construction condition. This type of chamber may also be used as a stormwater infiltration structure placed under the parking lot between the new building and 120th Street. The stormwater storage/infiltration structure shall have an overflow outlet pipe to connect to the County storm drain in the adjacent street. All storm water directed to the stormwater collection chamber shall be treated first in the bio-filtration catch basins and bio-filtration planters.

The existing storm drain system shall be redesigned to fit the new parking lot configuration and design. All catch basins shall have trash removal devices installed. The onsite storm drain system shall be designed for the pre-treatment of dry weather nuisance flows and the first flush rainfall incorporating a bio-filtration method of treatment.

The same bio-filtration method shall be used for the stormwater drainage from the buildings roofs using a raised planter bed bio-filtration structure that can be placed above ground next to the buildings that contains an engineered filter material and can be piped under a sidewalk or landscaped planter through a curb outlet to an onsite storm drain.

Sustainable Sites Credit 6.2

The SS Credit 6.2 Stormwater Design - Quality Control requirement is intended to limit disruption and pollution of natural water flows by managing stormwater runoff.

Analysis

The requirement for SS Credit 6.2 is to implement a stormwater management plan that reduces impervious cover, promotes infiltration and captures and treats the stormwater runoff from 90% of the average annual rainfall using acceptable best management practices (BMPs). BMPs used to treat runoff must be capable of removing 80% of the average annual post development total suspended solids (TSS) load based on existing monitoring reports. BMPs are considered to meet these criteria if they are designed in accordance with standards and specifications from a state or local program that has adopted these performance standards.

The bio-filtration technology is an innovative and unique stormwater best management practice (BMP) and is approved by the Los Angeles County Department of Public Works (LACDPW). The bio-filtration treatment system generally consists of a patented engineered soil filter media placed in a concrete container planted with selected trees and/or bushes. A mulch layer is placed on the filter media, and infiltrated water is removed via an under-drain system connected to a stormwater detention structure or storm drain outlet. The bio-filtration treatment system is well suited for the urban environment with high removal efficiencies for pollutants such as petroleum, heavy metals, phosphorus, nitrogen, total suspended solids, and bacteria. These pollutants are collected in the mulch and soil media and adsorbed through the roots into the planted trees and/or bushes. The bio-filtration units shall have a demonstrated TSS removal rate of 80% for typical urban runoff sediments.

Recommendations

All stormwater runoff from the site shall be pre-treated by a bio-filtration method before being discharged to the storage/infiltration chamber and the storm drains in the adjacent streets. The method for calculating the quantity of stormwater runoff to be treated shall be in accordance with LACDPW standards and specifications.

The stormwater management plan shall incorporate a subsurface stormwater collection chamber that will store 25% of the volume of the on-site stormwater runoff from the 2 year 24-hour design storm as noted under SS Credit 6.1 above

Pre and Post Construction Stormwater Discharge Analysis

A hydrology study of the Tier I Project site was prepared for the existing site condition and the proposed site development condition based on the architect's conceptual site drawings of pre and post construction. The hydrology study used a 2 year 24 hour design storm. The purpose of this study is to compare the difference in stormwater runoff quantity due to the changes in pervious and impervious areas that affect the amount of surface runoff.

Recommendations

The proposed development changes and additions to the site results in increasing the amount of impervious surface area by approximately 14% which increases the on-site stormwater runoff in the Tier I Project post construction site by a volume of approximately 15,800 cubic feet. This increase in stormwater runoff shall be mitigated on this site by a combination of onsite storage detention and infiltration by constructing subsurface stormwater collection chambers under the parking lots in the areas designated in a soil infiltration report as the best infiltration locations. The volume of increased runoff shall be compared with the volume of the 25 % decrease required as described under Sustainable Sites Credit 6.1 above, and the larger of the two volumes shall be used for design of the stormwater collection chambers. Under the post construction condition the 25% volume will be approximately 24,500 cubic feet which is the larger of the two volumes and should be used as the design volume. (Note: Numbers and calculation results presented in this study were made from conceptual level drawings and data.)

Pre Project Drainage Map

The Pre Project Drainage Map encompasses the Tier 1 Project area and for purposes of computing drainage areas is divided into 4 areas. The pre project drainage map is depicted in Figure 2. The computed areas are used in the hydrology calculations to determine the volume of stormwater runoff to the off-site storm drain system.

Pre Project Peak Stormwater Runoff Discharge Rate

The hydraulic analysis for stormwater runoff is calculated using the Los Angeles County Department of Public Works approved methods. For this report the 2 year frequency of occurrence for rainfall in a 24 hour period was used. The amount of stormwater runoff in this case will vary depending on the difference of the percent of surface imperviousness versus perviousness between pre construction and post construction. This table and the calculations establish the volume of on-site stormwater runoff in a 24 hour period for the pre construction condition. Table I entitled "Martin Luther King Jr. Medical Care Campus Redevelopment Project Pre Project Peak Stormwater Runoff Discharge Rate" summarizes the project's pre project on-site runoff for the four sub areas.

Post Project Drainage Map

The Post Project Drainage Map encompasses the same Tier 1 Project area and for purposes of computing drainage areas for this report is divided into the same 4 areas as the Pre Project Drainage Map. The Post Project drainage map is depicted in Figure 3. The proposed drainage design may change the on-site shape of the individual drainage areas but the total site area will not change. The computed areas are used in the hydrology calculations to determine the volume of stormwater runoff to the off-site storm drain system. In the post construction condition the addition of the two buildings and the increased area of parking lot increases the imperviousness of the surface and increases the on-site stormwater runoff.

Post Project Stormwater Runoff Discharge Rate

The hydraulic analysis for stormwater runoff is calculated using the Los Angeles County Department of Public Works approved methods. For this report the 2 year frequency of occurrence for rainfall in a 24 hour period was used. The amount of stormwater runoff in this case will vary depending on the difference of the percent of impervious versus pervious surface areas between pre construction and post construction. This table and the calculations establish the volume of stormwater runoff in a 24 hour period for the post construction condition. Table II entitled "Martin Luther King Jr. Medical Care Campus Redevelopment Project Post Project Peak Stormwater Runoff Discharge Rate" summarizes the project's post project on-site runoff for the four sub areas.

50 Year Frequency 24 Hour Isohyet Map

The Isohyet Map uses a USGS contour map to superimpose contours of the depth in inches of stormwater that falls in a 24 hour period from a 50 year frequency storm based on LACDPW rainfall records. For this project a 2 year reduction factor is applied to the 50 year frequency Isohyet to obtain the calculated volume for a 2 year frequency 24 hour storm in order to calculate the mitigation and treatment stormwater volumes required for the LEED Sustainable Sites Credits. The 50 year frequency 24 hour Isohyet Map is depicted in Figure 4.

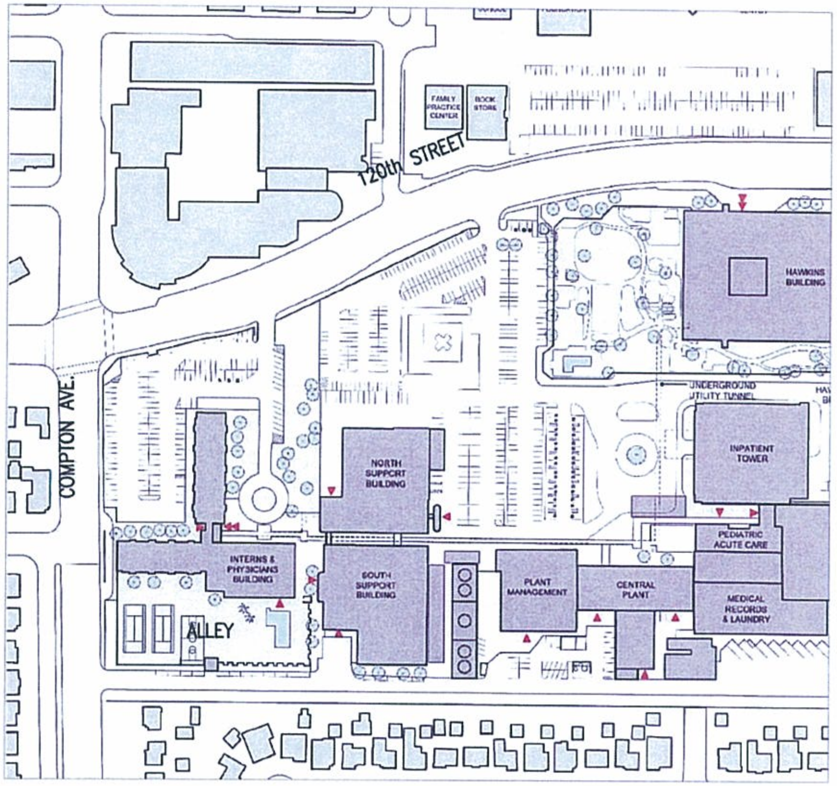
Runoff Coefficient Curve

The Isohyet Map also has soil classification numbers that designate the type of soil in the area of the Project which is used to select a Rainfall Intensity (Inches per Hour) graphic curve that provides a factor in computing the stormwater runoff from unpaved pervious soil areas. The runoff coefficient curve is depicted in Figure 5.

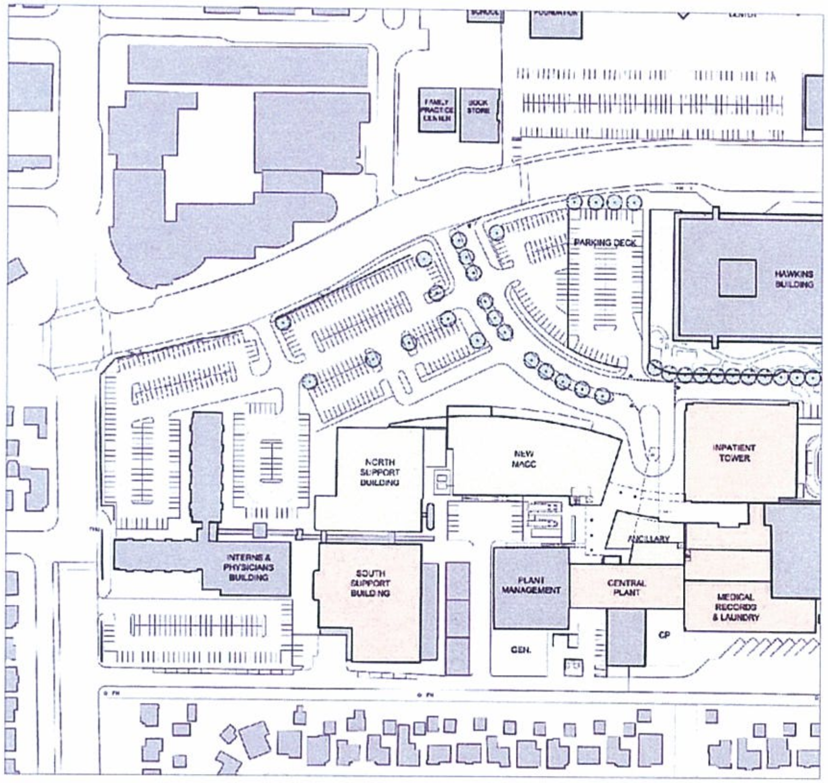
Storm Frequency Multiplication Factor

The storm frequency reduction factor is obtained from the LACDPW Hydrology Design Manual, Chapter 5- Rainfall and Design Storm Characteristics, Rainfall Frequency Multiplication Factors, Table 5.3.1 which provides the 2 year frequency reduction factor for use in this project's calculations. Table III entitled "Storm Frequency Multiplication Factor" depicts the storm frequency reduction Factor.

FIGURE 1 MARTIN LUTHER KING JR.
MEDICAL CARE CAMPUS REDEVELOPMENT PROJECT
TIER 1 PRE AND POST PROJECT SITE

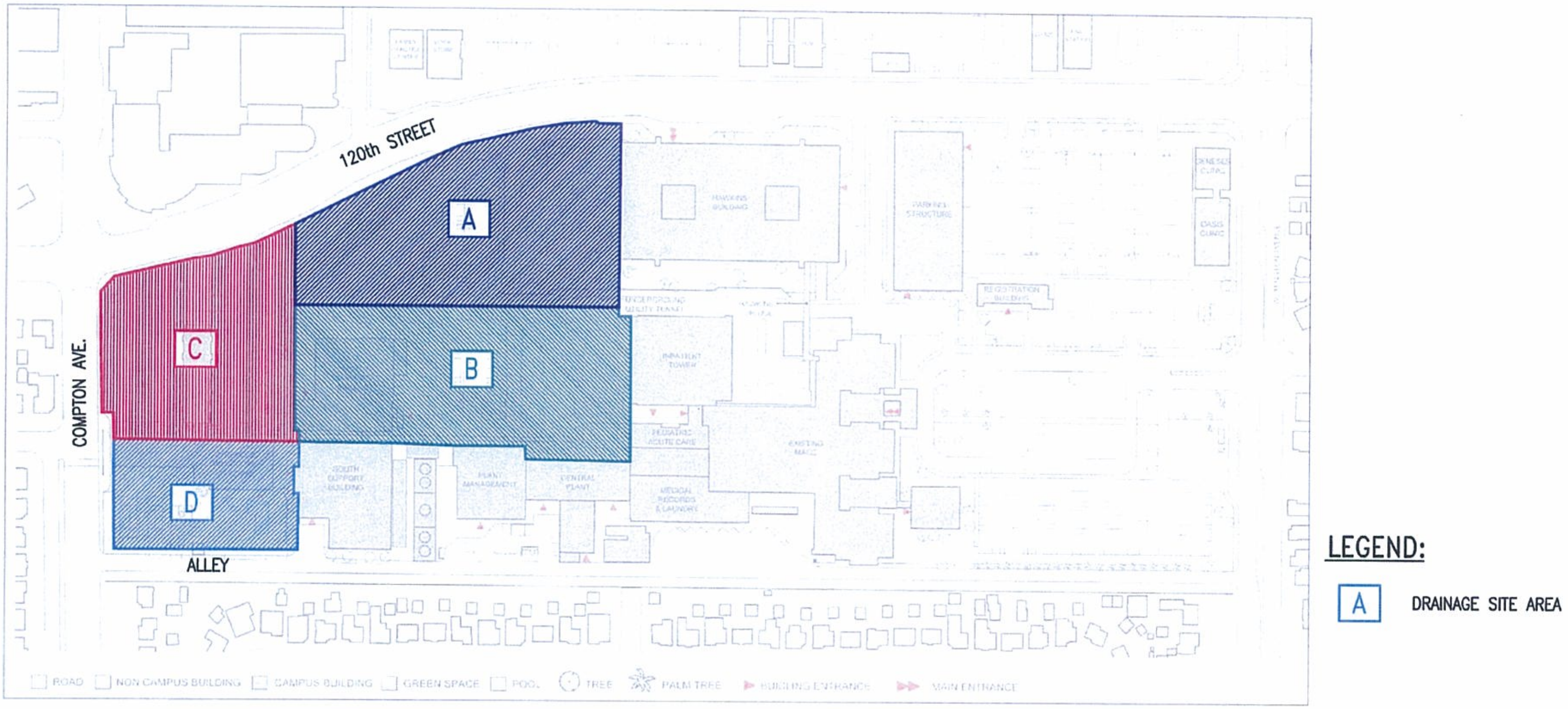


PRE PROJECT SITE



POST PROJECT SITE

FIGURE 2 MARTIN LUTHER KING JR.
MEDICAL CARE CAMPUS REDEVELOPMENT PROJECT
PRE DRAINAGE DRAINAGE MAP



SITE	AREA	Q_{PEAK}	V_{PEAK}	STORM DRAIN SYSTEM
A	4.31 Ac	1.91 cfs	20,689 cu. ft	120th Street/Compton Ave
B	4.27 Ac	3.05 cfs	31,806 cu. ft	120th Street/Compton Ave
C	3.15 Ac	1.81 cfs	18,249 cu. ft	120th Street/Compton Ave
D	1.81 Ac	1.19 cfs	11,235 cu. ft	Alley/Compton Ave

MOFFATT & NICHOL
3780 KILROY AIRPORT WAY, SUITE 600
LONG BEACH, CALIFORNIA, 90806
562-426-9551

TABLE I MARTIN LUTHER KING JR.
MEDICAL CARE CAMPUS REDEVELOPMENT PROJECT
PRE PROJECT PEAK STORMWATER RUNOFF DISCHARGE RATE

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)	Volum e (cu.	Tc Equation
MLK	A	4.31	0.58	2	3	400	0.01	2.28	16	0.79	0.1	0.56	1.91	20689	Tc=(10)^-0.507*(Cd*I)^-0.519*(L)^0.483*(S)^-0.135
MLK	B	4.27	0.9	2	3	450	0.01	2.28	13	0.87	0.1	0.82	3.05	31806	Tc=(10)^-0.507*(Cd*I)^-0.519*(L)^0.483*(S)^-0.135
MLK	C	3.15	0.7	2	3	400	0.02	2.28	13	0.87	0.1	0.66	1.81	18249	Tc=(10)^-0.507*(Cd*I)^-0.519*(L)^0.483*(S)^-0.135
MLK	D	1.81	0.75	2	3	400	0.04	2.28	11	0.94	0.11	0.7	1.19	11235	Tc=(10)^-0.507*(Cd*I)^-0.519*(L)^0.483*(S)^-0.135

HYDROLOGY ANALYSIS

1) This analysis conforms to Los Angeles County Department of Public Works hydrology calculation methods.
The design is for a 2 year 24 hour storm,
The Soil type is 003
The 50-year 24-hour Isohyet is 5.9 in. => 2-year 24" Isohyet = 0.387x5.9=2.28 in

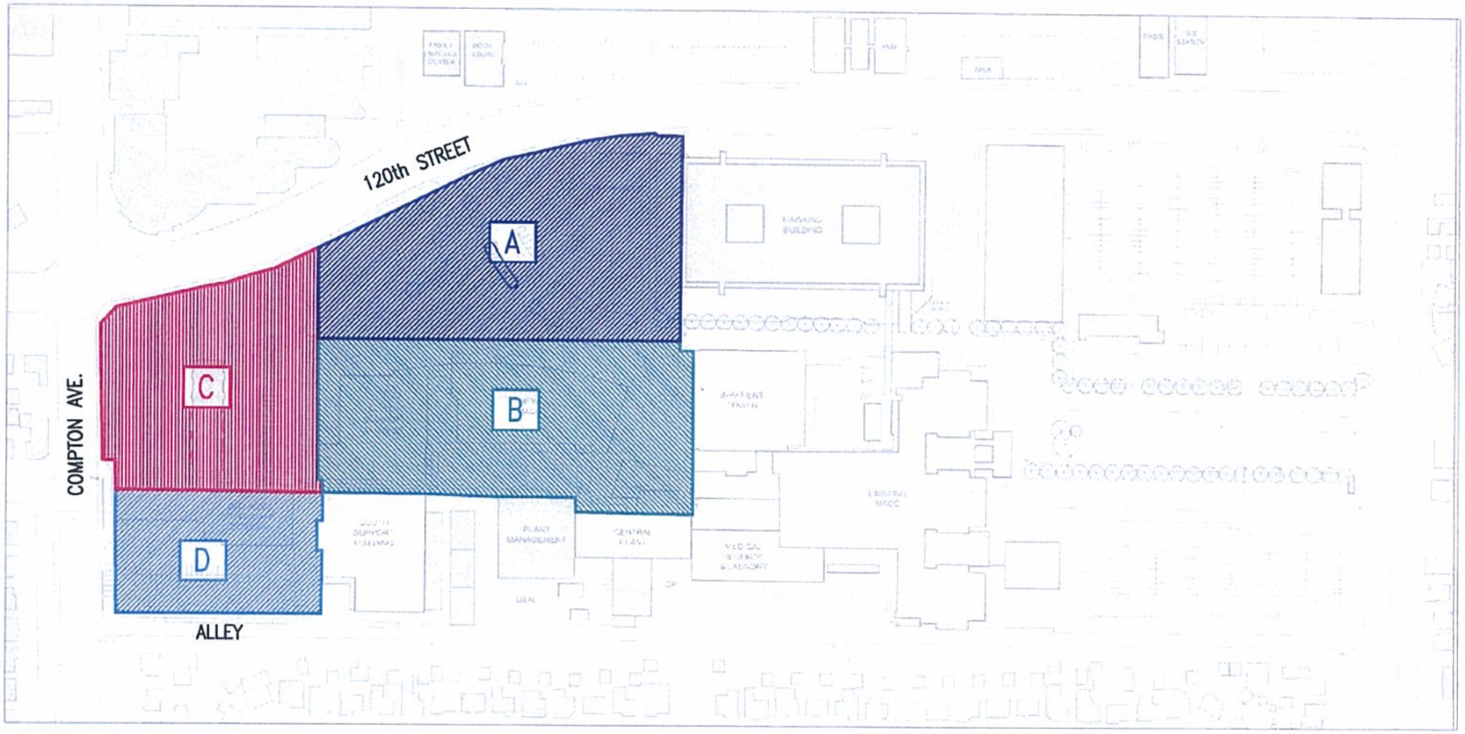
2) Subarea A, B, & C collected by on-site catch basins and drains to existing storm drain system in 120th Street and Compton Avenue.
Q_A+ QB + QC = 1.91+3.05+1.81 = 6.77 cfs

3) Subarea D collected by catch basin and drains to storm drain system in the Alley and Compton Avenue
Q_D = 1.19 cfs

4) Subarea A, B & C Peak Runoff Volume, V_p = (43560)(2.28/12)(%imp)(Area)
V_A+ V_B + V_C = 20889+31806+18249 =70944 cu. ft
=>25% Vp = (0.25)70944)=17736 cu. ft

5) Subarea D Peak Runoff Volume, V_D = 11235cu. ft
=>25% Vp = (0.25)(11235)=2809 cu. ft

FIGURE 3 MARTIN LUTHER KING JR.
MEDICAL CARE CAMPUS REDEVELOPMENT PROJECT
POST DRAINAGE DRAINAGE MAP



LEGEND:

A DRAINAGE SITE AREA

SITE	AREA	Q_{PEAK}	V_{PEAK}	STORM DRAIN SYSTEM
A	4.31 Ac	2.85 cfs	29,250 cu. ft	120th Street/Compton Ave
B	4.27 Ac	3.05 cfs	31,806 cu. ft	120th Street/Compton Ave
C	3.15 Ac	2.32 cfs	23,464 cu. ft	120th Street/Compton Ave
D	1.81 Ac	1.34 cfs	13,482 cu. ft	Alley/Compton Ave

MOFFATT & NICHOL
3780 KILROY AIRPORT WAY, SUITE 600
LONG BEACH, CALIFORNIA, 90806
562-426-9551

TABLE II MARTIN LUTHER KING JR.
MEDICAL CARE CAMPUS REDEVELOPMENT PROJECT
POST PROJECT PEAK STORMWATER RUNOFF DISCHARGE RATE

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)	Volume (cu. Ft)	Tc Equation
MLK	A	4.31	0.82	2	3	400	0.01	2.28	13	0.87	0.1	0.76	2.85	29250	Tc=(10)^-0.507*(Cd*I)^-0.519*(L)^0.483*(S)^-0.135
MLK	B	4.27	0.9	2	3	450	0.01	2.28	13	0.87	0.1	0.82	3.05	31806	Tc=(10)^-0.507*(Cd*I)^-0.519*(L)^0.483*(S)^-0.135
MLK	C	3.15	0.9	2	3	400	0.01	2.28	12	0.9	0.11	0.82	2.32	23464	Tc=(10)^-0.507*(Cd*I)^-0.519*(L)^0.483*(S)^-0.135
MLK	D	1.81	0.9	2	3	400	0.01	2.28	12	0.9	0.11	0.82	1.34	13482	Tc=(10)^-0.507*(Cd*I)^-0.519*(L)^0.483*(S)^-0.135

HYDROLOGY ANALYSIS

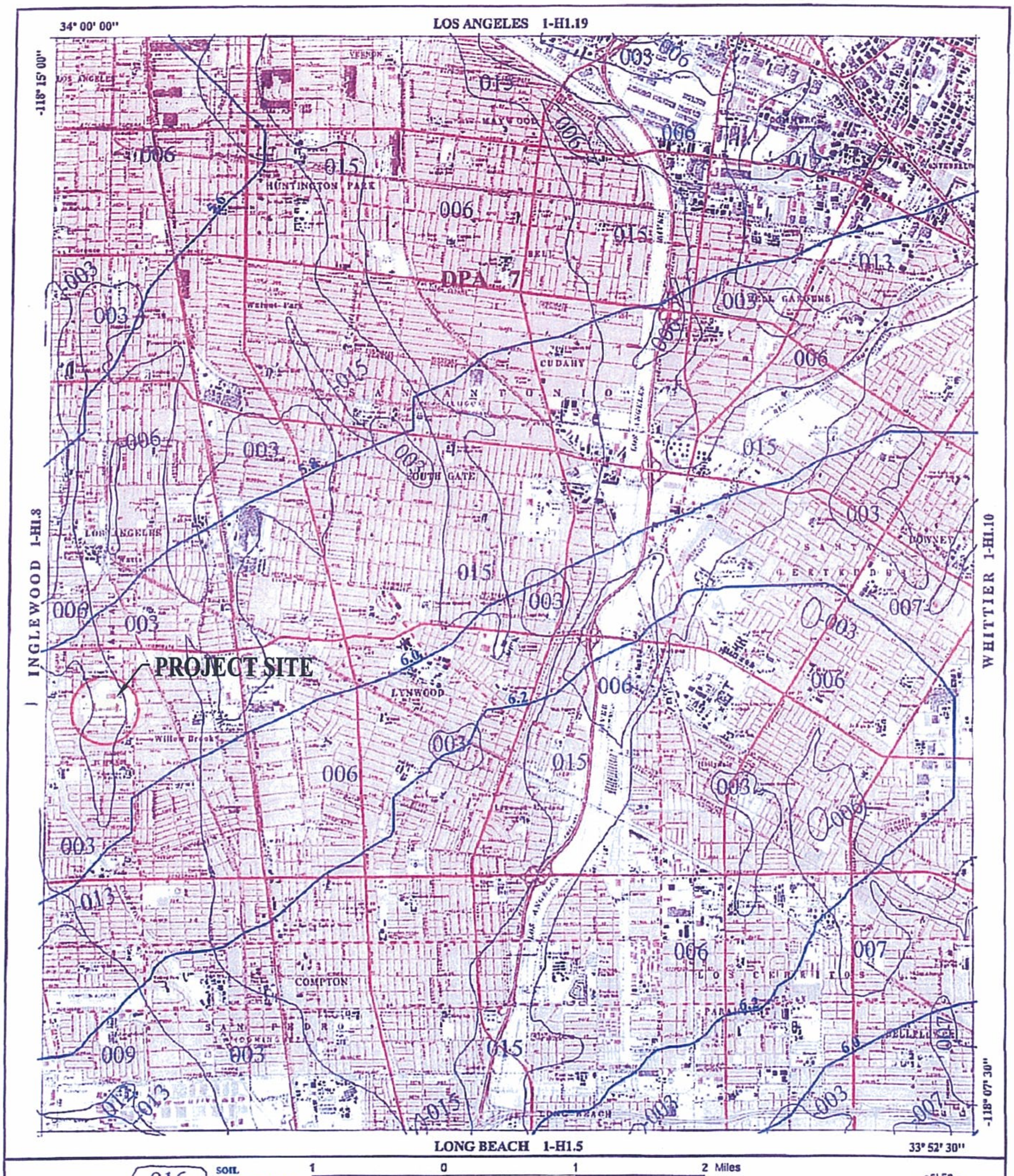
1) This analysis conforms to Los Angeles County Department of Public Works hydrology calculation methods.
The design is for a 2 year 24-hour storm,
The Soil type is 003
The 50-year 24-hour Isohyet is 5.9 in. => 2-year 24" Isohyet = 0.387x5.9=2.28 in

2) Subarea A, B, & C collected by on-site catch basins and drains to existing storm drain system in 120th Street and Compton Avenue.
$Q_A + Q_B + Q_C$ = 2.85+3.05+2.32 =8.22 cfs

3) Subarea D collected by catch basin and drains to storm drain system in the Alley and Compton Avenue
Q_D = 1.34 cfs

4) Subarea A, B & C Peak Runoff Volume, V_p = (43560)(2.28/12)(%imp)(Area)
$V_A + V_B + V_C$ = 29250+31806+23464 =84520 cu. ft
=>25% Vp = (0.25)(84520)=21130 cu. ft

5) Subarea D Peak Runoff Volume V_D = 13482 cu. ft
=>25% Vp = (0.25)(13482)=3370 cu. ft



25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

FIGURE 4 SOUTH GATE
50-YEAR 24-HOUR ISOYET

1-H1.9

$C_D = (0.9 * IMP) + (1.0 - IMP) * C_U$

Where: C_D = Developed Runoff Coefficient

IMP = Proportion Impervious

C_U = Undeveloped runoff coefficient

Los Angeles County Department of Public Works

RUNOFF COEFFICIENT CURVE
SOIL TYPE NO. 003

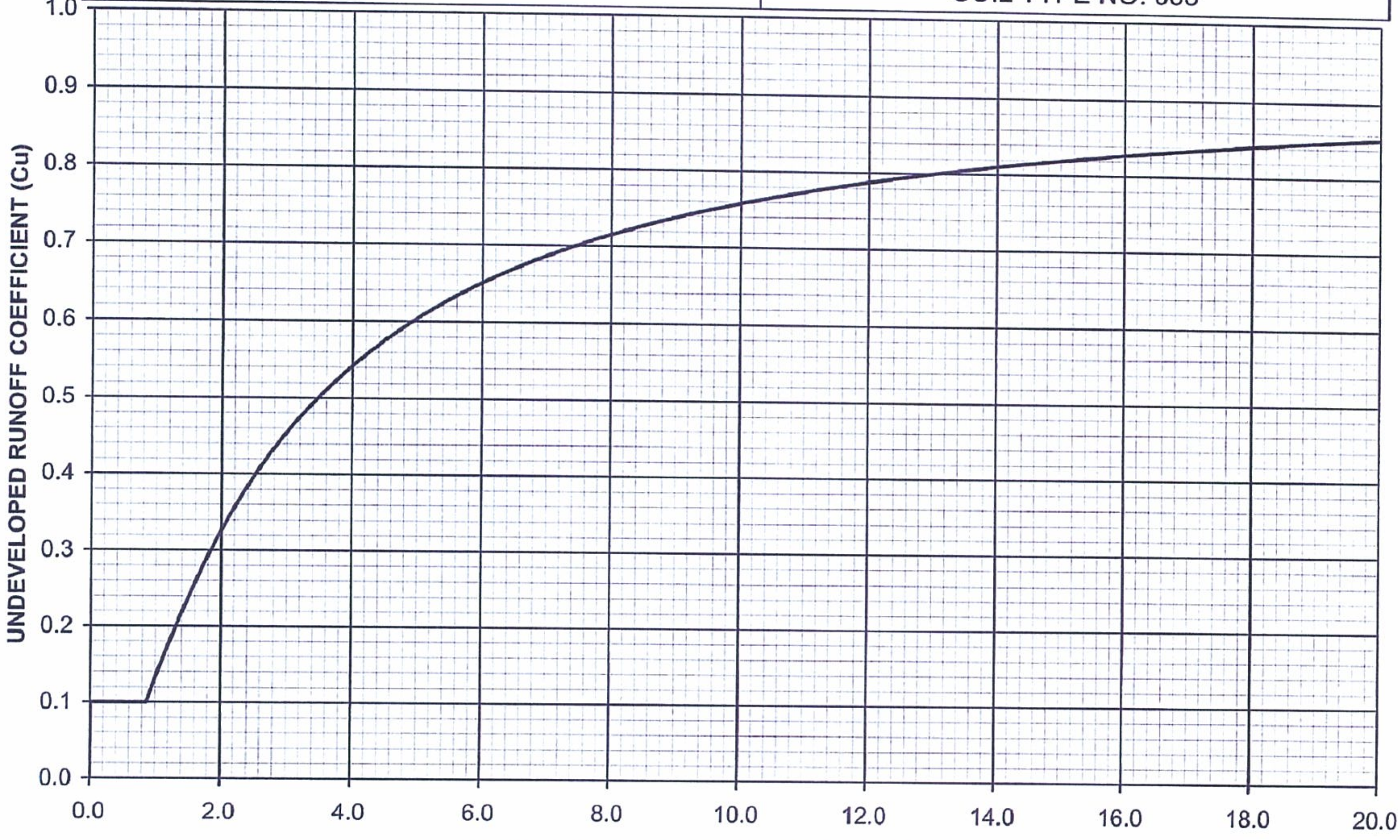


FIGURE 5 RAINFALL INTENSITY (I) INCHES/HOUR

TABLE III STORM FREQUENCY MULTIPLICATION FACTOR
(REF. Chapter 5 - Rainfall and Design Storm Characteristics)

Frequency	Multiplication Factor
2-yr	0.387
5-yr	0.584
10-yr	0.714
25-yr	0.878
50-yr	1.000
100-yr	1.122
500-yr	1.402

Appendix B contains isohyetal maps for the 50-year, 24-hour rainfall depth. The isohyetal contour lines are spaced at intervals of two-tenths of an inch. The spatial rainfall distributions for the county design storms were converted to grid data for use with Geographic Information System (GIS) compatible hydrologic models.

5.4 DESIGN STORM

The three components of the design storm include the IDF equation, the unit hyetograph curve, and the isohyets. These components are used to define the design storm for a particular location and frequency. As an example, consider the 25-year design storm for the Palmer Canyon watershed in Figure 5.4.1. Subarea 1A of this watershed, shown in Figure 5.4.2, will be used for the sample calculations.

1. Compute the area between successive isohyetal lines and multiply by the average of the isohyet values. Table 5.4.1 shows the areas between isohyets for Subarea 1A.

2. The sum of these precipitation-area values divided by the total subarea area provides the area weighted average rainfall depth. The average rainfall should be calculated to the nearest two-tenths of an inch. Table 5.4.1 contains the calculations for the isohyetal values in this subarea.

It may be noted that for small subareas, the isohyet nearest the centroid of the subarea usually equals the design depth. Selecting the isohyets nearest the subarea centroid is an acceptable method for determining the design rainfall for subareas of approximately 40 acres.

APPENDIX A

SS Credit 6.1: Stormwater Design—Quantity Control

1 Point

Intent

To limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from stormwater runoff and eliminating contaminants.

Requirements

CASE 1. Sites with Existing Imperviousness 50% or Less

OPTION 1

Implement a stormwater management plan that prevents the postdevelopment peak discharge rate and quantity from exceeding the predevelopment peak discharge rate and quantity for the 1- and 2-year 24-hour design storms.

OR

OPTION 2

Implement a stormwater management plan that protects receiving stream channels from excessive erosion. The stormwater management plan must include stream channel protection and quantity control strategies.

CASE 2. Sites with Existing Imperviousness Greater Than 50%

Implement a stormwater management plan that results in a 25% decrease in the volume of stormwater runoff from the 2-year 24-hour design storm.

Potential Technologies & Strategies

Design the project site to maintain natural stormwater flows by promoting infiltration. Specify vegetated roofs, pervious paving and other measures to minimize impervious surfaces. Reuse stormwater for non-potable uses such as landscape irrigation, toilet and urinal flushing, and custodial uses.

SS Credit 6.2: Stormwater Design—Quality Control

1 Point

Intent

To limit disruption and pollution of natural water flows by managing stormwater runoff.

Requirements

Implement a stormwater management plan that reduces impervious cover, promotes infiltration and captures and treats the stormwater runoff from 90% of the average annual rainfall[1] using acceptable best management practices (BMPs).

BMPs used to treat runoff must be capable of removing 80% of the average annual postdevelopment total suspended solids (TSS) load based on existing monitoring reports. BMPs are considered to meet these criteria if:

- They are designed in accordance with standards and specifications from a state or local program that has adopted these performance standards,

OR

- There exists infield performance monitoring data demonstrating compliance with the criteria. Data must conform to accepted protocol (e.g., Technology Acceptance Reciprocity Partnership [TARP], Washington State Department of Ecology) for BMP monitoring.

Potential Technologies & Strategies

Use alternative surfaces (e.g., vegetated roofs, pervious pavement, grid pavers) and nonstructural techniques (e.g., rain gardens, vegetated swales, disconnection of imperviousness, rainwater recycling) to reduce imperviousness and promote infiltration and thereby reduce pollutant loadings.

Use sustainable design strategies (e.g., low-impact development, environmentally sensitive design) to create integrated natural and mechanical treatment systems such as constructed wetlands, vegetated filters and open channels to treat stormwater runoff.

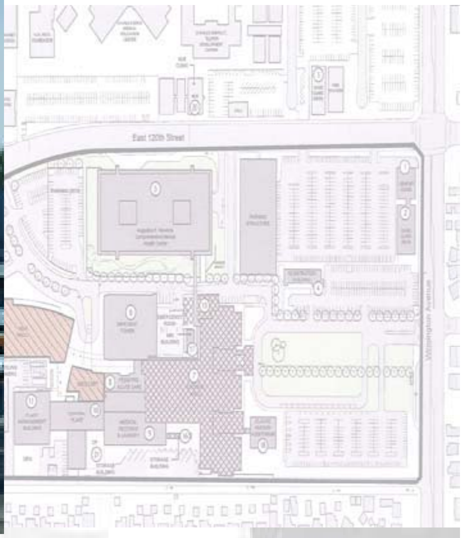
---

[1] There are 3 distinct climates in the United States that influence the nature and amount of annual rainfall. Humid watersheds are defined as those that receive at least 40 inches of rainfall each year. Semiarid watersheds receive between 20 and 40 inches of rainfall per year, and arid watersheds receive less than 20 inches of rainfall per year. For this credit, 90% of the average annual rainfall is equivalent to treating the runoff from the following (based on climate):

- Humid Watersheds — 1 inch of rainfall
- Semiarid Watersheds — 0.75 inches of rainfall
- Arid Watersheds — 0.5 inches of rainfall

APPENDIX H
TRAFFIC IMPACT ANALYSIS

TRAFFIC STUDY
FOR THE MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS PROJECT DEIR



Prepared for:

COUNTY OF LOS ANGELES
CALIFORNIA

July 2, 2010

Submitted by :

RAJU Associates Inc

TRAFFIC STUDY
FOR THE
MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
DEIR

Prepared for:

COUNTY OF LOS ANGELES

Prepared by:

RAJU ASSOCIATES, INC.
524 S. Rosemead Boulevard
Pasadena, California 91107
(626) 792-2700

Ref: RA 301

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K ICU WORKSHEETS – EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) CONDITIONS
L ICU WORKSHEETS – CUMULATIVE (2020) BASE CONDITIONS
M ICU WORKSHEETS – EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT CONDITIONS
N ICU WORKSHEETS – EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT AND RELATED PROJECTS/CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
O ICU WORKSHEETS – EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT WITH MITIGATION MEASURES
P ICU WORKSHEETS – EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT AND RELATED PROJECTS/CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS WITH MITIGATION MEASURES
Q CONCEPTUAL MITIGATION DRAWING
R CALTRANS ANALYSIS

EXECUTIVE SUMMARY

A detailed traffic study has been performed by Raju Associates, Inc. to assess the traffic impacts of the proposed Marin Luther King Jr. Medical Campus Center Redevelopment Project. This Project is located at 12021 Wilmington Avenue in the Willowbrook community of Los Angeles County, California.

The Proposed Project site is located on the existing 38-acre Martin Luther King Jr. Medical Center Campus, at 12021 Wilmington Avenue in the unincorporated area of Willowbrook, County of Los Angeles, California. The Proposed Project site is bounded on the north by 120th Street, on the west by Compton Avenue, on the east by Wilmington Avenue and on the south by an alley which separates the Proposed Project site from the residential neighborhood. Figure 1 illustrates the location of the Proposed Project in relation to the surrounding street system.

The existing Martin Luther King Jr. Medical Center Campus consists of 15 buildings containing a total of approximately 1,243,692 square feet. Table 1 includes a list of the existing buildings and their square footages. As indicated in the table, the multiservice ambulatory care center (MACC) building is the largest building on the campus at 495,335 square feet. Currently, the existing campus is not fully operational, but does provide various outpatient and administrative support services.

The Proposed Project consists of two tiers. Tier I involves construction of 156,700 square feet including a new MACC and ancillary buildings, tenant improvements in existing buildings, and site improvements. As proposed, the MACC building would be a four-story building consisting of approximately 132,000 square feet. The proposed ancillary building would be a two-story structure consisting of approximately 24,700 square feet. The tenant improvement would be performed in the North and South Support buildings, Interns and Physicians building and Plant Management building to provide support to the new MACC building. Additionally, Tier I would include site improvement consisting of a new parking terrace, new parking lots, and re-striping of existing lots.

The construction of Tier I would also include the removal of four structures containing approximately 506,485 square feet. These structures include the existing MACC building, emergency room, storage building and cooling towers and will be either reused or replaced under Tier II of the Project. It is anticipated that the Tier I Project would be completed by Year 2014.

Tier II of the Proposed Project would entail the development of a campuswide master plan. Tier II would have the potential to build out approximately 1,814,695 square feet of development on the Proposed Project site. As proposed, Tier II would consist of 1,134,695 square feet of hospital use, 80,000 square feet of retail use, 300,000 square feet of medical office use, 150,000 square feet of general office use, and 100 single family residential dwelling units (approximately 150,000 square feet). It is anticipated that the Tier II Project would be completed by Year 2020.

Current and future traffic analyses at 64 intersections within the County of Los Angeles and several other jurisdictions were conducted in this study. At these locations, traffic operations were studied prior to and after implementation of the proposed project, and deficiencies and impacts were identified. The following executive summary highlighting the key findings of this study is presented below.

- The Project study area encompasses a geographic area bounded by the Century Boulevard to the north, the I-110 Freeway to the west, the SR-91 Freeway to the south and Long Beach Boulevard to the east. The study area was established working closely with the County of Los Angeles by reviewing the travel patterns of the Proposed Project to ensure that all potential traffic impacts of the Martin Luther King Jr. Medical Center Campus Project would be addressed. Within the study area, 64 intersections have been selected for detailed study. These study intersections are located in the County of Los Angeles and Cities of Compton, Los Angeles, and Lynwood jurisdictions.

- Key elements of the traffic study include assessment of existing conditions, evaluation of future horizon year (2014) conditions without and with the Tier I Project, evaluation of future horizon year (2020) conditions without and with the Tier I and II Project, determination of the Proposed Project's trip generation, distribution and assignment on the roadway network, analysis of future conditions with the Proposed Project prior to mitigation, identification of significant impacts, testing of mitigation measures and documentation of significant impacts, if any.

- A detailed inventory of the existing roadway and transit systems was assembled to define the existing transportation supply-side parameters. Detailed field surveys were conducted to compile the specific parameters.

- Detailed morning and evening peak period traffic counts on a commuter weekday were conducted and the peak hour traffic demands on the roadway system were identified.

- Currently, 63 of the 64 analyzed intersection locations are operating at acceptable levels of service (LOS D or better) both during the morning and evening peak hours.

<u>Future Year 2014 – Tier I Analysis</u>

- At the 27 intersections located in the County of Los Angeles, in the Existing (Baseline) with Ambient Growth (2014) conditions, i.e., future conditions without the implementation of the proposed project, all 27 analyzed intersections in the morning peak hour and 26 analyzed intersections in the evening peak hour are projected to operate at LOS D or better.

- At the study intersections located in the other jurisdictions, in the Cumulative (2014) Base conditions, i.e., future conditions without the implementation of the proposed project, 36 of the 37 analyzed intersections in both the morning and evening peak hours are projected to operate at LOS D or better.

- The Proposed Tier I Project involves construction of 156,700 square feet including a new MACC and ancillary buildings, tenant improvements in existing buildings, and site improvements. The construction of Tier I would also include the removal of four structures containing approximately 506,485 square feet. The Tier I Project is estimated to generate a net total of -332 trips during the morning peak hour and -338 trips during the evening peak hour.

- At the County of Los Angeles locations, under the Existing (Baseline) with Ambient Growth (2014) plus Project conditions, all 27 analyzed intersections in the morning peak hour and 26 analyzed intersections in the evening peak hour are projected to operate at LOS D or better. The Existing (Baseline) with Ambient Growth (2014) plus Project conditions indicate that the Proposed Tier I Project would not cause a significant traffic impact at any of the analyzed intersections.

- Under the cumulative (2014) with Tier I Project conditions, 63 of the 64 analyzed intersections in the morning peak hour are projected to operate at LOS D or better. During the evening peak hour, 62 of the 64 analyzed intersections are projected to operate at LOS D or better. At the 27 County of Los Angeles locations, 27 intersections during the morning peak hour and 26 intersections during the evening peak hour are projected to operate at LOS D or better. At the 37 locations in other jurisdictions, 36 intersections during both the morning and evening peak hours are projected to operate at LOS D or better.

- At the County of Los Angeles locations, the Existing (Baseline) with Ambient Growth (2014) plus Tier I Project and Related Projects traffic conditions indicate that the cumulative projects (including the Proposed Tier I Project) would not cause a significant traffic impact at any of the analyzed intersections.

- At the study intersections located in other jurisdictions, the Cumulative (2014) plus Tier I Project conditions indicate that the Proposed Tier I Project would not cause a significant traffic impact at any of the 37 analyzed intersections.

Future Year 2020 – Tier II Analysis

- At the County of Los Angeles locations, in the Existing (Baseline) with Ambient Growth (2020) conditions, i.e., future conditions without the implementation of the proposed project, all 27 analyzed intersections in the morning peak hour and 26 analyzed intersections in the evening peak hour are projected to operate at LOS D or better.

- At the study intersections located in the other jurisdictions, in the Cumulative (2020) Base conditions, i.e., future conditions without the implementation of the proposed project, 36 of the 37 analyzed intersections during the morning peak hour are projected to operate at LOS D or better. During the evening peak hour, 34 of the 37 analyzed intersections during the morning peak hour are projected to operate at LOS D or better.

- The Proposed Tier II Project consists of 1,134,695 square feet of hospital use, 80,000 square feet of retail use, 300,000 square feet of medical office use, 150,000 square feet of general office use, and 100 single-family residential dwelling units. The Tier II Project is estimated to generate a net total of 1,572 trips during the morning peak hour and 2,091 trips during the evening peak hour.

- The overall Proposed Project (Tier I combined with Tier II) would have a total net trip generation of 1,240 trips (918 inbound, 322 outbound) during the morning peak hour and 1,753 trips (571 inbound, 1,182 outbound) during the evening peak hour.

- At the County of Los Angeles locations, under the Existing (Baseline) with Ambient Growth (2020) plus Tier I and II Project conditions, 25 of the 27 analyzed intersections in the morning peak hour and 22 of the 27 analyzed intersections in the evening peak hour are projected to operate at LOS D or better.

- The Proposed Tier II Project would cause a significant traffic impact at 7 of the 27 analyzed County of Los Angeles intersections (7 in the AM peak hour and 5 in the PM peak hour) and includes the following intersections:

    - Compton Avenue/Imperial Highway – AM Peak Hour
    - I-105 Westbound Ramps/Imperial Highway – AM Peak Hour
    - Wilmington Avenue/118th Street – AM and PM Peak Hours
    - Wilmington Avenue/120th Street-119th Street – AM and PM Peak Hours
    - Wilmington Avenue/I-105 Eastbound Ramps – AM and PM Peak Hours
    - Wilmington Avenue/MLK Jr. Hospital Dwy-120th Street – AM and PM Peak Hours
    - Wilmington Avenue/El Segundo Boulevard – AM and PM Peak Hours

- Under the cumulative (2020) with Tier II Project conditions, 59 of the 64 analyzed intersections during the morning peak hour and 53 of the 64 analyzed intersections during the PM peak hour are projected to operate at LOS D or better. At the 27 County of Los Angeles locations, 24 intersections during the morning peak hour and 19 intersections during the evening peak hour are projected to operate at LOS D or better. At the 37 locations in other jurisdictions, 35 and 34 intersections are projected to operate at LOS D or better during the morning and evening peak hours, respectively.

- At the County of Los Angeles locations, the Existing (Baseline) with Ambient Growth (2020) plus Tier I and II Project and Related Projects traffic conditions indicate that the cumulative projects (including the Proposed Tier II Project) would cause a significant traffic impact at 13 of the 27 analyzed intersections (10 in the AM peak hour and 12 in the PM peak hour) and includes the following intersections:

    - Alameda Street/103rd Street – AM and PM Peak Hours
    - Alameda Street/El Segundo Boulevard – PM Peak Hour
    - Alameda Street/Imperial Highway – AM and PM Peak Hours
    - Avalon Boulevard/El Segundo Boulevard – PM Peak Hour
    - Central Avenue/El Segundo Boulevard – AM and PM Peak Hours
    - Central Avenue/Rosecrans Avenue – PM Peak Hour
    - Compton Avenue/Imperial Highway – AM Peak Hour
    - I-105 Westbound Ramps/Imperial Highway – AM and PM Peak Hours.
    - Wilmington Avenue/118th Street – AM and PM Peak Hours
    - Wilmington Avenue/120th Street-119th Street – AM and PM Peak Hours
    - Wilmington Avenue/I-105 Eastbound Ramps – AM and PM Peak Hours
    - Wilmington Avenue/MLK Jr. Hospital Dwy-120th Street – AM and PM Peak Hours
    - Wilmington Avenue/El Segundo Boulevard – AM and PM Peak Hours

- At the study intersections located in the other jurisdictions, the Cumulative (2020) plus Tier I and II Project conditions indicate that the Proposed Tier II Project would cause a significant traffic impact at one of the 37 analyzed intersections. The intersection of Central Avenue/120th Street would be significantly impacted in both the morning and evening peak hours.

In order to address the Tier II Project's impacts, the following mitigation measures described in the section below are recommended for implementation by the Tier II Project:

- Compton Avenue/Imperial Highway – County of Los Angeles/City of Los Angeles: Restripe westbound approach to provide a separate right-turn lane.

- I-105 Westbound Ramps-Croesus Avenue/Imperial Highway – County of Los Angeles/City of Los Angeles/Caltrans: Provide a third northbound left-turn lane by widening off-ramp by 10' for approximately 150' to 200'.

- Wilmington Avenue/El Segundo Boulevard – County of Los Angeles/Compton: Restripe eastbound and westbound approaches to have separate right-turn lanes. Allow buses to go through the intersection from the right-turn lanes.

- Central Avenue/120th Street – City of Los Angeles: Restripe northbound approach to provide a separate right-turn lane. Also, widen the east leg by 3' on each curbside (i.e. reduce sidewalk along 120th street east of Central Avenue by 3' for approximately 120' and restripe westbound 120th Street approach to provide a left-turn, two through lanes and a separate right turn lane.

- Wilmington Avenue Corridor Improvements: Provide an additional southbound travel lane by widening 2’ on either side of Wilmington Avenue (reducing the sidewalk to 8’ from 10’) and restriping the travel lanes between 120th Street-119th Street and the I-105 Eastbound Off-Ramp and by just restriping the lanes (after reducing the central median) between MLK Jr. Hospital Driveway-120th Street and 120th Street-119th Street. The following intersection improvements would also be implemented as part of this corridor improvement:

- Wilmington Avenue/I-105 Eastbound Ramps – County of Los Angeles/Caltrans: Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach would have a left-turn lane, shared left-right turn lane and a separate right-turn lane. The sidewalks on either side of Wilmington Avenue (as noted above) would be reduced by 2’ and the Wilmington Avenue roadway would be widened by 2’ on either side (a total of 4’) from the south leg of this intersection.

  Provide an additional northbound left-turn lane by widening (reducing the medians). The northbound approach would have dual left-turn lanes and three through lanes.

- Wilmington Avenue/118th Street – County of Los Angeles: Widen Wilmington Avenue roadway by 2’ on either side and restripe to provide two through lanes, a shared through-right turn lane and dual left-turn lanes along the southbound approach. Restripe the westbound approach to provide a separate right-turn land and a share left-through lane. Northbound approach would have the same lane geometry as existing conditions. Under cumulative conditions, widen 118th Street roadway by 4’ and restripe to provide a separate right-turn lane and shared left-through lane along the eastbound approach.

- Wilmington Avenue/120th Street-119th Street – County of Los Angeles: Widen Wilmington Avenue roadway by 2’ on either side and restripe the southbound approach to provide a separate right-turn lane, three through lanes and a left-turn lane.

  Restripe northbound approach to provide a shared through-right turn lane, two through lanes and a left-turn lane. Remove median adjacent to northbound approach to facilitate three southbound receiving lanes. Restrict parking along Wilmington Avenue roadway during AM and PM peak periods along the eastside of Wilmington between 120th Street & MLK Jr. Hospital Driveway Entrance.

  Widen 120th Street west of Wilmington Avenue for 250’, on the south side by 2’ and restripe the eastbound approach to provide a separate right-turn lane, dual left-turn lanes, and a through lane. The westbound approach of 119th Street would have the same lane geometry as existing conditions.

- Wilmington Avenue/MLK Jr. Hospital Entrance-120th Street – County of Los Angeles: Restripe southbound approach to provide a separate right-turn lane, two through lanes and a left turn lane. Provide three northbound receiving lanes and restrict on-street curb parking along the eastside of Wilmington Avenue between MLK Jr. Hospital Driveway-120th Street and 120th Street-119th Street during morning and evening peak hours.

Remove median within the hospital entrance and restripe the driveway to provide dual left turn lanes, a through lane and a separate right-turn lane along the eastbound approach. Restripe to provide one receiving lane. The east-west signal phasing would operate as a split phase due to the lane configurations.

- The recommended improvements would fully mitigate the project-related impacts at the 8 impacted intersections.

In order to address the cumulative projects impacts determine using County of Los Angeles traffic study guidelines, the following mitigation measures described in the section below are recommended for implementation to alleviate the cumulative significant impacts. These improvements are needed in addition to the improvements identified above for the project-level mitigation measures.

- Avalon Boulevard/El Segundo Boulevard – County of Los Angeles: Widen NB approach by 2 feet and restripe the approach to provide a left turn lane, two through lanes and a separate right turn lane (10', 10', 10', 12'). The approach could be widened by narrowing the 5' median to a 3' median, or by reducing the 12' sidewalk to a 10' sidewalk. This widening would need to occur all the way to an alley located approximately 100' south of the intersection. The bus stop at this approach would continue to be located at the same location; however, buses would be allowed to go straight through the intersection.

- Alameda Street/El Segundo Boulevard – County of Los Angeles/Compton: Restripe northbound/southbound approaches and provide a SBR turn lane. The lanes along the north leg would be restriped to provide 13' and 11' receiving lanes; 10', 11', 10', 12' approach lanes for SBL, SBT, SBT, and SBR lanes, respectively. The lanes along the south leg would have 13' shared thru-right, 11' thru lane, 10' left turn lane, 12' receiving lane and a 20' receiving lane. Remove 2 on-street parking spaces along SB approach during peak hours.

- Alameda Street/103rd Street – County of Los Angeles/Lynwood: Restripe eastbound approach to provide a 10' left turn lane and a 12' left-right shared lane. The receiving lane would be restriped for 18.5'.

- Central Avenue/Rosecrans Avenue – County of Los Angeles/Compton: Restripe westbound approach to provide a separate right-turn lane. Allow buses to go through the intersection from the right-turn lane.

- Central Avenue/El Segundo Boulevard – County of Los Angeles/Compton: Restripe SB approach to provide a separate right-turn lane. Widen NB approach by reducing median by 1' to 2'. Provide restriping to show a separate NB right-turn lane. Allow buses to go through the intersection from the right-turn lane.

- Alameda Street/Imperial Highway – County of Los Angeles/City of Lynwood: Restripe southbound approach to provide the following roadway geometry: dual left-turn lanes, a through lane, a shared through-right turn lane, and a separate right turn lane.

- The recommended improvements would fully mitigate the cumulative projects-related impacts at the 13 impacted intersections.

I. INTRODUCTION

This report documents the assumptions, methodologies and findings of a study conducted by Raju Associates, Inc., to evaluate the potential traffic impacts of the proposed Marin Luther King Jr. Medical Campus Center Redevelopment Project. This Project is located at 12021 Wilmington Avenue in the Willowbrook community of Los Angeles County, California.

PROJECT DESCRIPTION

The Proposed Project site is located on the existing 38-acre Martin Luther King Jr. Medical Center Campus, at 12021 Wilmington Avenue in the unincorporated area of Willowbrook, County of Los Angeles, California. The Proposed Project site is bounded on the north by 120th Street, on the west by Compton Avenue, on the east by Wilmington Avenue and on the south by an alley which separates the Proposed Project site from the residential neighborhood. Figure 1 illustrates the location of the Proposed Project in relation to the surrounding street system.

The existing Martin Luther King Jr. Medical Center Campus consists of 15 buildings containing a total of approximately 1,243,692 square feet. Table 1 includes a list of the existing buildings and their square footages. As indicated in the table, the multiservice ambulatory care center (MACC) building is the largest building on the campus at 495,335 square feet. Currently, the existing campus is not fully operational, but does provide various outpatient and administrative support services.

The Proposed Project consists of two tiers. Tier I involves construction of 156,700 square feet including a new MACC and ancillary buildings, tenant improvements in existing buildings, and site improvements. As proposed, the MACC building would be a four-story building consisting of approximately 132,000 square feet. The proposed ancillary building would be a two-story structure consisting of approximately 24,700 square feet. The tenant improvement would be performed in the North and South Support buildings, Interns and Physicians building and Plant Management building to provide support to the new MACC building. Additionally, Tier I would include site improvement consisting of a new parking terrace, new parking lots, and re-striping of existing lots.

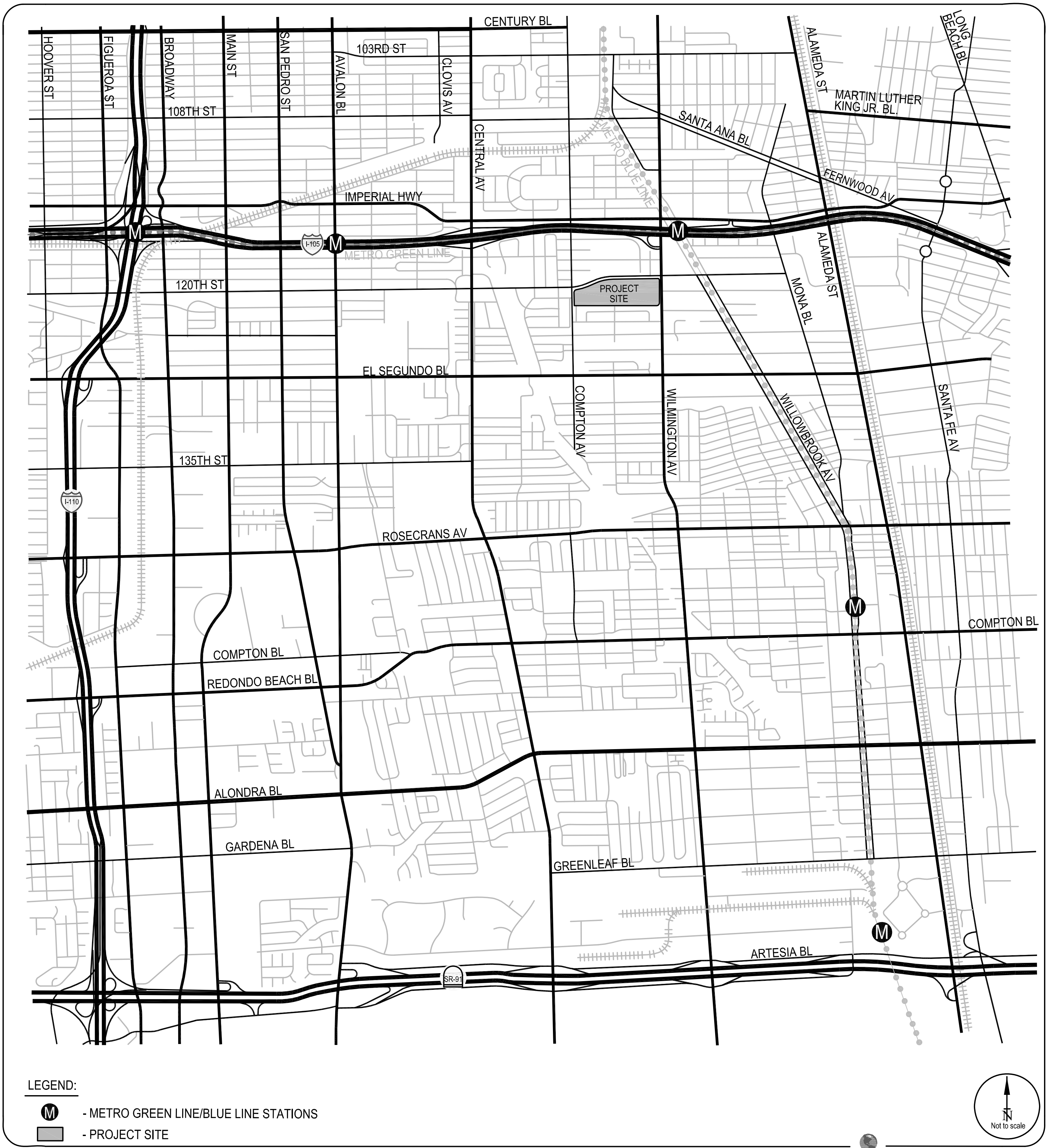


FIGURE 1
PROJECT LOCATION

RAJU Associates, Inc.

TABLE 1
EXISTING MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS

Building #	Building Name	Current Total Floor Area (s.f.)
1	Geneses Clinic	2,100
2	Oasis Clinic (Old)	2,580
3	Oasis Clinic (New)	1,850
4	Registration Building	10,950
5	Augustus F. Hawkins Comprehensive Mental Health Center	226,818
6	Inpatient Tower	187,676
7	Existing MACC	495,335
8	Pediatric Acute Care	7,878
9	Medical Records and Laundry	26,355
10	Central Plant	24,103
11	Plant Management	15,648
12	North Support Building	52,276
13	South Support Building	34,762
14	Interns and Physicians Building	124,391
15	Emergency Room	3,300
16	Storage Building	1,060
17	MRI Building	1,100
18	Claude Hudson Auditorium	3,922
19	Cooling Towers [1]	6,790
20	Hub Clinic	12,265
21	Storage Building [2]	2,533

[1] These structures would likely be demolished following the reuse of replacement of the existing MACC building.

[2] This building is in the footprint of the Central Plant expansion but may just be incorporated during design and remain.

Source: *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Initial Study*, Sapphos Environmental, Inc., March 8, 2010

The construction of Tier I would also include the removal of four structures containing approximately 506,485 square feet. These structures include the existing MACC building, emergency room, storage building and cooling towers and will be either reused or replaced under Tier II of the Project. It is anticipated that the Tier I Project would be completed by Year 2014. The Project site plan for Tier I and II is shown in Figure 2.

Tier II of the Proposed Project would entail the development of a campuswide master plan. Tier II would have the potential to build out approximately 1,814,695 square feet of development on the Proposed Project site. As proposed, Tier II would consist of 1,134,695 square feet of hospital use, 80,000 square feet of retail use, 300,000 square feet of medical office use, 150,000 square feet of general office use, and 100 single family residential dwelling units (approximately 150,000 square feet). It is anticipated that the Tier II Project would be completed by Year 2020.

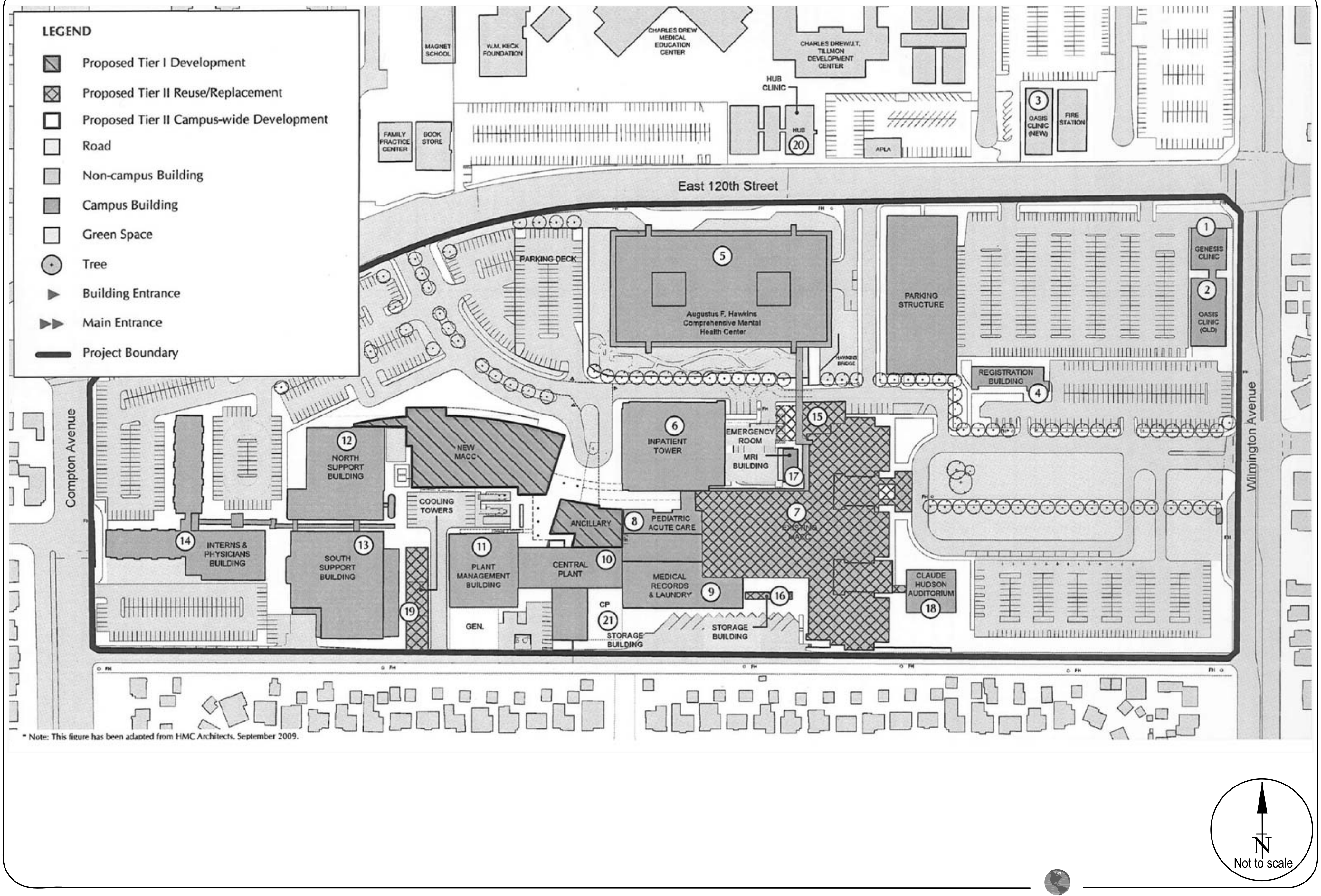
Currently several driveways located along 120th Street and one driveway along Wilmington Avenue provide access to the Project site.

STUDY SCOPE

The scope of work for this study was developed in conjunction with the County of Los Angeles Department of Public Works staff. The base assumptions, technical methodologies and geographic coverage of the study were all identified as part of the study approach. For this traffic study, a total of 64 intersections within four jurisdictions are analyzed as part of this study. A listing of these intersections by jurisdiction is presented in Table 2 and their locations are illustrated in Figure 3. Of these study locations, 27 are in the County of Los Angeles (with 10 intersections sharing joint jurisdiction with the other cities), 20 are in the City of Los Angeles, 12 are in the City of Compton, and 5 are in the City of Lynwood.

The study is directed at the analysis of potential traffic impacts on the street system produced by the Proposed Project and includes an analysis of the following scenarios:

- Existing (2010) Conditions - The analysis of existing traffic conditions is intended to provide a basis for the remainder of the study. The existing conditions analysis includes an assessment of streets, traffic volumes, and operating conditions.



* Note: This figure has been adapted from HMC Architects, September 2009.

FIGURE 2
PROJECT SITE PLAN

RAJU Associates, Inc.

TABLE 2
ANALYZED INTERSECTION LOCATIONS BY JURISDICTION

Map #	INTERSECTION	Jurisdiction
52	Alameda Street/103rd Street	Los Angeles County/Lynwood
55	Alameda Street/El Segundo Boulevard	Los Angeles County/Compton
54	Alameda Street/Imperial Highway [1]	Los Angeles County/Lynwood
11	Avalon Boulevard/El Segundo Boulevard	Los Angeles County
12	Avalon Boulevard/Rosecrans Avenue	Los Angeles County
4	Broadway/El Segundo Boulevard	Los Angeles County
19	Central Avenue/El Segundo Boulevard	Los Angeles County/Compton
20	Central Avenue/Rosecrans Avenue	Los Angeles County/Compton
26	Compton Avenue/118th Street	Los Angeles County
27	Compton Avenue/120th Street	Los Angeles County
28	Compton Avenue/124th Street	Los Angeles County
25	Compton Avenue/Imperial Highway	Los Angeles County/Los Angeles (City)
49	I-105 Westbound Ramps/Imperial Highway	Los Angeles County/Los Angeles (City)*
5	Main Street/El Segundo Boulevard	Los Angeles County
51	Mona Boulevard/El Segundo Boulevard	Los Angeles County
50	Mona Boulevard/Imperial Highway	Los Angeles Co./Los Angeles(City)/Lynwood
7	San Pedro Street/El Segundo Boulevard	Los Angeles County
23	Success Avenue - Slater Avenue/120th Street	Los Angeles County
46	Willowbrook Avenue/119th Street	Los Angeles County
47	Willowbrook Avenue/El Segundo Boulevard	Los Angeles County
35	Wilmington Avenue/118th Street	Los Angeles County
36	Wilmington Avenue/120th Street-119th Street	Los Angeles County
38	Wilmington Avenue/124th Street	Los Angeles County
34	Wilmington Avenue/I-105 Eastbound Ramps	Los Angeles County*
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	Los Angeles County
39	Wilmington Avenue/El Segundo Boulevard	Los Angeles County/Compton
33	Wilmington Avenue/Imperial Highway-Willowbrook Avenue	Los Angeles County/Los Angeles (City)
56	Alameda Street/Compton Boulevard [1]	Compton
22	Central Avenue/Alondra Boulevard	Compton
21	Central Avenue/Compton Boulevard	Compton
29	Compton Avenue/El Segundo Boulevard	Compton
61	Slater Avenue/El Segundo Boulevard	Compton
48	Willowbrook Avenue/Rosecrans Avenue	Compton
42	Wilmington Avenue/Alondra Boulevard	Compton
41	Wilmington Avenue/Compton Boulevard	Compton
43	Wilmington Avenue/Greenleaf Boulevard	Compton
40	Wilmington Avenue/Rosecrans Avenue	Compton
44	Wilmington Avenue/Artesia Boulevard (N)	Compton*
45	Wilmington Avenue/Artesia Boulevard (S)	Compton*

TABLE 2 (continued)
ANALYZED INTERSECTION LOCATIONS BY JURISDICTION

Map #	INTERSECTION	Jurisdiction
10	Avalon Boulevard/120th Street	Los Angeles (City)
8	Avalon Boulevard/Century Boulevard	Los Angeles (City)
9	Avalon Boulevard/Imperial Highway	Los Angeles (City)
14	Central Avenue/103rd Street	Los Angeles (City)
18	Central Avenue/120th Street	Los Angeles (City)
13	Central Avenue/Century Boulevard	Los Angeles (City)
15	Central Avenue/Imperial Highway	Los Angeles (City)
17	Central Avenue/I-105 Eastbound Ramps	Los Angeles (City)*
16	Central Avenue/I-105 Westbound Ramps	Los Angeles (City)*
24	Compton Avenue/103rd Street	Los Angeles (City)
62	Compton Avenue/108th Street	Los Angeles (City)
63	Compton Avenue/111th Street	Los Angeles (City)
3	Figueroa Street/El Segundo Boulevard	Los Angeles (City)
2	I-110 Northbound Ramps/El Segundo Boulevard	Los Angeles (City)*
1	I-110 Southbound Ramps/El Segundo Boulevard	Los Angeles (City)*
6	San Pedro Street/120th Street	Los Angeles (City)
30	Wilmington Avenue/103rd Street	Los Angeles (City)
64	Wilmington Avenue/111th Street	Los Angeles (City)
31	Wilmington Avenue/Santa Ana Boulevard (N)	Los Angeles (City)
32	Wilmington Avenue/Santa Ana Boulevard (S)	Los Angeles (City)
53	Alameda Street/Martin Luther King Jr. Boulevard	Lynwood
58	Long Beach Boulevard/Imperial Highway	Lynwood
57	Long Beach Boulevard/Martin Luther King Jr. Boulevard	Lynwood
60	Long Beach Boulevard/I-105 Eastbound Ramps	Lynwood*
59	Long Beach Boulevard/I-105 Westbound Ramps	Lynwood*

* Shares jurisdiction with Caltrans.

[1] Los Angeles County Congestion Management Program (CMP) monitoring location.

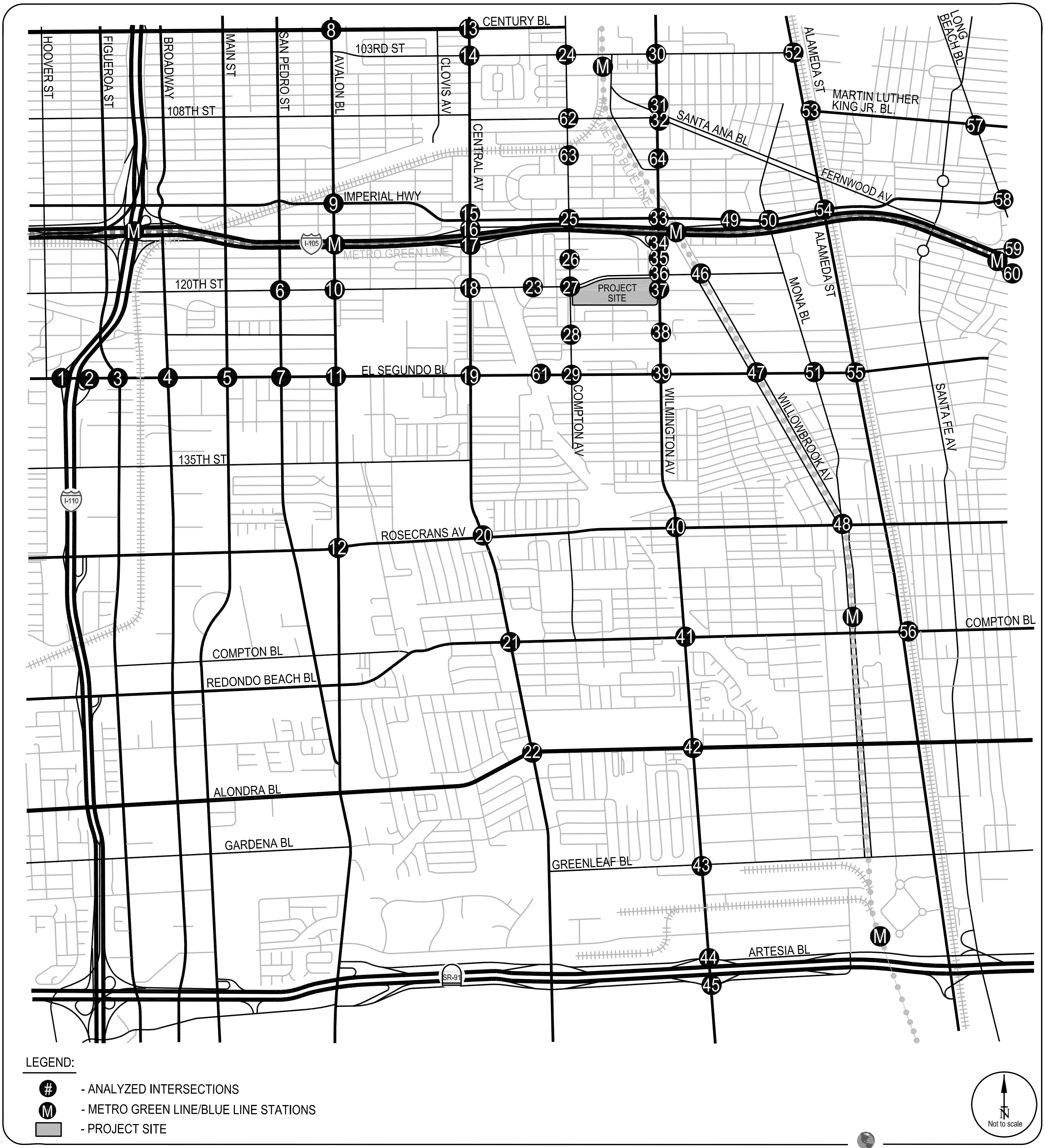


FIGURE 3
LOCATION OF ANALYZED INTERSECTIONS

RAJU Associates, Inc.

Future Year 2014 Conditions – Tier I Analysis

Traffic analysis scenarios for County of Los Angeles study locations, based on County of Los Angeles traffic study guidelines:

- Existing Baseline with Ambient Growth (2014) Conditions - Future traffic conditions without the proposed project have been developed for the year 2014. The objective of this analysis is to project future traffic growth and operating conditions, which could be expected to result from regional growth in the vicinity of the study area by the year 2014. This scenario serves as the point of reference to compare the Tier I Project conditions to, for estimation of traffic impacts.

- Existing Baseline with Ambient Growth (2014) plus Tier I Project Conditions - The net traffic expected to be generated by the Proposed Tier I Project is estimated and added to the Existing Baseline with Ambient Growth (2014) traffic forecasts. The impacts of the Proposed Tier I Project on future traffic operating conditions are then identified.

- Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects Conditions – The net traffic expected to be generated by the Proposed Tier I Project and related projects is estimated and added to the Existing Baseline with Ambient Growth (2014) traffic forecasts. The impacts of the cumulative projects (including the Proposed Tier I Project) on future traffic operating conditions are then identified.

Traffic analysis scenarios for Cities of Los Angeles, Compton and Lynwood study locations, based on the other jurisdictions and Congestion Management Program for Los Angels County traffic study guidelines:

- Cumulative (2014) Base Conditions - Future traffic conditions without the proposed project has been developed for the year 2014. The objective of this analysis is to project future traffic growth and operating conditions, which could be expected to result from regional growth and related projects in the vicinity of the study area by the year 2014. This scenario serves as the point of reference to compare the Tier I Project conditions to, for estimation of traffic impacts.

- Cumulative (2014) Plus Tier I Project Conditions – Same as Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects Conditions. The impacts of the Proposed Tier I Project on future traffic operating conditions are then identified.

Future Year 2020 Conditions – Tier II Analysis

Traffic analysis scenarios for County of Los Angeles study locations, based on County of Los Angeles traffic study guidelines:

- Existing Baseline with Ambient Growth (2020) Conditions - Future traffic conditions without the proposed project have been developed for the year 2020. The objective of this analysis is to project future traffic growth and operating conditions, which could be expected to result from regional growth in the vicinity of the study area by the year 2020. This scenario serves as the point of reference to compare the Tier II Project conditions to, for estimation of traffic impacts.

- Existing Baseline with Ambient Growth (2020) plus Tier I and II Project Conditions - The net traffic expected to be generated under Proposed Tier II Project conditions is estimated and added to the Existing Baseline with Ambient Growth (2014) traffic forecasts. The impacts of the Proposed Tier II Project on future traffic operating conditions are then identified.

- Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects Conditions – The net traffic expected to be generated by the Proposed Tier I and Tier II Project and related projects is estimated and added to the Existing Baseline with Ambient Growth (2014) traffic forecasts. The impacts of the cumulative projects (including the Proposed Tier II Project) on future traffic operating conditions are then identified.

- Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects Conditions and Mitigations – Future Year 2020 traffic conditions with the Tier I and II Project and related projects and its mitigation measures to address the significant impacts of the Proposed Tier II Project are analyzed in this scenario. Residual significant impacts, if any, are identified in this evaluation.

Traffic analysis scenarios for Cities of Los Angeles, Compton and Lynwood study locations, based on the other jurisdictions and Congestion Management Program for Los Angels County traffic study guidelines:

- Cumulative (2020) Base Conditions - Future traffic conditions without the proposed project has been developed for the year 2020. The objective of this analysis is to project future traffic growth and operating conditions, which could be expected to result from regional growth and related projects in the vicinity of the study area by the year 2020. This scenario serves as the point of reference to compare the Tier II Project conditions to, for estimation of traffic impacts.

- Cumulative (2020) Plus Tier I and II Project Conditions – Same scenario as Existing Baseline with Ambient Growth (2020) plus Tier I and Tier II Project and Related Projects Conditions. The impacts of the Proposed Tier II Project on future traffic operating conditions are then identified.

- Cumulative (2020) Plus Tier I and II Project Conditions and Mitigations – Same scenario as Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects Conditions and Mitigations. Residual significant impacts, if any, are identified in this evaluation.

As part of the Congestion Management Program and Caltrans analysis, 12 freeway segments are also analyzed. These locations include segments of the Century (I-105) Freeway, Harbor (I-110) Freeway, Long Beach (I-710) Freeway and Artesia (SR-91) Freeway.

A detailed Memorandum of Understanding (MOU) was prepared in coordination with the County of Los Angeles Department of Public Works. The MOU includes among other details, a description of the Proposed Project and its trip generation characteristics. Since obtaining the county-approved MOU, the Proposed Tier I Project size has slightly increased and is reflected in this traffic study report and traffic impact analysis. A copy of the County-approved MOU is attached in Appendix A of this report.

ORGANIZATION OF REPORT

An executive summary presenting key details of the study is provided at the beginning of this report. The rest of the report is divided into seven chapters. Chapter I presents an introduction and provides details of the various elements of the study. Chapter II describes the existing circulation system, traffic volumes, and traffic conditions within the study area. Chapter III presents the methodology to obtain Future Year 2014 traffic volumes and the assessment of traffic conditions with and without the Tier I Project and the potential traffic impacts due to the Proposed Tier I Project (and related projects). Chapter IV presents the methodology to obtain Future Year 2020 traffic volumes and the assessment of traffic conditions with and without the Tier II Project and the potential traffic impacts due to the Proposed Tier II Project (and related projects). The results of the analysis of the Proposed Project's impacts on the Congestion Management Program (CMP) regional transportation system are provided in Chapter V. Chapter VI discusses the Project alternatives analyses. A summary of the analysis and conclusions is included in Chapter VII. Appendices to this report include details of the technical analysis.

II. EXISTING CONDITIONS

A comprehensive data collection effort was undertaken to develop a detailed description of existing conditions within the study area. The assessment of conditions relevant to this study includes an inventory of the street system, traffic volumes on these facilities, and operating conditions at key intersections. A detailed description of these elements is presented in this chapter.

STUDY AREA

The Proposed Project site is located on the existing 38-acre Martin Luther King Jr. Medical Center Campus, at 12021 Wilmington Avenue in the unincorporated area of Willowbrook, County of Los Angeles, California. The Proposed Project site is bounded on the north by 120th Street, on the west by Compton Avenue, on the east by Wilmington Avenue and on the south by an alley which separates the Proposed Project site from the residential neighborhood. The street system within immediate vicinity of the Project site is under the jurisdiction of the County of Los Angeles.

The Proposed Project is located approximately 3 miles north of Artesia (SR-91), approximately 2 miles east of the Harbor (I-110) Freeway, approximately one-quarter mile south of the Century (I-105) Freeway and approximately 3 miles northeast of the Long Beach (I-710) Freeway.

The Project study area encompasses a geographic area bounded by Century Boulevard to the north, the I-I10 Freeway to the west, the SR-91 Freeway to the south and Long Beach Boulevard to the east. The study area was established by working closely with the County of Los Angeles staff. Within the study area, 64 intersections have been selected for detailed study within the County of Los Angeles and Cities of Los Angeles, Compton, and Lynwood. Fourteen freeway segments located along the Harbor (I-110) Freeway, Artesia (SR-91) Freeway, Century (I-105) Freeway and Long Beach (I-710) Freeway have also been selected for evaluation in this study.

EXISTING STREET SYSTEM

The existing street system within the study area consists of a regional highway system including major arterials and a local street system including secondary arterials, collectors and local streets. A description of the regional and local access and circulation offered by the various roadways follows.

Primary regional access to the Project site is provided by the Century (I-105) Freeway, the San Harbor (I-110) Freeway, the Long Beach (I-710) Freeway and the Artesia (SR-91) Freeway. The I-105 Freeway, which runs in the east-west direction, south of the project site, connects with the I-110 and I-710 Freeways, which run north-south. The SR-91 Freeway, which also runs east-west south of the Project site, connects with the I-110 and I-710 Freeways.

The arterials in the vicinity of the study area providing regional and sub-regional access to the project site include Imperial Highway, Wilmington Avenue, Central Avenue, El Segundo Boulevard, Alameda Street, 108th Street, 111th Street, 119th Street, 120th Street, Compton Avenue, Avalon Avenue, Willowbrook Avenue, Mona Boulevard, Rosecrans Avenue, Slater Street and Success Avenue.

Local and sub-regional access and circulation opportunities within the project study area are provided by a grid network of major highways, secondary highways, collector streets and selected local streets. These facilities generally provide two to four travel lanes and allow parking on either side of the street. Typically, the speed limits range between 25 mph and 35 mph.

Brief descriptions of facilities serving the immediate vicinity of study area are included in the following section (the street classifications are per the County of Los Angeles' and City of Los Angeles' General Plan designation):

- Compton Avenue – Compton Avenue is a secondary arterial roadway. It runs in a north-south direction across several jurisdictions and defines the western boundary of the Project site. The posted speed limit is 35 miles per hour in the vicinity of the study area. Within the study area, the roadway generally offers four travel lanes, two lanes in each direction with a double yellow median. Parking is generally allowed along this roadway.

- 120th Street – 120th Street is a secondary arterial roadway that traverses in an east-west direction and defines the northern boundary of the Project site. This roadway provides four travel lanes, two lanes in each direction with a double yellow median. The posted speed limit is 25 miles per hour. In the vicinity of the Project site, parking is allowed along this roadway. At Wilmington Avenue, this roadway becomes 119th Street. The 120th Street roadway continues east of Wilmington Avenue, south of 119th Street. This segment of 120th Street is a local street and provides two lanes, one lane in each direction. Parking is allowed along this roadway.

- <u>119th Street</u> – 119th Street begins east of Wilmington Avenue and is a continuation of 120th Street. 119th Street is a secondary arterial roadway that traverses in an east-west direction. This roadway offers two travel lanes, one lane per direction with a center left-turn median. Parking is allowed along this roadway. The posted speed limit along this facility is 25 miles per hour.

- <u>Wilmington Avenue</u> – Wilmington Avenue is a major arterial roadway that runs in a north-south direction and defines the eastern boundary of the Project site. This roadway offers four travel lanes, two lanes per direction and provides connection to the I-105 Freeway eastbound on-off ramps. Parking is allowed along this roadway. North of El Segundo Boulevard, the posted speed limit is 35 miles per hour.

- <u>El Segundo Boulevard</u> – El Segundo Boulevard is an east-west major arterial roadway. The posted speed limit varies from 35 to 40 miles per hour. The roadway generally offers six travel lanes, three lanes in each direction, with a central left-turn median. Parking is generally allowed along many stretches of this roadway within the study area. This roadway provides on- and off-ramps to the I-110 Freeway.

- <u>Imperial Highway</u> – Imperial Highway is classified as a major arterial roadway and runs in an east-west direction north of the Project site. The posted speed limit is 40 miles per hour. The roadway generally offers six travel lanes, three lanes in each direction, with a central left-turn median. Restricted on-street parking is allowed along this roadway. This roadway provides on- and off-ramps to the I-105 Freeway.

- <u>Rosecrans Avenue</u> – Rosecrans Avenue is a major arterial roadway that traverses in an east-west direction. This roadway offers four travel lanes, two lanes per direction with a raised median. This roadway provides connection to both the I-110 Freeway and I-710 Freeway on-off ramps. Parking is allowed along this roadway. The posted speed limit is 40 miles per hour.

- <u>Avalon Boulevard</u> – Avalon Boulevard is a major arterial roadway that runs in a north-south direction and offers four travel lanes, two lanes per direction. Parking is allowed along many stretches of this roadway. The posted speed limit is 35 miles per hour.

- <u>Central Avenue</u> – Central Avenue is classified as a major arterial roadway that traverses in a north-south direction. The posted speed limit is 35 miles per hour. The roadway generally offers four travel lanes, two lanes in each direction, with a central left-turn median and provides on- and off-ramps to the I-105 Freeway. Parking is allowed along this roadway within the study area.

- Willowbrook Avenue (West) – Willowbrook Avenue (West) is classified as a secondary arterial roadway that traverses in a north-east to south-west direction. The posted speed limit is 35 miles per hour. The roadway generally offers two travel lanes, one lane in each direction, with a single dashed yellow median. Parking is allowed along the east side of this roadway within the study area.

- Willowbrook Avenue (East) – Willowbrook Avenue (East) is classified as a secondary arterial roadway that traverses in a north-east to south-west direction. The posted speed limit is 35 miles per hour. The roadway generally offers two travel lanes, one lane in each direction, with a single dashed yellow median. Parking is allowed along the west side of this roadway within the study area.

- Mona Boulevard – Mona Boulevard is classified as a secondary arterial roadway that runs in a north-east to south-west direction. The posted speed limit is 40 miles per hour. The roadway generally offers two travel lanes, one lane in each direction, with undivided median. Parking is allowed along this roadway within the study area.

- Alameda Street – Alameda Street is classified as a secondary arterial roadway that traverses in a north-east to south-west direction. The posted speed limit is 40 miles per hour. The roadway generally offers four travel lanes, two lanes in each direction, with central left-turn median. Parking is allowed along many stretched of this roadway within the study area.

- 108th Street – 108th Street is classified as a secondary arterial roadway that traverses in east-west direction. The posted speed limit is 35 miles per hour. The roadway generally offers two travel lanes, one lane in each direction, with central left-turn median. Restricted on-street parking is allowed along this roadway within the study area.

- 111th Street – 111th Street is classified as a collector roadway that traverses in an east-west direction. The posted speed limit is 25 miles per hour. The roadway generally offers two travel lanes, one lane in each direction, with undivided median. Restricted on-street parking is allowed along this roadway within the study area.

- Success Avenue – Success Avenue is a local street that runs in a north-south direction. The speed limit is 25 miles per hour. The roadway generally offers two travel lanes, one lane in each direction, with single dashed median. Restricted on-street parking is allowed along this roadway within the study area.

- Slater Avenue – Slater Avenue is a local street that runs in a north-south direction. The speed limit is 25 miles per hour. The roadway generally offers two travel lanes, one lane in each direction, with single dashed median. Restricted on-street parking is allowed along this roadway within the study area.

The roadway segment characteristics and existing lane configurations at each of the analyzed intersections are included in Appendix B.

EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

The following sections present the existing intersection peak hour traffic volumes, a description of the methodology utilized to analyze the intersection operating conditions, and the resulting level of service conditions at each of the study locations.

Existing Traffic Volumes

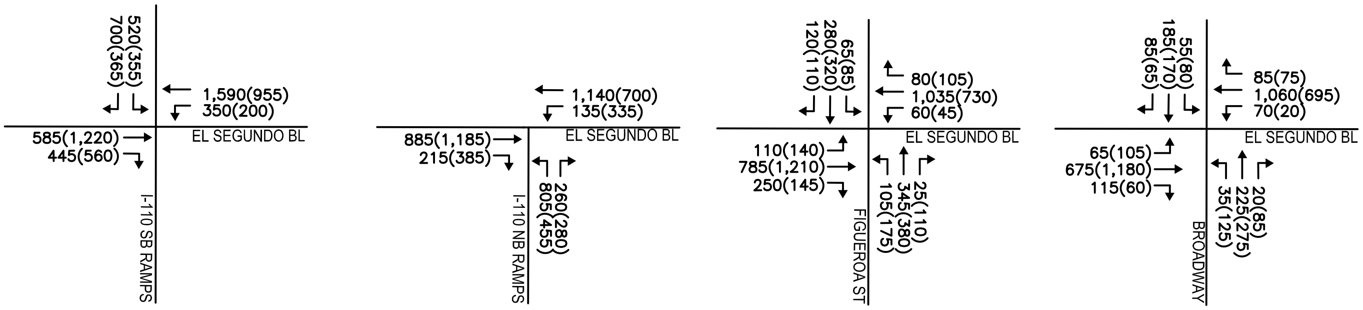
Weekday morning and evening peak hour traffic counts were compiled from data collected at the 64 analyzed intersections in January and April 2010. These traffic volumes reflect typical weekday operations during current year 2010 conditions. The traffic volumes in Figure 4A-4E represent, for the purposes of this analysis the Existing 2010 AM and PM peak hour conditions, respectively. The raw data showing the counts are attached in Appendix C.

Existing on-site peak hour traffic counts were conducted at the existing driveways along 120th Street and Wilmington Avenue. Based on the observed driveway counts, the existing Project site generates a total of 706 trips (528 inbound, 178 outbound) during the morning peak hour and 527 trips (124 inbound, 403 outbound) during the evening peak hour. Raw driveway traffic counts are also included in Appendix C.

Level of Service Methodology

Level of Service (LOS) is a qualitative measure used to describe the condition of traffic flow, ranging from excellent conditions at LOS A to overloaded conditions at LOS F. LOS D is typically recognized as the minimum acceptable level of service in urban areas. The Level of Service definitions for signalized intersections is provided in Table 3. All of the analyzed intersections are controlled by traffic signals.

The Intersection Capacity Utilization (ICU) method of intersection analysis, per the County of Los Angeles traffic impact study guidelines for analyzing intersection conditions, was used to determine the intersection volume to capacity (V/C) ratio and corresponding level of service at each study intersection. A capacity of 1,600 vehicles per lane per hour and 2,880 for dual left-turn lanes was assumed in the capacity calculations in accordance with the guidelines. Table 3 defines the ranges of V/C ratios and corresponding levels of service for signalized intersections.

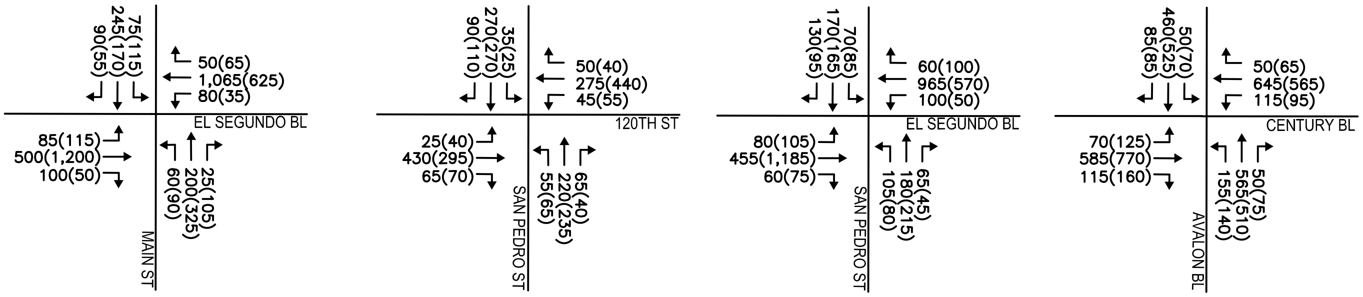


1. I-110 SB RAMPS/EL SEGUNDO BL

2. I-110 NB RAMPS/EL SEGUNDO BL

3. FIGUEROA ST/EL SEGUNDO BL

4. BROADWAY/EL SEGUNDO BL

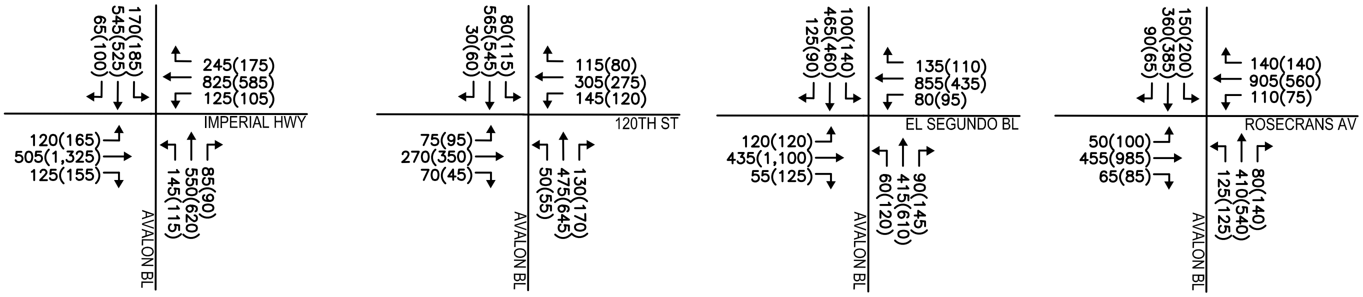


5. MAIN ST/EL SEGUNDO BL

6. SAN PEDRO ST/120TH ST

7. SAN PEDRO ST/EL SEGUNDO BL

8. AVALON BL/CENTURY BL

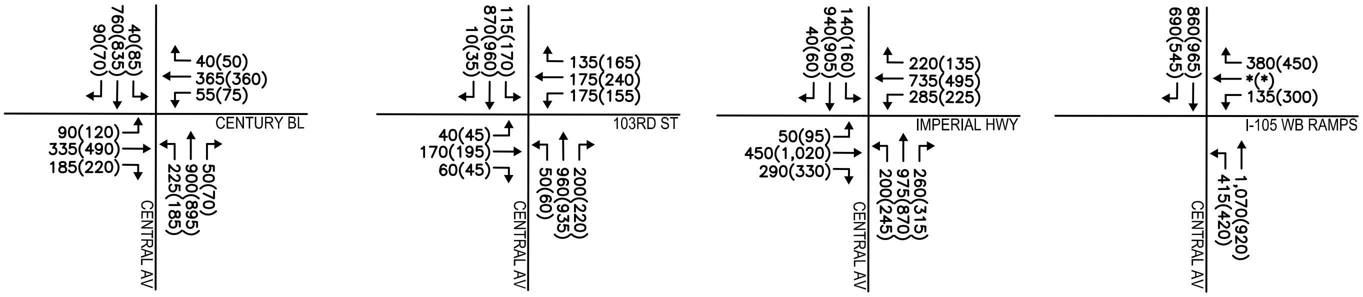


9. AVALON BL/IMPERIAL HWY

10. AVALON BL/120TH ST

11. AVALON BL/EL SEGUNDO BL

12. AVALON BL/ROSECRANS AV



13. CENTRAL AV/CENTURY BL

14. CENTRAL AV/103RD ST

15. CENTRAL AV/IMPERIAL HWY

16. CENTRAL AV/I-105 WB RAMPS

LEGEND:

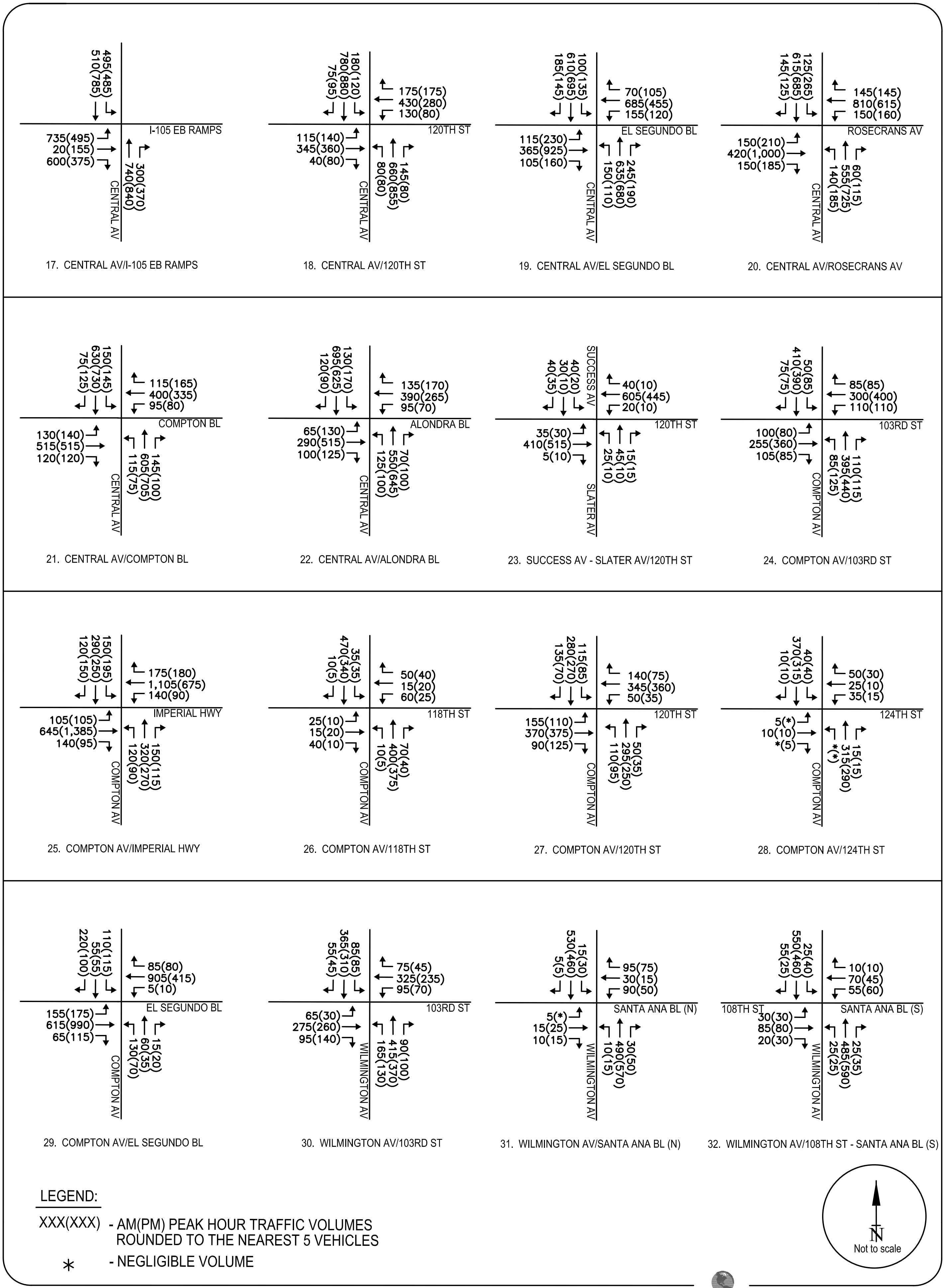
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 4A
EXISTING (2010) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



17. CENTRAL AV/I-105 EB RAMPS

18. CENTRAL AV/120TH ST

19. CENTRAL AV/EL SEGUNDO BL

20. CENTRAL AV/ROSECRANS AV

21. CENTRAL AV/COMPTON BL

22. CENTRAL AV/ALONDRA BL

23. SUCCESS AV - SLATER AV/120TH ST

24. COMPTON AV/103RD ST

25. COMPTON AV/IMPERIAL HWY

26. COMPTON AV/118TH ST

27. COMPTON AV/120TH ST

28. COMPTON AV/124TH ST

29. COMPTON AV/EL SEGUNDO BL

30. WILMINGTON AV/103RD ST

31. WILMINGTON AV/SANTA ANA BL (N)

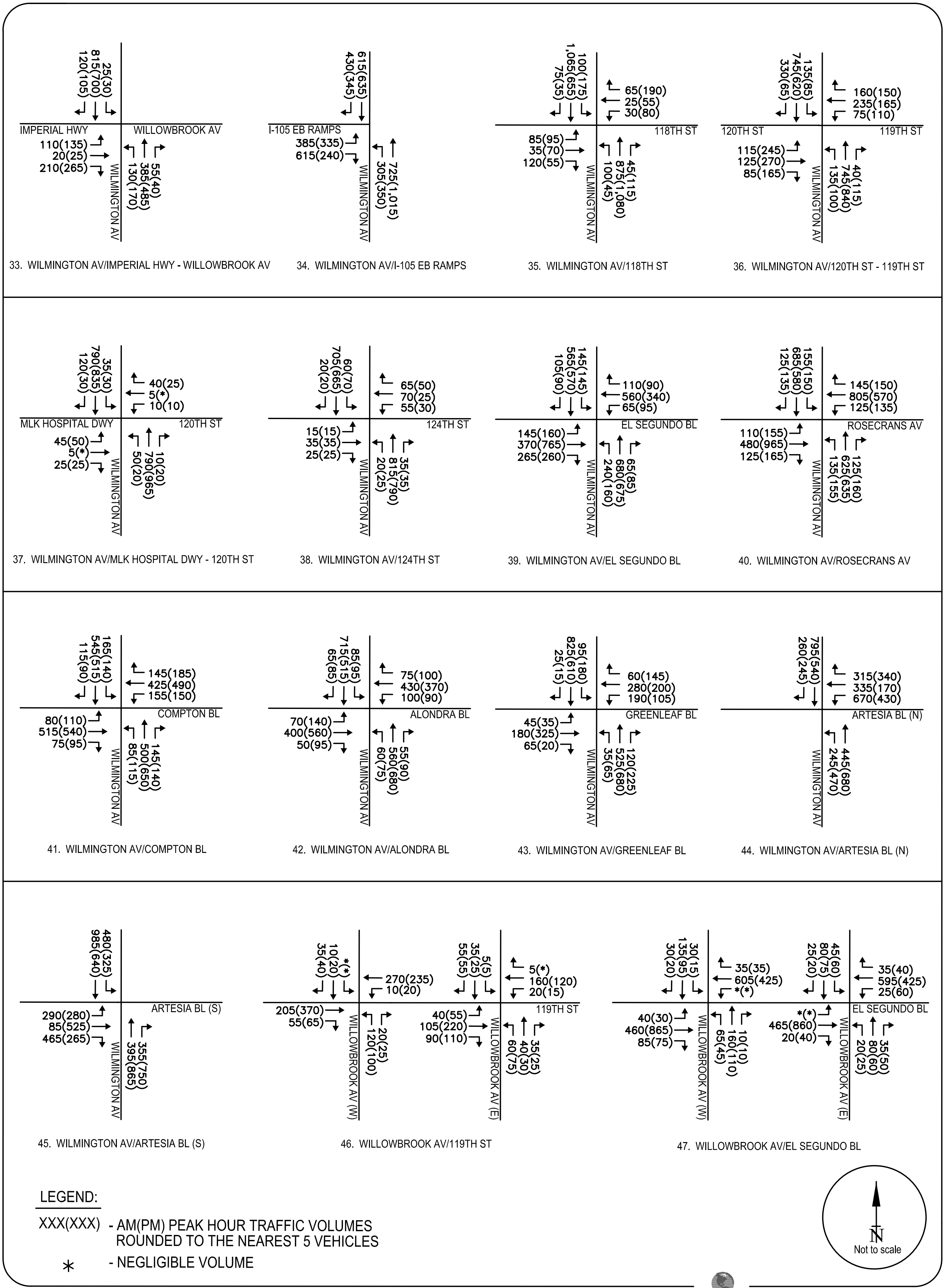
32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

FIGURE 4B
EXISTING (2010) PEAK HOUR TRAFFIC VOLUMES



33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV

34. WILMINGTON AV/I-105 EB RAMPS

35. WILMINGTON AV/118TH ST

36. WILMINGTON AV/120TH ST - 119TH ST

37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST

38. WILMINGTON AV/124TH ST

39. WILMINGTON AV/EL SEGUNDO BL

40. WILMINGTON AV/ROSECRANS AV

41. WILMINGTON AV/COMPTON BL

42. WILMINGTON AV/ALONDRA BL

43. WILMINGTON AV/GREENLEAF BL

44. WILMINGTON AV/ARTESIA BL (N)

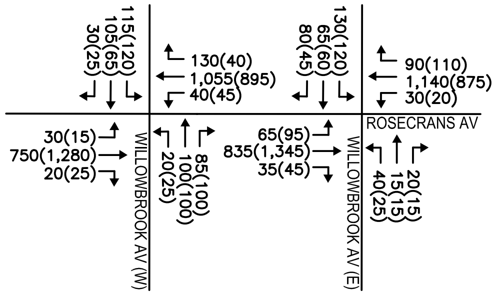
45. WILMINGTON AV/ARTESIA BL (S)

46. WILLOWBROOK AV/119TH ST

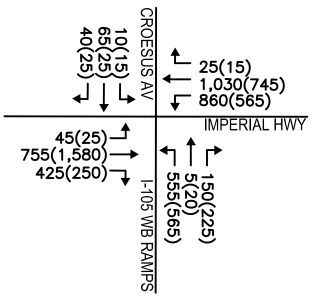
47. WILLOWBROOK AV/EL SEGUNDO BL

FIGURE 4C
EXISTING (2010) PEAK HOUR TRAFFIC VOLUMES

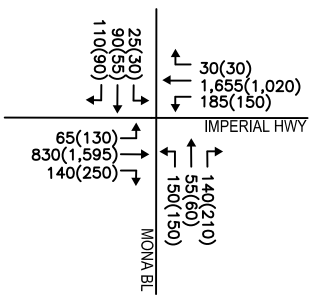
RAJU Associates, Inc.



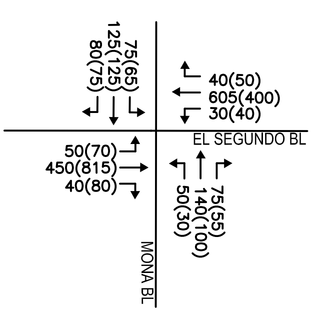
48. WILLOWBROOK AV/ROSECRANS AV



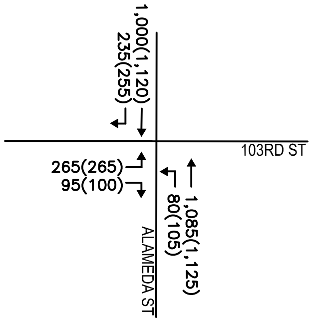
49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV



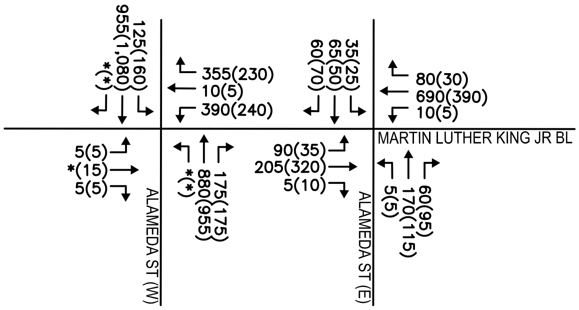
50. MONA BL/IMPERIAL HWY



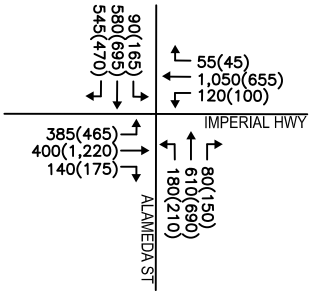
51. MONA BL/EL SEGUNDO BL



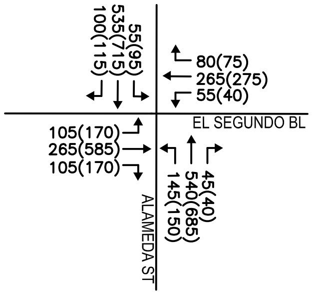
52. ALAMEDA ST/103RD ST



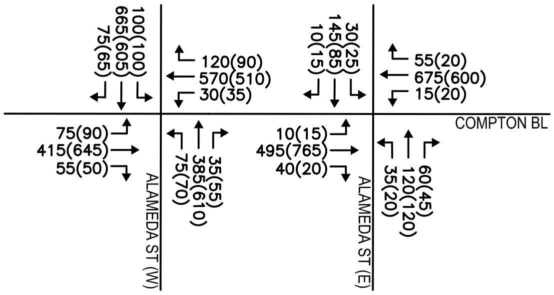
53. ALAMEDA ST/MARTIN LUTHER KING JR BL



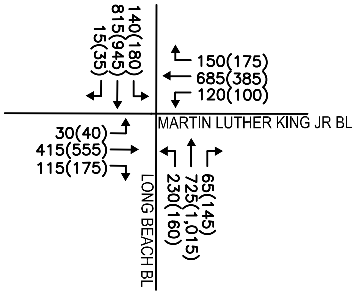
54. ALAMEDA ST/IMPERIAL HWY



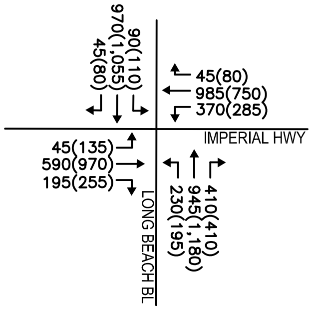
55. ALAMEDA ST/EL SEGUNDO BL



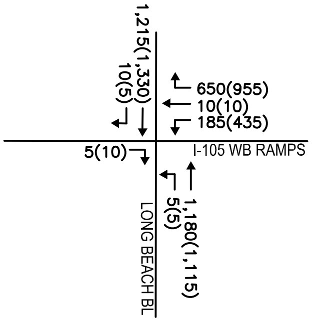
56. ALAMEDA ST/COMPTON BL



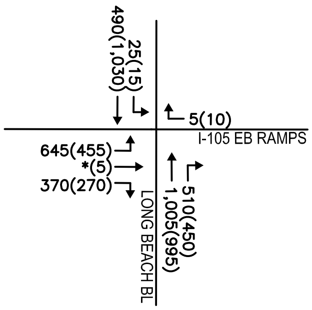
57. LONG BEACH BL/MARTIN LUTHER KING JR BL



58. LONG BEACH BL/IMPERIAL HWY



59. LONG BEACH BL/I-105 WB RAMPS



60. LONG BEACH BL/I-105 EB RAMPS

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

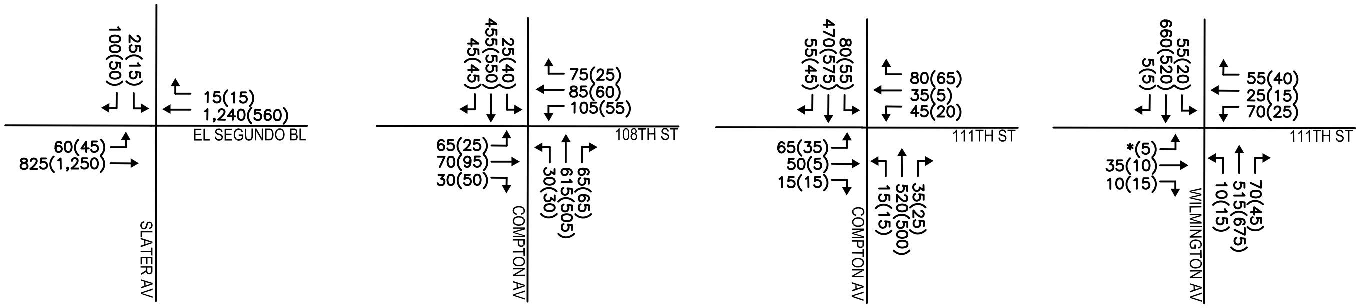
* - NEGLIGIBLE VOLUME

N

Not to scale

FIGURE 4D
EXISTING (2010) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



61. SLATER AV/EL SEGUNDO BL

62. COMPTON AV/108TH ST

63. COMPTON AV/111TH ST

64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

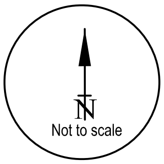


FIGURE 4E
EXISTING (2010) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

TABLE 3
LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS

Level of Service	Volume/Capacity Ratio	Definition
A	0.000 - 0.600	EXCELLENT. No Vehicle waits longer than one red light and no approach phase is fully used.
B	>0.600 - 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	>0.700 - 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	>0.800 - 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	>0.900 - 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, *Transportation Research Circular No. 212, Interim Materials on Highway Capacity* , 1980.

Nine of the 64 signalized study intersections are currently controlled by the City of Los Angeles' Automated Traffic Surveillance and Control (ATSAC) System and Adaptive Traffic Control System (ATCS) and are part of the Harbor-Gateway ATSAC system. A capacity increase of 10% (0.07 V/C adjustments for ATSAC and 0.03 V/C adjustments for ATCS) was applied to reflect the benefits of ATSAC/ATCS control at these intersections. This includes the following 9 locations:

- I-110 Northbound Ramps/El Segundo Boulevard
- I-110 Southbound Ramps/El Segundo Boulevard
- Avalon Boulevard/Imperial Highway
- Central Avenue/Century Boulevard
- Central Avenue/103rd Street
- Central Avenue/Imperial Highway
- Compton Avenue/Imperial Highway
- Compton Avenue/103rd Street
- Wilmington Avenue/Imperial Highway

LADOT has indicated that an additional 9 of the study intersections will become part of the Harbor-Gateway ATSAC system in mid-2010 as part of the Harbor-Gateway Phase 1B Project. A capacity increase of 10% will be applied to the future 2014 and 2020 conditions to reflect the benefits of ATSAC/ATCS control at these intersections. This includes the following 9 locations:

- Avalon Boulevard/Century Boulevard
- Avalon Boulevard/120th Street
- Central Avenue/I-105 Westbound Ramps
- Central Avenue/I-105 Eastbound Ramps
- Central Avenue/120th Street
- Compton Avenue/108th Street
- Compton Avenue/111th Street
- I-105 Westbound Ramps/Imperial Highway
- Mona Avenue/Imperial Highway

Existing Levels of Service

The existing traffic volumes presented in Figures 3A-3E for AM and PM peak hours, respectively, were used in conjunction with the level of service methodologies described above, and the current intersection characteristics illustrated in Appendix B, to determine the existing operating conditions at the analyzed intersections.

Existing intersection operations for the AM and PM peak hours are shown in Table 4. Table 4 summarizes the V/C ratios and corresponding LOS at each location. From Table 4, the following observations can be made. Sixty-three of the 64 study intersections in both the morning and evening peak hours are currently operating at satisfactory levels of service (i.e., LOS D or better). At these locations, motorists experience little to tolerable amounts of delay. The remaining study intersection, Long Beach Boulevard and Imperial Highway, is operating at LOS E in the morning peak hour and is operating at LOS F in the evening peak hour.

Capacity calculation worksheets for Existing (2010) conditions are provided in Appendix D of the report.

EXISTING TRANSIT CONDITIONS

Both bus and Metro rail transit service (Metro Green Line and Blue Line) are available as part of the public transit system in the Study Area. Twenty-four bus lines, including a ‘Rapid Bus Line’, currently serve the study area. These bus lines are operated by Los Angeles County Metropolitan Transportation Authority (Metro or MTA), City of Los Angeles Dash Watts (DWTS), City of Compton Renaissance Transit System (CRT), City of Gardena Municipal Bus Line (GMB), Hahn Trolley and Shuttle Service (HTSS) and Rosewood Smart Shuttle (RSS).

Bus transit service in the Project vicinity is available along the following travel corridors:

- Rosecrans Avenue travel corridor
- Avalon Boulevard travel corridor
- Central Avenue travel corridor
- Wilmington Ave travel corridor
- Willowbrook Avenue travel corridor
- 120th Street travel corridor
- Imperial Highway travel corridor
- El Segundo Boulevard travel corridor

TABLE 4
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS - EXISTING CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
		V/C	LOS	V/C	LOS
Los Angeles County					
52	Alameda Street/103rd Street [1]	0.760	C	0.824	D
55	Alameda Street/El Segundo Boulevard [2]	0.621	B	0.731	C
54	Alameda Street/Imperial Highway [1]*	0.735	C	0.819	D
11	Avalon Boulevard/El Segundo Boulevard	0.603	B	0.738	C
12	Avalon Boulevard/Rosecrans Avenue	0.597	A	0.707	C
4	Broadway/El Segundo Boulevard	0.489	A	0.534	A
19	Central Avenue/El Segundo Boulevard [2]	0.748	C	0.821	D
20	Central Avenue/Rosecrans Avenue [2]	0.772	C	0.894	D
26	Compton Avenue/118th Street	0.365	A	0.314	A
27	Compton Avenue/120th Street	0.547	A	0.471	A
28	Compton Avenue/124th Street	0.309	A	0.257	A
25	Compton Avenue/Imperial Highway [3]**	0.795	C	0.669	B
49	I-105 Westbound Ramps/Imperial Highway [3,4]	0.814	D	0.790	C
5	Main Street/El Segundo Boulevard	0.529	A	0.588	A
51	Mona Boulevard/El Segundo Boulevard	0.541	A	0.560	A
50	Mona Boulevard/Imperial Highway [1,3]	0.725	C	0.780	C
7	San Pedro Street/El Segundo Boulevard	0.522	A	0.528	A
23	Success Avenue - Slater Avenue/120th Street	0.403	A	0.316	A
46	Willowbrook Avenue/119th Street	0.487	A	0.654	B
47	Willowbrook Avenue/El Segundo Boulevard	0.534	A	0.599	A
35	Wilmington Avenue/118th Street	0.686	B	0.670	B
36	Wilmington Avenue/120th Street-119th Street	0.718	C	0.703	C
38	Wilmington Avenue/124th Street	0.529	A	0.472	A
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.725	C	0.726	C
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	0.479	A	0.482	A
39	Wilmington Avenue/El Segundo Boulevard [2]	0.758	C	0.808	D
33	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.443	A	0.442	A
City of Compton					
56	Alameda Street/Compton Boulevard *	0.639	B	0.629	B
22	Central Avenue/Alondra Boulevard	0.639	B	0.681	B
21	Central Avenue/Compton Boulevard	0.671	B	0.689	B
29	Compton Avenue/El Segundo Boulevard	0.724	C	0.559	A
61	Slater Avenue/El Segundo Boulevard	0.553	A	0.499	A
48	Willowbrook Avenue/Rosecrans Avenue	0.709	C	0.761	C
42	Wilmington Avenue/Alondra Boulevard	0.584	A	0.661	B
41	Wilmington Avenue/Compton Boulevard	0.641	B	0.685	B
43	Wilmington Avenue/Greenleaf Boulevard	0.660	B	0.708	C
40	Wilmington Avenue/Rosecrans Avenue	0.803	D	0.829	D
44	Wilmington Avenue/Artesia Boulevard (N) [4]	0.779	C	0.772	C
45	Wilmington Avenue/Artesia Boulevard (S) [4]	0.698	B	0.729	C
City of Los Angeles					
10	Avalon Boulevard/120th Street	0.647	B	0.750	C
8	Avalon Boulevard/Century Boulevard	0.659	B	0.728	C
9	Avalon Boulevard/Imperial Highway**	0.606	B	0.713	C
14	Central Avenue/103rd Street**	0.684	B	0.750	C
18	Central Avenue/120th Street	0.724	C	0.696	B
13	Central Avenue/Century Boulevard**	0.715	C	0.752	C
15	Central Avenue/Imperial Highway**	0.656	B	0.747	C
17	Central Avenue/I-105 Eastbound Ramps [4]	0.747	C	0.694	B
16	Central Avenue/I-105 Westbound Ramps [4]	0.795	C	0.762	C
24	Compton Avenue/103rd Street**	0.455	A	0.526	A

TABLE 4 (continued)
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS - EXISTING CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR V/C	AM PEAK HOUR LOS	PM PEAK HOUR V/C	PM PEAK HOUR LOS
62	Compton Avenue/108th Street	0.763	C	0.655	B
63	Compton Avenue/111th Street	0.649	B	0.613	B
3	Figueroa Street/El Segundo Boulevard	0.556	A	0.717	C
2	I-110 Northbound Ramps/El Segundo Boulevard [4]**	0.731	C	0.836	D
1	I-110 Southbound Ramps/El Segundo Boulevard [4]**	0.781	C	0.661	B
6	San Pedro Street/120th Street	0.598	A	0.594	A
30	Wilmington Avenue/103rd Street	0.621	B	0.507	A
64	Wilmington Avenue/111th Street	0.650	B	0.627	B
31	Wilmington Avenue/Santa Ana Boulevard (N)	0.576	A	0.597	A
32	Wilmington Avenue/Santa Ana Boulevard (S)	0.612	B	0.639	B
City of Lynwood					
53	Alameda Street/Martin Luther King Jr. Boulevard	0.748	C	0.686	B
58	Long Beach Boulevard/Imperial Highway	0.930	E	1.021	F
57	Long Beach Boulevard/Martin Luther King Jr. Boulevard	0.785	C	0.824	D
60	Long Beach Boulevard/I-105 Eastbound Ramps [4]	0.665	B	0.590	A
59	Long Beach Boulevard/I-105 Westbound Ramps [4]	0.475	A	0.660	B

* Los Angeles County Congestion Management Program (CMP) monitoring location.
** Existing City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

The following provides a brief description of the bus lines providing service in the vicinity of the Project Site:

- MTA 26 - Line 26 is a local north/south line that provides service from Los Angeles to Gardena and travels primarily along Avalon Boulevard within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 10 minutes. The northern terminus is at the intersection of Hollywood Boulevard and Rodney Drive in Los Angeles. The southern terminus is at the Artesia Transit Center in Gardena.

- MTA 51/52/352 - Lines 51/52/352 are local north/south lines that provide service from Los Angeles to Compton and travels primarily along Avalon Boulevard within the study area. These lines run everyday, including holidays, at a peak frequency of approximately 10 minutes. The northern terminus is at the intersection of Wilshire/Vermont Metro Station in Los Angeles. The southern terminus is at MLK Jr. Transit Center Station in Compton.

- MTA 48 - Line 48 is a local north/south line that provides service from Downtown Los Angeles to Willowbrook and travels primarily along 120th Street, Avalon Boulevard and Imperial Highway within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 10 minutes. The northern terminus is at the intersection of Temple Street and Figueroa Street in Downtown Los Angeles. The southern terminus is at the Avalon Green Line Station in Willowbrook.

- MTA 53 - Line 53 is a local north/south line that provides service from Carson to Downtown Los Angeles and travels primarily along Central Avenue, 120th Street, Avalon Boulevard and Imperial Highway within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 10 minutes. The northern terminus is at the intersection of Beaudry Avenue and 5th Street in Downtown Los Angeles. The southern terminus is CSU Dominguez Hills in Carson.

- MTA 55/355 - Line 55/355 is a local north/south line that provides service from Downtown Los Angeles to Willowbrook and travels primarily along Compton Avenue, 120th Street and Wilmington Avenue within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 15 minutes during peak commute hours. The northern terminus is at the intersection of Sunset Boulevard and Figueroa Street in Downtown Los Angeles. The southern terminus is at the Imperial/Wilmington/Rosa Parks Green Line Station in South Los Angeles.

- MTA 121 - Line 121 is a local east/west line that provides service from Willowbrook to Whittier and travels primarily along Willowbrook Avenue and 119th Street within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 20 minutes. The eastern terminus is at the Whittwood Center in Whittier. The western terminus is at the Imperial/Wilmington Station.

- MTA 125 - Line 125 is a local east/west line that provides service from Norwalk to El Segundo and travels primarily along Rosecrans Avenue within the study area. This line runs everyday, including some holidays, at a peak frequency of approximately 15 minutes.

The eastern terminus is at the Norwalk Station in South Los Angeles. The western terminus is at El Segundo Plaza in El Segundo.

- MTA 202 - Line 202 is a local north/south line that provides service from Willowbrook to Wilmington and travels primarily along Willowbrook Avenue within the study area. This line runs Monday through Friday, including some holidays, at a peak frequency of approximately 30 minutes. The northern terminus is at the Imperial/Wilmington/Rosa Parks Green Line Station in South Los Angeles. The southern terminus is at the intersection of Avalon Boulevard and D Street in Wilmington.

- MTA 205 - Line 205 is a local north/south line that provides service from Willowbrook to San Pedro and travels primarily along Wilmington Avenue within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 20 minutes. The northern terminus is at the Imperial/Wilmington/Rosa Parks Green Line Station in South Los Angeles. The southern terminus is at the intersection of Gaffey Street/13th Street in San Pedro.

- MTA 305 - Line 305 is a local north/south line that provides service from Willowbrook to Westwood and travels primarily along Wilmington Avenue, 119th Street and Willowbrook Avenue within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 40 minutes. The northern terminus is at the UCLA Ackerman Loop in Westwood. The southern terminus is at the Imperial/Wilmington/Rosa Parks Green Line Station in South Los Angeles.

- MTA 612 - Line 612 is a local circulator route that provides service around Willowbrook area and primarily travels along Wilmington Avenue and Imperial Highway within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 45 minutes.

- MTA 753 - Line 753 is a north/south 'Rapid Bus Line' that provides service from Willowbrook to Downtown Los Angeles and travels primarily along Wilmington Avenue, 190th Street, Willowbrook Avenue and Imperial Highway within the study area. This line runs Monday through Friday at a peak frequency of approximately 15 minutes. The northern terminus is at the intersection of Beaudry Avenue and 5th Street in Downtown Los Angeles. The southern terminus is at the Imperial/Wilmington Green Line Station in South Los Angeles.

- LADOT Dash Watts – This is a LADOT Dash line that provides service to the Watts area of Los Angeles. This line is a local circulator route that travels primarily along 120th Street within the study area. This line runs Monday through Saturday, including some holidays, at a peak frequency of approximately 20 minutes. The terminus is at the Kenneth Hahn Plaza in Willowbrook.

- HTSS 1 – Line 1 is a local circulator route that provides service around the Willowbrook area and travels primarily along Wilmington Avenue within the study area. This line runs Monday through Saturday, including some holidays, at a peak frequency of approximately 30 minutes. The terminus is at the Kenneth Hahn Plaza in Willowbrook.

- HTSS 2 – Line 2 is a local circulator route that provides service around the Willowbrook area and travels primarily along Wilmington Avenue and 120th Street within the study area. This line runs Monday through Saturday, including some holidays, at a peak frequency of approximately 30 minutes. The terminus is at the Kenneth Hahn Plaza in Willowbrook.

- HTSS 3 – Line 3 is a local circulator route that provides service around the Willowbrook area and travels primarily along Wilmington Avenue and 120th Street within the study area. This line runs Monday through Saturday, including some holidays, at a peak frequency of approximately 10 minutes. The terminus is at the Kenneth Hahn Plaza in Willowbrook.

- CRT ROUTE 1 – Route 1 is a local circulator route that provides service around the Willowbrook and Compton area and travels primarily along Rosecrans Avenue, Central Avenue and El Segundo Boulevard within the study area. This line runs Monday through Saturday, at a peak frequency of approximately 30 minutes. The terminus is at the transit center in Downtown Los Angeles.

- CRT ROUTE 3 – Route 3 is a local circulator route that provides service around the Willowbrook area and travels primarily along Central Avenue and El Segundo Boulevard within the study area. This line runs Monday through Saturday, at a peak frequency of approximately 30 minutes. The terminus is at the transit center in Downtown Los Angeles.

- CRT ROUTE 5 – Route 5 is a local circulator route that provides service around the Willowbrook area and travels primarily along Alameda Street and El Segundo Boulevard within the study area. This line runs Monday through Saturday, at a peak frequency of approximately 60 minutes. The terminus is at the transit center in Downtown Los Angeles.

- RSS – Rosewood Smart Shuttle is a local circulator route that provides service around the Willowbrook area and travels primarily along Avalon Boulevard and Imperial Highway within the study area. This line runs Monday through Friday, at a peak frequency of approximately 30 minutes. The terminus is at the Campanella Park (Stanford Avenue and Santa Rita Street) in South Los Angeles.

- GMB LINE 5 - Line 5 is a local east/west line that provides service from Willowbrook to El Segundo and travels primarily along El Segundo Boulevard within the study area. This line runs Monday through Friday, at a peak frequency of approximately 30 minutes. The eastern terminus is at the Imperial/Wilmington Station in South Los Angeles. The western terminus is at the intersection of El Segundo Boulevard and Sepulveda Boulevard in El Segundo.

In addition to the bus lines that currently serve the Project Site vicinity, the Metro Green Line and Blue Line operate in the study area operated by Los Angeles County Metropolitan Transportation Authority (LACMTA). These rail lines are described below:

- MTA Green Line – Green Line is a local east/west line that provides service from Norwalk to Redondo Beach and travels primarily along Glenn Anderson Freeway within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 8 minutes during peak commute hours. The eastern terminus is at Norwalk Green line station. The western terminus is at Redondo Beach Green line station.

- MTA Blue Line – Blue Line is a local north/south line that provides service from Long Beach to Los Angeles and travels primarily along Willowbrook Avenue within the study area. This line runs everyday, including holidays, at a peak frequency of approximately 10 minutes during peak commute hours. The northern terminus is at the intersection of 7th Street/Metro Center in Downtown Los Angeles. The southern terminus is at the Long Beach Transit Mall in Long Beach.

These transit lines along with all the other lines within the study area are illustrated in Figure 5. Table 5 includes a summary of all transit lines and rail service serving the study area. Information on the service provider line number, service area, service type, hours of operations and AM, Mid-day, and PM frequencies of service have been compiled in Table 5.

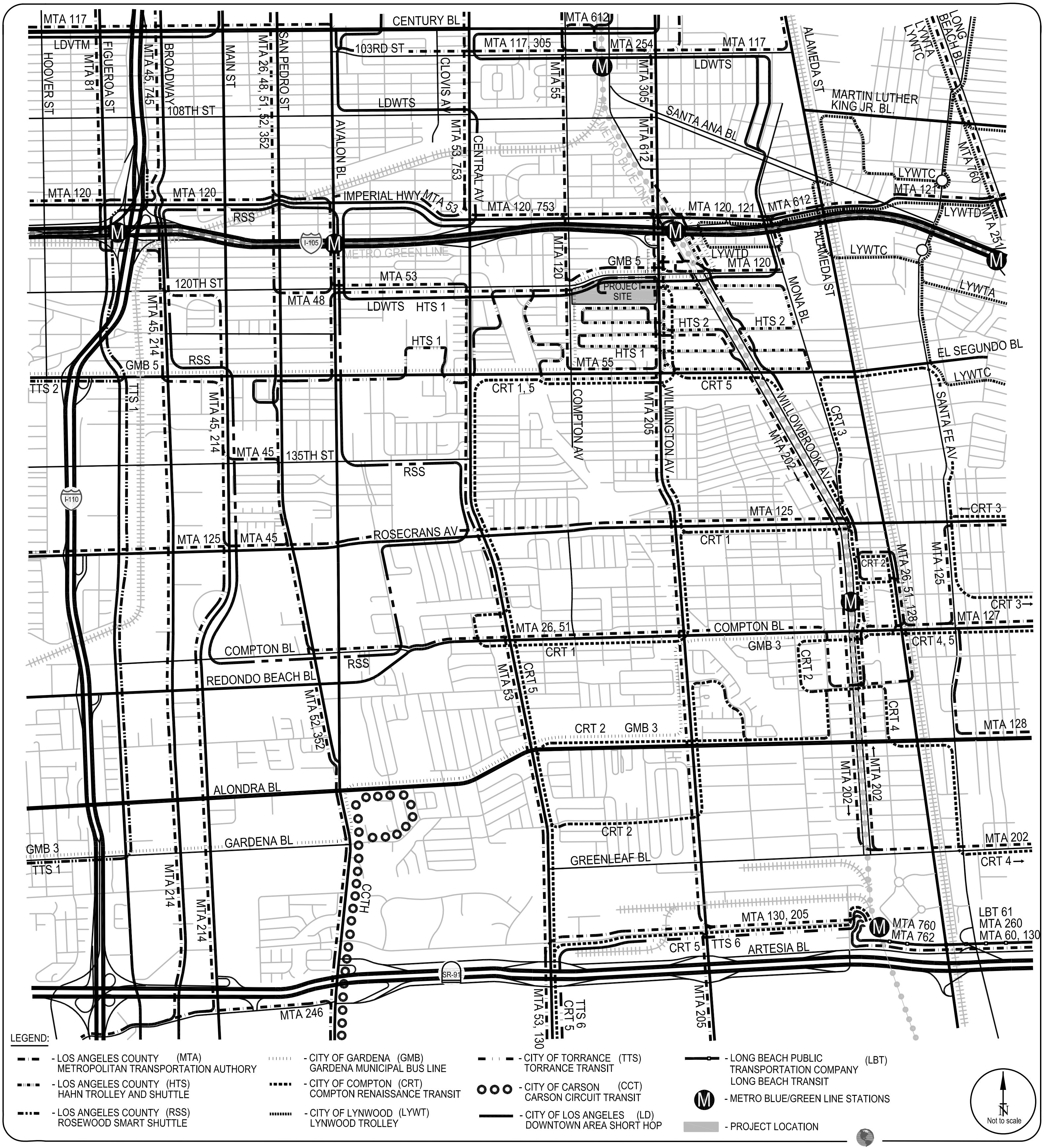


FIGURE 5
EXISTING TRANSIT LINES

RAJU Associates, Inc.

TABLE 5
EXISTING TRANSIT ROUTES SERVING THE STUDY AREA

PROVIDER	LINE NUMBER/COLOR	SERVICE AREA	SERVICE TYPE	HOURS OF OPERATIONS	FREQUENCY (AM/MID-DAY/PM)
Metropolitan Transportation Authority [1]					
MTA	26	Hollywood Bl. & Rodney Dr. To 7th St. & San Pedro St.	LOCAL	4:30 AM - 11:43 AM	15MIN / 25MIN / 20MIN
MTA	45	Broadway St. & Thomas Street To San Pedro St. & Rosecrans Ave.	LOCAL	24 HOURS	15MIN / 20MIN / 15MIN
MTA	48	Temple St. & Figueroa St. To Avalon Green Line Station	LOCAL	4:40 AM - 11:35 PM	10MIN / 30MIN / 10MIN
MTA	51	Wilshire/Vermont Red-Purple Line Station To M.L. King Jr. Transit Center/Compton Blue Line Station	LOCAL	4:29 AM - 12:32 AM	10MIN / 25MIN / 10MIN
MTA	52/352	Artesia Transit Center To Hollywood Bl. & Wilshire/Vermont Red-Purple Line Station	LOCAL/LIMITED STOP	4:52 AM - 10:52 PM	25MIN / 25MIN / 15MIN
MTA	53	Cal State Dominguez Hills To Beaudry & 5th St.	LOCAL	4:01 AM - 12:58 AM	15MIN / 20MIN / 8MIN
MTA	55/355	Imperial/Wilmington Blue-Green Line Station To Sunset Bl. & Figueroa St.	LOCAL/LIMITED STOP	4:58 AM - 10:02 PM	15MIN / 10MIN / 5MIN
MTA	60	Sunset Bl. & Figueroa St.To Artesia Station	LOCAL	4:29 AM - 3:55 AM	15MIN / 30MIN / 20MIN
MTA	81	Colorado Bl. & Eagledale Ave. To Harbor Fwy. Green Line Station	LOCAL	4:32 AM - 12:22 AM	15MIN / 13MIN / 15MIN
MTA	117	Lakewood Green Line Station To LAX City Bus Center	LOCAL	4:10 AM - 2:02 AM	20MIN / 20MIN / 20MIN
MTA	120	Aviation/LAX Station To Imperial/Wilmington Rosa Parks Station	LOCAL	5:00 AM - 12:15 AM	30MIN / 30MIN / 30MIN
MTA	121	Imperial/Wilmington Blue-Green Line Station To Whittwood Center	LOCAL	5:08 AM - 12:50 AM	30MIN / 45MIN / 30MIN
MTA	125	Plaza El Segundo To Norwalk Green Line Station	LOCAL	4:40 AM - 9:27 PM	20MIN / 30MIN / 20MIN
MTA	127	Compton Station/MLK Jr. Transit Center To Downey Depot Transportation Center	LOCAL	6:03 AM - 7:03 PM	1HOUR/1HOUR/1HOUR
MTA	128	Compton Station/MLK Jr. Transit Center To Cerritos Towne Center	LOCAL	6:01 AM - 6:40 PM	45MIN / 45MIN / 45MIN
MTA	130	Torrance & Broadway St. To 183rd at Sears Entry	LOCAL	5:00 AM - 8:35 PM	30MIN / 40MIN / 40MIN
MTA	202	Avalon Bl. & D St. To Imperial/Wilmington Blue-Green Line Station	LOCAL	5:26 AM - 7:21 PM	30MIN / NA / 30MIN
MTA	205	13th St. & Gaffey St. To Artesia Transit Center	LOCAL	4:21 AM - 11:55 PM	30MIN / 30MIN / 25MIN
MTA	214	Harbor Fwy. I-105 Station To Artesia Transit Center	LOCAL	5:30 AM - 7:15 PM	20MIN / NONE / 20MIN
MTA	246	Paseo Del Mar. & Gaffney To Artesia Transit Center	LOCAL	4:23 AM - 1:00 AM	1 HOUR / 1 HOUR / 40MIN
MTA	251	Avenue 28 & Idell To Long Beach Green Line Station	LOCAL	4:19 AM - 4:51 PM	35MIN / 20MIN / 25MIN
MTA	254	Dozier & Rowan To Grandee & Century	LOCAL	4:37AM - 7:21 PM	1 HOUR/ 1 HOUR / 1 HOUR
MTA	260	Fair Oaks Bl. & Woodbury To Artesia Blue Line Station	LOCAL	4:06AM - 1:04 AM	25MIN / 1 HOUR / 1 HOUR
MTA	305	Imperial/Wilmington Blue-Green Line Station To UCLA Ackerman Loop	LIMITED STOP	5:01 AM - 10:59 PM	30MIN / 45MIN / 35MIN
MTA	612	Imperial/Wilmington Blue-Green Line Station To Florence Av. & Otis St.	LOCAL - SHUTTLE	4:39 AM - 12:15 AM	45MIN / 45MIN / 45MIN
MTA	745	Patsaouras Transit Plaza (Union Station) To Harbor Fwy. Green-Line Station	RAPID - LIMITED STOP	4:49 AM - 9:05 PM	15MIN / 15MIN / 10MIN
MTA	753	Imperial/Wilmington Blue-Green Line Station To Beaudry Av. & 5th St.	RAPID - LIMITED STOP	4:32 AM - 9:38 PM	15MIN / 30MIN / 15MIN
MTA	760	Beaudry & 4th Street To Artesia Blue Line Station	RAPID - LIMITED STOP	4:53 AM - 8:45 PM	10MIN / 20MIN / 13MIN
MTA	762	Fair Oaks Bl. & Washington To Artesia Blue Line Station	RAPID - LIMITED STOP	4:50 AM - 9:33 PM	20MIN / 40MIN / 40MIN
MTA	BLUE LINE	7th St./Metro Center To Long Beach Transit Mall	LIGHT RAIL	3:53 AM - 1:57 AM	5MIN / 12MIN / 5MIN
MTA	GREEN LINE	Redondo Beach Av. & Marine Av. To Hoxie Av. & I-105/I-605 Freeway Interchange	LIGHT RAIL	3:36 AM - 1:25 AM	7MIN / 15MIN / 7MIN
Downtown Area Short Hop [2]					
DASH	Watts	Kenneth Hahn Plaza To Manchester Bl. & Central Av.	LOCAL	7:00 AM - 5:40 PM	20MIN / 20MIN / 20MIN
DASH	Vermont/Main	Vermont & Slauson Av. To Main St. & Century Bl.	LOCAL	6:58 AM - 7:35 PM	20MIN / 20MIN / 20MIN
Compton Renaissance Transit System [3]					
CRT	1	M.L. King Jr. Transit Center/Compton Blue Line Station To Wilmington Av. & Rosecrans Av.	LOCAL	7:30 AM - 3:21 PM	30MIN / 30MIN / 30MIN
CRT	2	M.L. King Jr. Transit Center/Compton Blue Line Station To Myrrh St. & Acacia Av.	LOCAL	7:30 AM - 3:24 PM	30MIN / 30MIN / 30MIN
CRT	3	M.L. King Jr. Transit Center/Compton Blue Line Station To Compton Fashion Center	LOCAL	7:30 AM - 3:16 PM	30MIN / 30MIN / 30MIN
CRT	4	M.L. King Jr. Transit Center/Compton Blue Line Station To Tamarind Av. & Compton Bl.	LOCAL	7:30 AM - 3:25 PM	30MIN / 30MIN / 30MIN
CRT	5	M.L. King Jr. Transit Center/Compton Blue Line Station To M.L. King Jr. Hospital	LOCAL	7:30 AM - 3:15 PM	1 HOUR/1 HOUR/ 1 HOUR
Gardena Municipal Bus Line [4]					
GMB	3	South Bay Galleria To Imperial/Wilmington Blue-Green Line Station	LOCAL	5:30 AM - 7:45 PM	30MIN / 30MIN / 30MIN
GMB	5	Imperial/Wilmington Blue-Green Line Station To El Segundo Bl. & Sepulveda Bl.	LOCAL	5:21 AM - 8:31 PM	30MIN / 30MIN / 30MIN
Hahn Trolley And Shuttle Service [5]					
HTS	1	Kenneth Hahn Plaza To Mona Bl. & El Segundo Bl.	LOCAL	7:00 AM - 5:53 PM	30MIN / 30MIN / 30MIN
HTS	2	Kenneth Hahn Plaza To Jarvis Av. & El Segundo Bl.	LOCAL	6:30 AM - 5:52 PM	30MIN / 30MIN / 30MIN
HTS	3	Kenneth Hahn Plaza To M.L. King Jr. Hospital Main Entrance	LOCAL	7:05 AM - 6:10 PM	10MIN / 10MIN / 10MIN
Rosewood Smart Shuttle [6]					
RSS	RSS	Stanford Av. & Santa Rita St. To Main St. & Rosecrans Av.	LOCAL	6:00 AM - 7:00 PM	30MIN / 30MIN / 30MIN
Lynwood Trolley [7]					
LYWT	A	M.L. King Jr. Blvd. & Long Beach Blvd.To Bullis Rd. & East Cedar St.	LOCAL	9:00 AM - 5:30 PM	30MIN / 30MIN / 30MIN
LYWT	C	Tenaya Ave & State St. To Wright Road & Olanda St.	LOCAL	9:00 AM - 12:00 NOON 12:30 PM - 5:30 PM	1 HOUR/1 HOUR/ 1 HOUR
LYWT	D	Imperial/Wilmington Blue-Green Line Station To Century Bl. & Bullis Rd.	LOCAL	9:00 AM - 5:30 PM	30MIN / 30MIN / 30MIN
Torrance Transit System [8]					
TTS	1	Union Station To Del Amo Mall (Madrona/Carson)	LOCAL	6:00 AM - 11:10 PM	30MIN / 40MIN / 30MIN
TTS	2	Union Station To Del Amo Mall (Madrona/Carson)	LOCAL	5:35 AM - 8:40 PM	1 HOUR/1 HOUR/1 HOUR
TTS	6	Metro Blue Line Station To Del Amo Mall (Madrona/Carson)	LOCAL	5:00 AM - 7:52 PM	30MIN / 30MIN / 30MIN
Carson Circuit Transit [9]					
CCT	H	Alondra & Avalon To South Bay Pavilion	LOCAL - SHUTTLE	5:20 AM - 6:32 PM	40MIN / 40MIN / 40MIN
Long Beach Transit [10]					
LBT	61	Artesia Blue Line Station To Transit Mall Station	LOCAL	4:50 AM - 11:48 PM	20MIN / 12MIN / 20MIN

[1] Metropolitan Transportation Authority (MTA) is operated by the Los Angeles County Metropolitan Transportation Authority
[2] Downtown Area Short Hop (DASH) is operated by the City of Los Angeles, Department of Transportation
[3] Compton Renaissance Transit System (CRT) is operated by the City of Compton
[4] Gardena Municipal Bus Line (GMB) is operated by the City of Gardena
[5] Hahn Trolley and Shuttle Service (HTS) is operated by the Watts Labor Community Action Committee
[6] Rosewood Smart Shuttle (RSS) is operated by the Watts Labor Community Action Committee
[7] Lynwood Trolley (LYWT) is operated by the City of Lynwood
[8] Torrance Transit System (TTS) is operated by the City of Torrance, Transit Department
[9] Carson Circuit System (CCT) is operated by the City of Carson, Department of Transportation
[10] Long Beach Transit (LBT) is operated by the Long Beach Public Transportation Company

III. FUTURE YEAR 2014 TRAFFIC CONDITIONS - TIER I ANALYSIS

This Chapter provides details of the development of travel forecasts for future year 2014 conditions and describes the findings of the analysis of the transportation system within the Study Area with the Tier I development of the Project under the assumptions and methodologies required by County of Los Angles, and Cities of Los Angeles, Compton and Lynwood. This results in the assessment of a conservative set of conditions based on the projections and assumptions outlined in this study. The planning horizon for these analyses is the year 2014 corresponding with the buildout year of the Tier I Project.

EXISTING BASELINE WITH AMBIENT GROWTH (2014) TRAFFIC CONDITIONS

This section contains the evaluation of the Existing Baseline with Ambient Growth (2014) Traffic Conditions. The assessment of Existing Baseline with Ambient Growth (2014) Traffic Conditions involved the following tasks:

- Existing Baseline with Ambient Growth (2014) Traffic projections at all study intersections
- Analysis of Existing Baseline with Ambient Growth (2014) Traffic Conditions at study intersections located in the County of Los Angeles

A brief discussion of each of the tasks follows:

Existing Baseline with Ambient Growth (2014) Traffic Projections

The Existing Baseline with Ambient Growth (2014) traffic projections reflect growth in traffic from two primary sources: Firstly, the background, or ambient growth, to reflect the effects of overall area-wide regional growth both within and outside the study area; and secondly, from traffic generated by existing “entitled” site trips that are currently not accounted for on the existing street system since the existing site is not currently fully operational. Each of these components is described below.

The traffic in the vicinity of the study area has been estimated to increase at a rate of about 0.72% per year. This growth rate was obtained from the 2004 Congestion Management Program (CMP) for Los Angeles County. Future increases in background traffic volumes due to regional growth and development are expected to continue at this rate. With the assumed completion date of 2014, the existing 2010 traffic volumes were adjusted upward by a factor of 2.88% to reflect this area-wide regional growth.

The existing Martin Luther King Jr. Medical Center Campus consists of approximately 1,243,692 square feet. Utilizing the rates provided in the ITE, Trip Generation Informational Report (8th Edition), the existing site trip generation was determined. Table 6 presents details of the existing “baseline” site trip generation estimates including type of use, size, and applicable rate.

From Table 6, it can be observed that the existing “baseline” site’s trip generation results in a net total of approximately 17,443 daily trips of which 1,184 trips (699 inbound, 485 outbound) occur during the morning peak hour and 1,206 trips (507 inbound, 699 outbound) during the evening peak hour. Since the existing site is not fully operational, only a portion of these trips are currently on the street system. These trips are accounted for in the existing traffic counts.

Existing on-site peak hour traffic counts were conducted at the site driveways located along 120th Street and Wilmington Avenue to determine the existing trip generation currently occurring on-site. Based on the observed driveway counts, it was determined that the existing site is generating a total of 706 trips (528 inbound, 178 outbound) during the morning peak hour and 527 trips (124 inbound, 403 outbound) during the evening peak hour. Therefore, the remaining 478 trips in the morning and 679 trips in the evening of the existing site would need to be added to the existing with ambient growth traffic volumes to account for the operation of the existing facility at full capacity. These existing “baseline” peak hour trips are included in Appendix E and are added to the existing with ambient growth peak hour traffic volumes. The resulting Existing Baseline with Ambient Growth (2014) traffic volumes are illustrated in Figure 6A-6E.

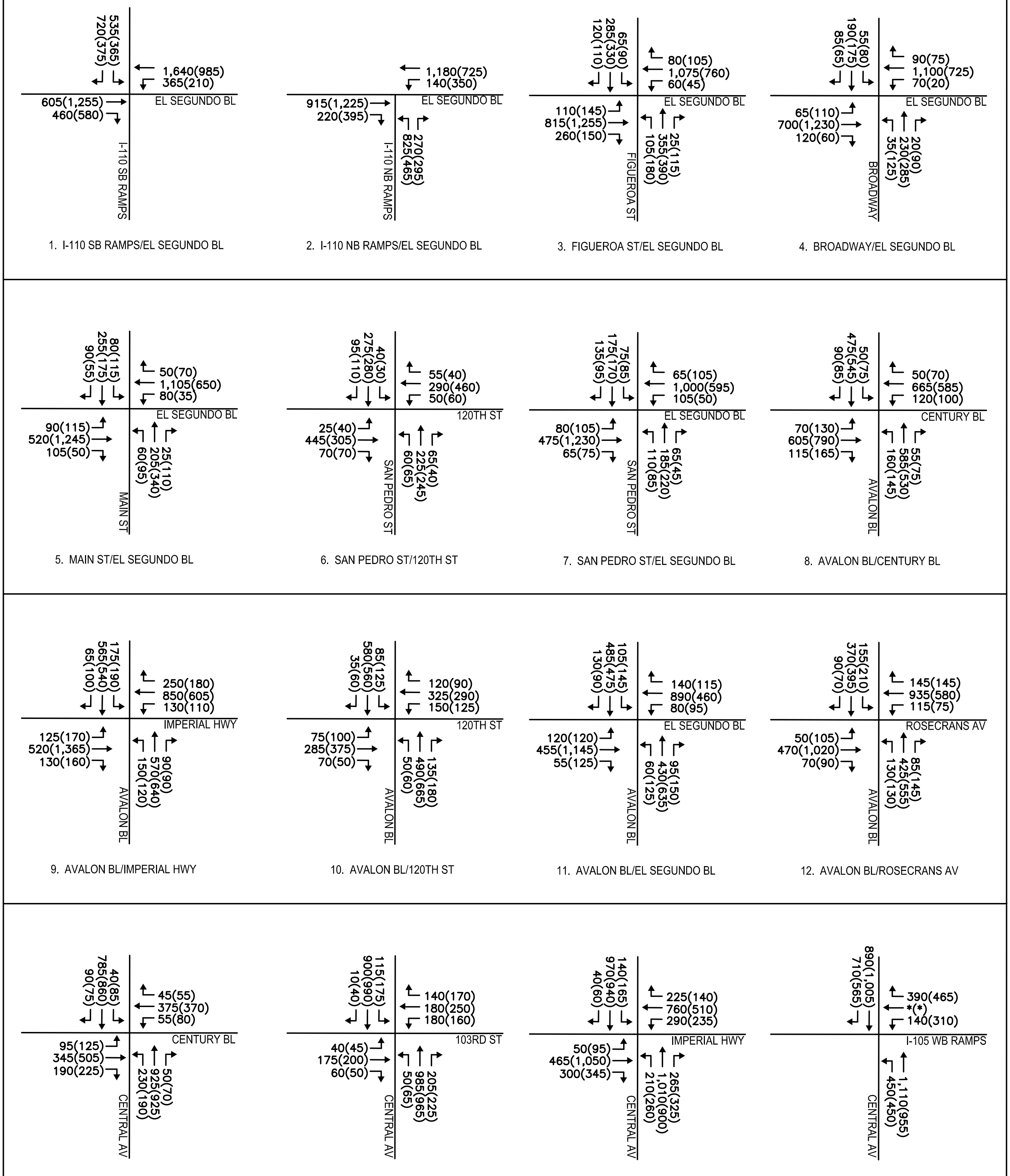
Existing Baseline with Ambient Growth (2014) Traffic Conditions

The Existing Baseline with Ambient Growth (2014) without proposed project peak hour traffic volumes were analyzed at each of the County of Los Angeles study intersections to determine the V/C ratio and corresponding level of service. Table 7 presents the results of the Future Existing Baseline with Ambient Growth (2014) (without project) traffic analysis.

TABLE 6
EXISTING MLK JR. MEDICAL CENTER CAMPUS ESTIMATED TRIP GENERATION

			AM Peak Hour			PM Peak Hour		
	Size	Daily	IN	OUT	TOTAL	IN	OUT	TOTAL
Baseline including Existing Hospital	1,243,692 s.f.	20,521	822	571	1,393	596	822	1,418
Baseline Trip Generation Total Less Transit Reduction (15%)		17,443	699	485	1,184	507	699	1,206
Trip Rates [1] Hospital (ITE Land Use Code 610)	Trips per 1,000 s.f.	16.50	59%	41%	1.12	42%	58%	1.14

[1] ITE Trip Generation, Informational Report, 8th Edition, 2008



1. I-110 SB RAMPS/EL SEGUNDO BL

2. I-110 NB RAMPS/EL SEGUNDO BL

3. FIGUEROA ST/EL SEGUNDO BL

4. BROADWAY/EL SEGUNDO BL

5. MAIN ST/EL SEGUNDO BL

6. SAN PEDRO ST/120TH ST

7. SAN PEDRO ST/EL SEGUNDO BL

8. AVALON BL/CENTURY BL

9. AVALON BL/IMPERIAL HWY

10. AVALON BL/120TH ST

11. AVALON BL/EL SEGUNDO BL

12. AVALON BL/ROSECRANS AV

13. CENTRAL AV/CENTURY BL

14. CENTRAL AV/103RD ST

15. CENTRAL AV/IMPERIAL HWY

16. CENTRAL AV/I-105 WB RAMPS

LEGEND:

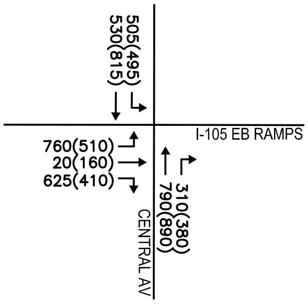
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

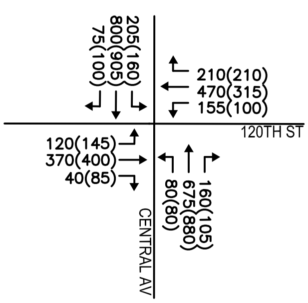
N
Not to scale

FIGURE 6A
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014)
PEAK HOUR TRAFFIC VOLUMES

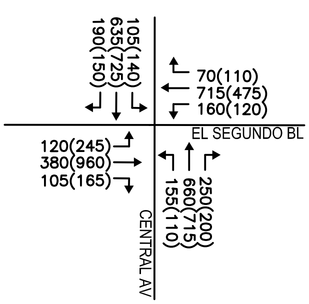
RAJU Associates, Inc.



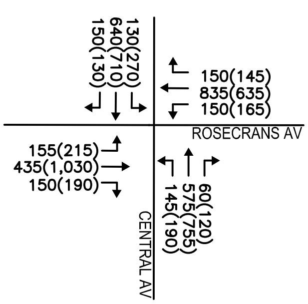
17. CENTRAL AV/I-105 EB RAMPS



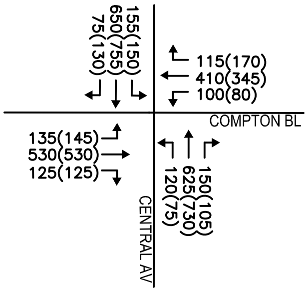
18. CENTRAL AV/120TH ST



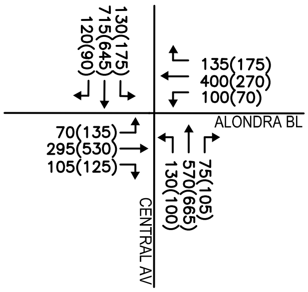
19. CENTRAL AV/EL SEGUNDO BL



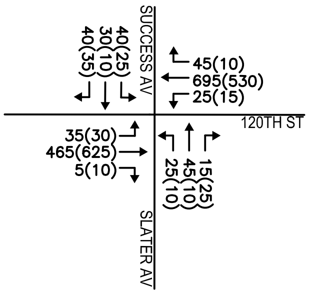
20. CENTRAL AV/ROSECRANS AV



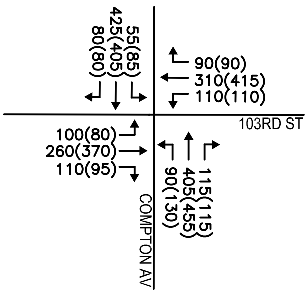
21. CENTRAL AV/COMPTON BL



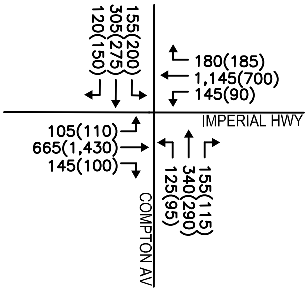
22. CENTRAL AV/ALONDRA BL



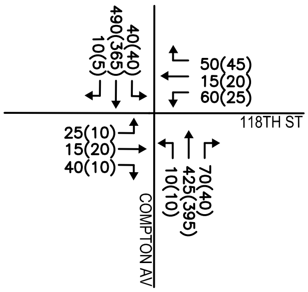
23. SUCCESS AV - SLATER AV/120TH ST



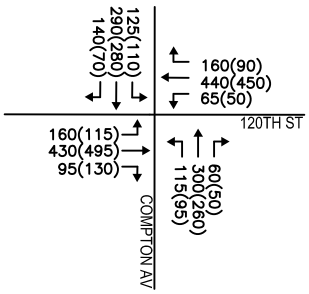
24. COMPTON AV/103RD ST



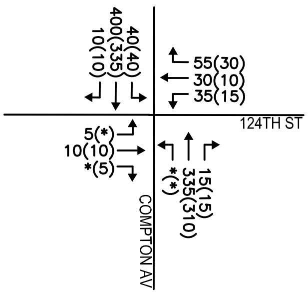
25. COMPTON AV/IMPERIAL HWY



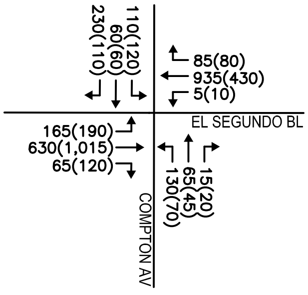
26. COMPTON AV/118TH ST



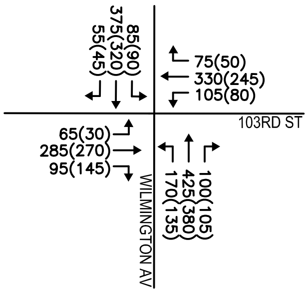
27. COMPTON AV/120TH ST



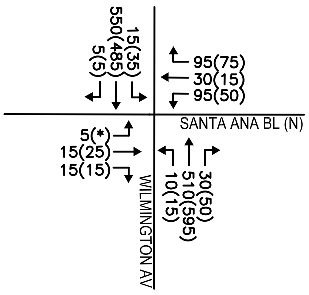
28. COMPTON AV/124TH ST



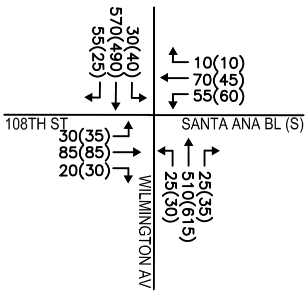
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

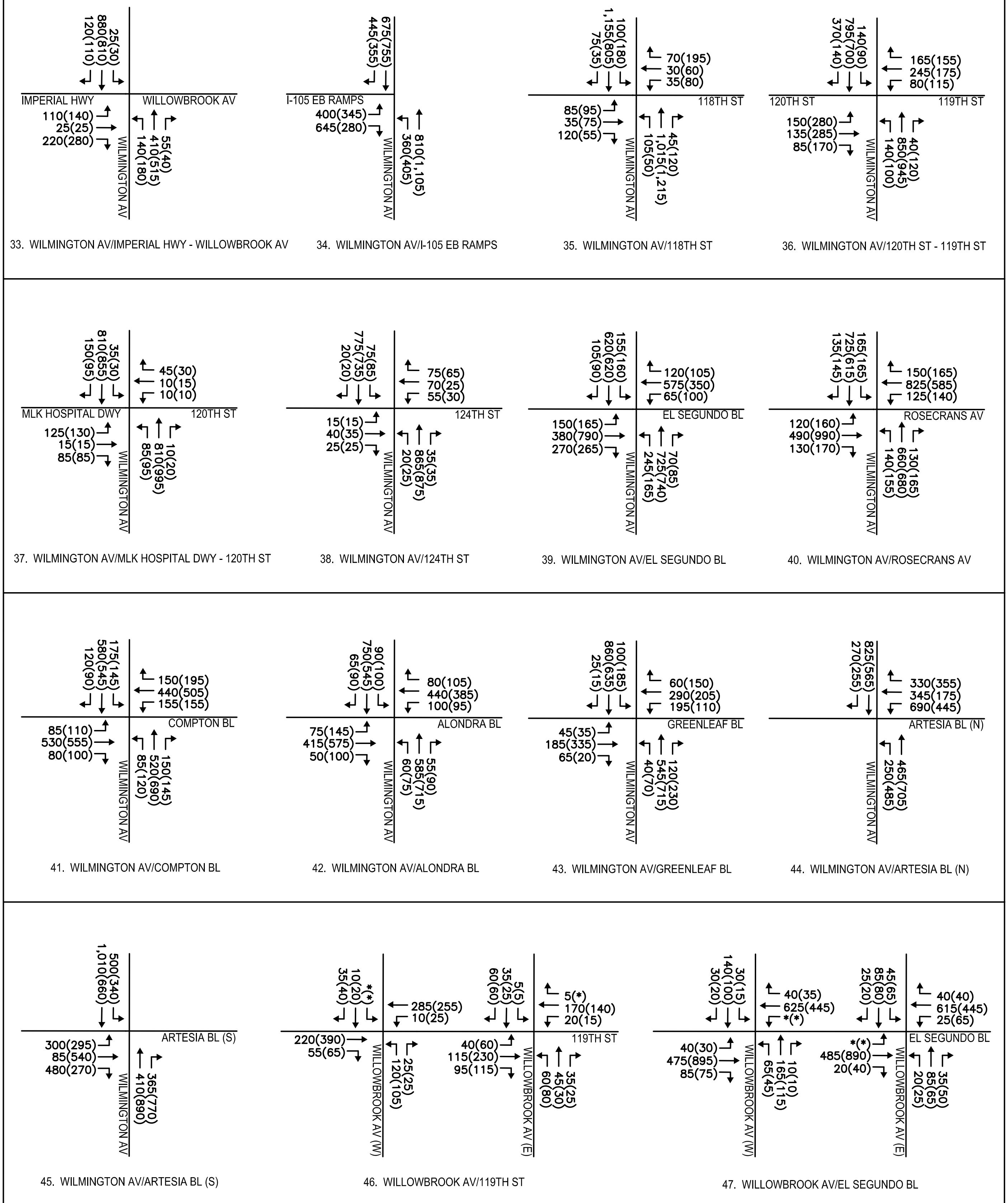
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 6B
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014)
PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV

34. WILMINGTON AV/I-105 EB RAMPS

35. WILMINGTON AV/118TH ST

36. WILMINGTON AV/120TH ST - 119TH ST

37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST

38. WILMINGTON AV/124TH ST

39. WILMINGTON AV/EL SEGUNDO BL

40. WILMINGTON AV/ROSECRANS AV

41. WILMINGTON AV/COMPTON BL

42. WILMINGTON AV/ALONDRA BL

43. WILMINGTON AV/GREENLEAF BL

44. WILMINGTON AV/ARTESIA BL (N)

45. WILMINGTON AV/ARTESIA BL (S)

46. WILLOWBROOK AV/119TH ST

47. WILLOWBROOK AV/EL SEGUNDO BL

LEGEND:

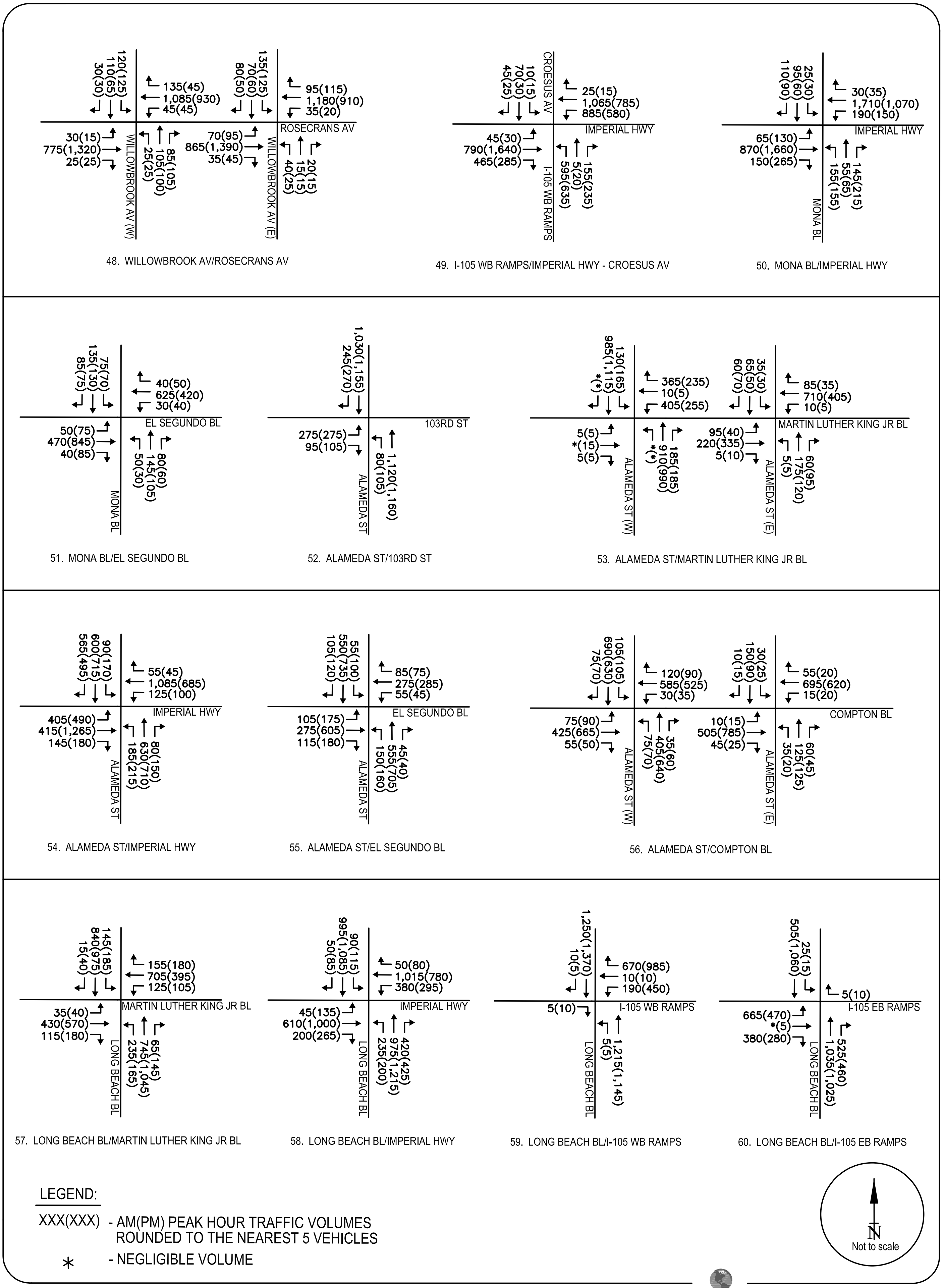
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 6C
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014)
PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



48. WILLOWBROOK AV/ROSECRANS AV

49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV

50. MONA BL/IMPERIAL HWY

51. MONA BL/EL SEGUNDO BL

52. ALAMEDA ST/103RD ST

53. ALAMEDA ST/MARTIN LUTHER KING JR BL

54. ALAMEDA ST/IMPERIAL HWY

55. ALAMEDA ST/EL SEGUNDO BL

56. ALAMEDA ST/COMPTON BL

57. LONG BEACH BL/MARTIN LUTHER KING JR BL

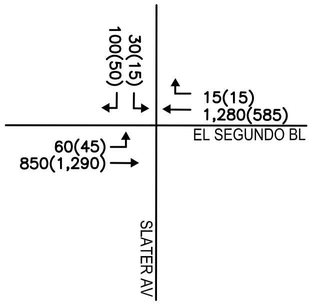
58. LONG BEACH BL/IMPERIAL HWY

59. LONG BEACH BL/I-105 WB RAMPS

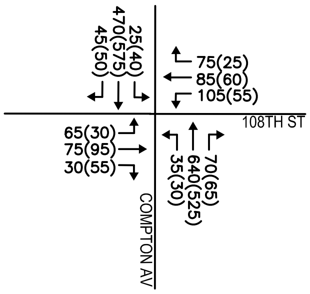
60. LONG BEACH BL/I-105 EB RAMPS

FIGURE 6D
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014)
PEAK HOUR TRAFFIC VOLUMES

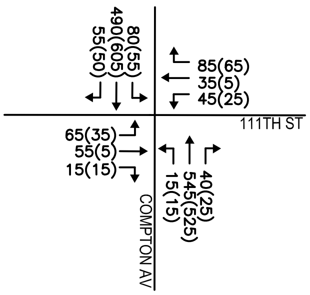
RAJU Associates, Inc.



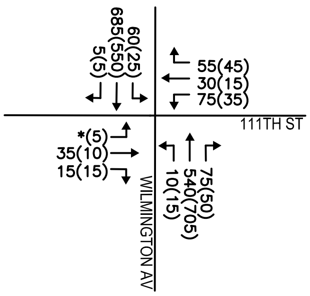
61. SLATER AV/EL SEGUNDO BL



62. COMPTON AV/108TH ST



63. COMPTON AV/111TH ST



64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 6E
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014)
PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

TABLE 7
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR V/C	AM PEAK HOUR LOS	PM PEAK HOUR V/C	PM PEAK HOUR LOS
Los Angeles County					
52	Alameda Street/103rd Street [1]	0.783	C	0.850	D
55	Alameda Street/El Segundo Boulevard [2]	0.638	B	0.753	C
54	Alameda Street/Imperial Highway [1]*	0.757	C	0.842	D
11	Avalon Boulevard/El Segundo Boulevard	0.621	B	0.762	C
12	Avalon Boulevard/Rosecrans Avenue	0.612	B	0.727	C
4	Broadway/El Segundo Boulevard	0.501	A	0.552	A
19	Central Avenue/El Segundo Boulevard [2]	0.775	C	0.848	D
20	Central Avenue/Rosecrans Avenue [2]	0.793	C	0.922	E
26	Compton Avenue/118th Street	0.378	A	0.326	A
27	Compton Avenue/120th Street	0.591	A	0.512	A
28	Compton Avenue/124th Street	0.319	A	0.267	A
25	Compton Avenue/Imperial Highway [3]**	0.826	D	0.702	C
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	0.749	C	0.728	C
5	Main Street/El Segundo Boulevard	0.542	A	0.606	B
51	Mona Boulevard/El Segundo Boulevard	0.556	A	0.579	A
50	Mona Boulevard/Imperial Highway [1,3]**	0.645	B	0.705	C
7	San Pedro Street/El Segundo Boulevard	0.537	A	0.542	A
23	Success Avenue - Slater Avenue/120th Street	0.437	A	0.359	A
46	Willowbrook Avenue/119th Street	0.502	A	0.677	B
47	Willowbrook Avenue/El Segundo Boulevard	0.548	A	0.618	B
35	Wilmington Avenue/118th Street	0.722	C	0.710	C
36	Wilmington Avenue/120th Street-119th Street	0.773	C	0.764	C
38	Wilmington Avenue/124th Street	0.561	A	0.519	A
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.786	C	0.804	D
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	0.573	A	0.571	A
39	Wilmington Avenue/El Segundo Boulevard [2]	0.791	C	0.849	D
33	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.471	A	0.487	A

* Los Angeles County Congestion Management Program (CMP) monitoring location.
** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

As indicated in the Table 7, all 27 analyzed intersections in the morning peak hour and 26 analyzed intersections in the evening peak hour are projected to operate at LOS D or better. The remaining intersection, Central Avenue/Rosecrans Avenue, in the evening peak hour is projected to operate at LOS E.

Capacity calculation worksheets for Existing Baseline with Ambient Growth (2014) conditions are attached in Appendix F of the report.

RELATED PROJECTS TRAFFIC GENERATION AND ASSIGNMENT

A second potential source of traffic growth in the study area was that expected from other future development projects in the vicinity. These "cumulative" or related projects are those developments that are planned and expected to be in place within the same timeframe of the Proposed Tier Project. Data describing related projects in the area was obtained from the County of Los Angeles and Cities of Los Angeles, Compton, Lynwood and South Gate. Forty related projects were identified within the study area. The related projects included in this study are described in Table 8. The locations of these related projects are shown in Figure 7.

The trip generation estimates for the related projects were developed using trip generation rates contained in the Institute of Transportation Engineers (ITE), Trip Generation Informational Report, 8th Edition. These rates are summarized in Table 8. Table 8 furthers indicates the location, type of use, size and these related projects' trip generation. As indicated in Table 8, the related projects are expected to generate approximately 2,827 trips during the morning peak hour and 2,191 trips during the evening peak hour.

The geographic distribution (based existing traffic patterns and methodology for determining trip distribution contained in the 2004 CMP) and the traffic assignment of the related projects were performed and the resulting volumes at each of the analysis intersections during both AM and PM peak hours are shown in Figure 8A-8E. The traffic volumes presented in Figure 8A-8E represent the Related Project only peak hour traffic volumes.

TABLE 8
ESTIMATED WEEKDAY TRIP GENERATION OF RELATED PROJECTS - FUTURE YEAR 2014 CONDITIONS

Map No.	Project Name	Location	Land Use	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
						IN	OUT	TOTAL	IN	OUT	TOTAL
County of Los Angeles [1]											
1	Medical Office	11815 Bandera Street	Medical Office	48,000 s.f.	1,748	87	23	110	40	108	148
2	Charter High School	12628 Avalon Boulevard	High School	32,000 s.f.	412	70	28	98	17	14	31
3	Avalon II Apartment Project [2]	13218 Avalon Boulevard	Apartments	55 d.u.	461	6	23	29	30	16	46
4	Townhouses	E. 121st Street b/w Main St & San Pedro St	Townhouses	14 d.u.	116	2	9	11	8	4	12
5	Single Family Houses	2354 E. 118th Street	Single Family Residential	4 d.u.	54	3	10	13	4	2	6
6	South Region Elementary School #7	1536 E. 89th Street	Elementary School	950 students	1,226	235	193	428	70	73	143
City of Compton [3]											
7	Recycle Center	3100 N. Alameda Street	Recycle Center [4]	43,350 s.f.	33	41	11	52	9	26	35
8	Warehouse	409 E. Euclid Avenue	Warehouse	10,874 s.f.	39	2	1	3	1	2	3
9	Commercial	2215 W. Rosecrans Avenue	Commercial	25,000 s.f.	1,074	15	10	25	46	47	93
10	Apartment	2301-2307 W. Compton Boulevard	Apartments	4 d.u.	27	0	2	2	1	1	2
11	Townhouses	930 W. Compton Boulevard	Townhouses	41 d.u.	296	4	21	25	19	10	29
12	Mixed-Use	509 N. Tamarind Avenue	Condominiums	136 d.u.	841	11	55	66	52	25	77
			Retail	4,000 s.f.	172	2	2	4	7	8	15
13	Senior Center	Tamarind Avenue and Palmer Street	Senior Center	20,000 s.f.	458	20	12	32	11	18	29
14	Residential	1409 W. 130th Street	Single Family Residential	4 d.u.	54	3	10	13	4	2	6
15	Townhouses	809 E. Pine Street	Townhouses	8 d.u.	71	1	6	7	5	3	8
16	Residential	2709 N. Wilmington Avenue	Single Family Residential	4 d.u.	54	3	10	13	4	2	6
17	Townhouses	501 S. Alameda Street	Townhouses	28 d.u.	213	3	16	19	14	7	21
18	Retail	909 S. Central Avenue	Retail	6,500 s.f.	279	4	2	6	12	12	24
19	Mixed-Use	950 W. Alondra Boulevard	Townhouses	28 d.u.	213	3	16	19	14	7	21
			Church	3,000 s.f.	27	1	1	2	1	1	2
20	Senior Housing	nwc Alameda Street/Palmer Street	Senior Housing	200 d.u.	696	9	17	26	19	13	32
21	Condominium	swc Alameda Street/Elm Street	Condominiums	186 d.u.	1,104	14	71	85	67	33	100
22	Mixed-Use	nwc Tamarind Avenue/Palmer Street	Live/Work Units	12 d.u.	80	1	5	6	5	2	7
			Apartments	6 d.u.	40	1	2	3	3	1	4
			Retail	11,500 s.f.	494	7	5	12	21	22	43
23	Apartment Complex	202 S. Rose Avenue	Apartments	4 d.u.	27	0	2	2	1	1	2
24	Apartment Complex	205 N. Willow Avenue	Apartments	4 d.u.	27	0	2	2	1	1	2
City of Lynwood [5]											
25	Warehouse	11298 Alameda Street	Warehouse	7,200 s.f.	26	2	0	2	0	2	2
26	Oakwood Plaza	3211 Oakwood Avenue	Retail	14,800 s.f.	636	9	6	15	27	28	55
27	Retail Building	3801-3831 Martin Luther King Jr. Bl.	Retail	15,900 s.f.	683	10	6	16	29	30	59
28	Commercial Building	3791 Martin Luther King Jr. Bl.	Office	4,140 s.f.	46	5	1	6	1	5	6
29	Habatit for Humanity	4237 Imperial Highway	Condominiums	10 d.u.	87	1	7	8	6	3	9
30	Retail Building	10838 Long Beach Boulevard	Retail	5,300 s.f.	228	3	2	5	10	10	20
City of South Gate [6]											
31	Calden Avenue Condominiums	swc of Firestone Boulevard and Calden Av	Condominiums	107 units	682	9	46	55	43	21	64
			Mini-Warehouse	100,000 s.f.	250	9	6	15	13	13	26
32	Firestone Village Mixed-Use Project	Firestone Boulevard between South Gate Avenue and Gardenview Avenue	Shopping Center	18,090 s.f.	777	11	7	18	33	34	67
			Single Family Residential	47 units	519	11	32	43	33	20	53
33	Villa Santa Rosa Mixed-Use Project	s/s Firestone Boulevard between Long Beach Boulevard and Santa Fe Avenue	Shopping Center	8,642 s.f.	371	5	4	9	16	16	32
			Office	9,109 s.f.	100	12	2	14	2	12	14
			Condominiums	56 d.u.	388	5	27	32	25	12	37
34	LAUSD Elementary School #9	2777 Willow Place	Elementary School	650 students	839	161	132	293	48	50	98
35	Bank	nwc of Firestone Bl. & Long Beach Bl.	Bank	8,000 s.f.	1,185	55	44	99	104	103	207
36	Food Market	nwc of Firestone Bl. & State St.	Shopping Center	20,000 s.f.	859	12	8	20	37	38	75
City of Los Angeles [7]											
37	Movie Theater [8]	10341 Graham Avenue	Movie Theater w/Matinee	1,040 seats	632	10	10	20	45	26	71
			Education Center	12,000 s.f.							
38	High School [8]	11300 Monitor Avenue	High School	500 students	855	146	59	205	38	32	70
39	Amino Watts #2 at Flournoy ES	1630 E. 111th Street	High School	125 students	214	26	23	49	8	8	16
40	South Region High School #12	8800 S. San Pedro Street	High School	2,025 students	3,463	425	365	790	124	139	263
			TOTAL RELATED PROJECT TRIP GENERATION		**23,176**	**1,475**	**1,352**	**2,827**	**1,128**	**1,063**	**2,191**
Trip Generation Rates [9]											
		ITE Land Use Code 150	Warehousing	Trips per 1,000 s.f.	3.56	79%	21%	0.30	25%	75%	0.32
		ITE Land Use Code 151	Mini-Warehouse	Trips per 1,000 s.f.	2.50	59%	41%	0.15	51%	49%	0.26
		ITE Land Use Code 210	Single Family Detached Housing	Trips per d.u	[10]	25%	75%	[10]	63%	37%	[10]
		ITE Land Use Code 220	Apartment	Trips per d.u.	6.65	20%	80%	0.51	65%	35%	0.62
		ITE Land Use Code 230	Condominium/Townhouse	Trips per d.u.	[11]	17%	83%	[11]	67%	33%	[11]
		ITE Land Use Code 252	Senior Adult Housing-Attached	Trips per d.u	3.48	36%	64%	0.13	60%	40%	0.16
		ITE Land Use Code 495	Recreational Community Center	Trips per 1,000 s.f.	22.88	61%	39%	1.62	37%	63%	1.45
		ITE Land Use Code 520	Elementary School	Trips per student	1.29	55%	45%	0.45	49%	51%	0.15
		ITE Land Use Code 530	High School	Trips per 1,000 s.f.	12.89	71%	29%	3.06	54%	46%	0.97
				Trips per student	1.71	68%	32%	0.42	47%	53%	0.13
			Within City of Los Angeles [13]	Trips per student		54%	46%	0.39			
		ITE Land Use Code 560	Church	Trips per 1,000 s.f.	9.11	62%	38%	0.56	48%	52%	0.55
		ITE Land Use Code 710	General Office	Trips per 1,000 s.f.	11.01	88%	12%	1.55	17%	83%	1.49
		ITE Land Use Code 720	Medical Office	Trips per 1,000 s.f.	[12]	79%	21%	2.30	27%	73%	[12]
		ITE Land Use Code 820	Shopping Center	Trips per 1,000 s.f.	42.94	61%	39%	1.00	49%	51%	3.73
		ITE Land Use Code 912	Drive-In Bank	Trips per 1,000 s.f.	148.15	56%	44%	12.35	50%	50%	25.82

[1] Source: County of Los Angeles Regional Planning

[2] Trip generation from *Traffic Study for the Avalon II Affordable Housing Residential Project* , Raju Associates, June 2006

[3] Source: City of Compton Planning Department website

[4] Trip gerenation estimates based on warehousing trip generation rates since no trip rates available for recycle centers.

[5] Source: City of Lynwood Planning Department website

[6] Source: City of South Gate Planning Department website and *Traffic Study for the Tierra Luna Specific Plan Project* , Raju Associates, January 2009.

[7] Source: City of Los Angeles. Trip generation totals provided by the City of Los Angeles.

[8] Trip generation totals provided by the City of Los Angeles. Directional distribution based on *ITE Trip Generation Manual, 8th Edition.*

[9] Source: *ITE Trip Generation Manual, 8th Edition, 2008*

[10] Trip generation for single-family residential was calculated using the following formulas:

Daily: $\mathrm{Ln}(T) = 0.92\,\mathrm{Ln}(X) + 2.71$
AM Peak Hour: $T = 0.70\,(X) + 9.74$
PM Peak Hour: $\mathrm{Ln}(T) = 0.90\,\mathrm{Ln}(X) + 0.51$

Where:
Ln = Natural logarithm
T = Two-way volume of traffic (total trip-ends)
X = Number of dwelling units

[11] Trip generation for condominium/townhouse was calculated using the following formulas:

Daily: $\mathrm{Ln}(T) = 0.87\,\mathrm{Ln}(X) + 2.46$
AM Peak Hour: $\mathrm{Ln}(T) = 0.80\,\mathrm{Ln}(X) + 0.26$
PM Peak Hour: $\mathrm{Ln}(T) = 0.82\,\mathrm{Ln}(X) + 0.32$

Where:
Ln = Natural logarithm
T = Two-way volume of traffic (total trip-ends)
X = Number of dwelling units

[12] Trip generation for medical office was calculated using the following formulas:

Daily: $T = 40.89\,(X) - 214.97$
PM Peak Hour: $\mathrm{Ln}(T) = 0.88\mathrm{Ln}(X) + 1.59$

Where:
Ln = Natural logarithm
T = Two-way volume of traffic (total trip-ends)
X = Area in 1,000 gross square feet of leasable area

[13] Source: Memorandum of Cooperation between LAUSD and LADOT, November 2004.

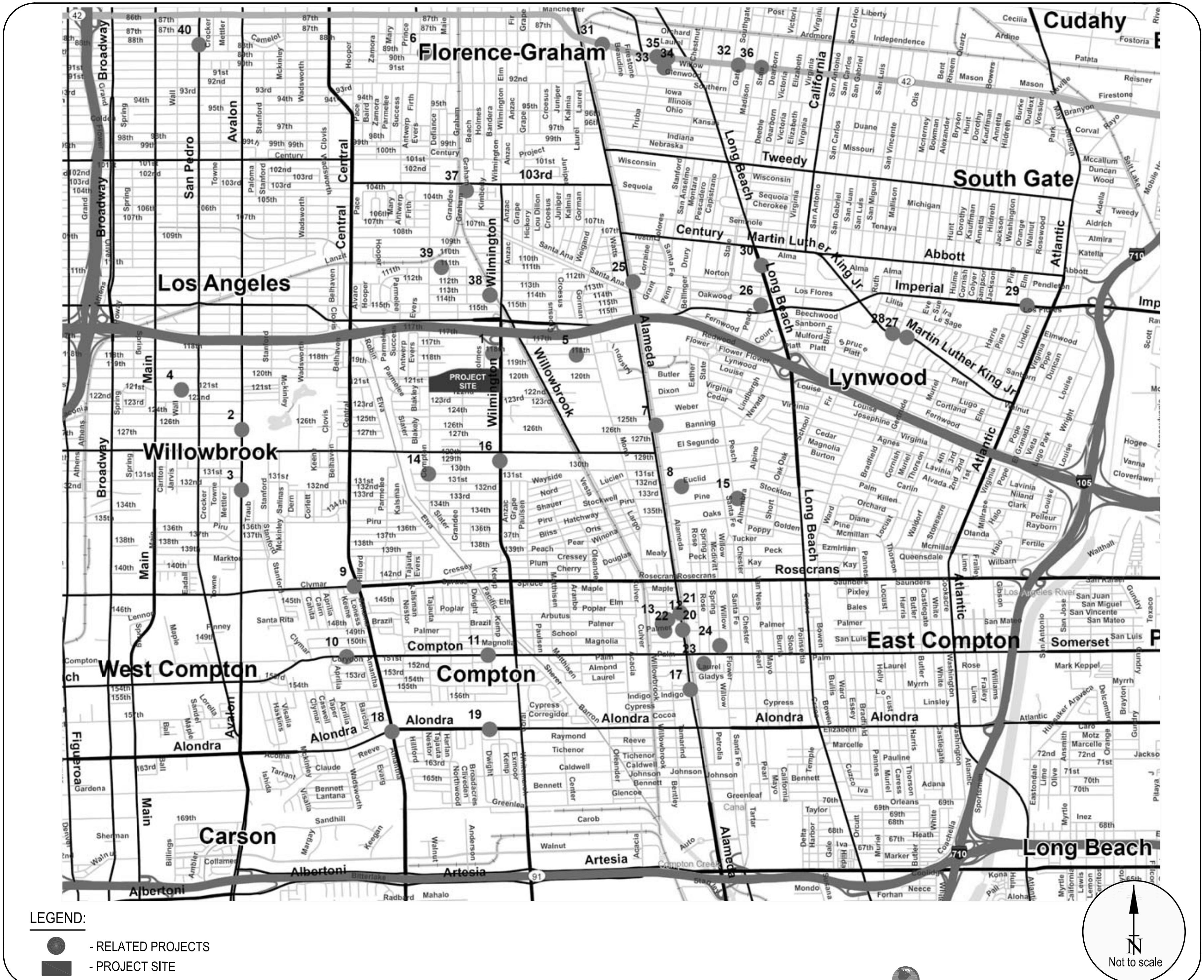
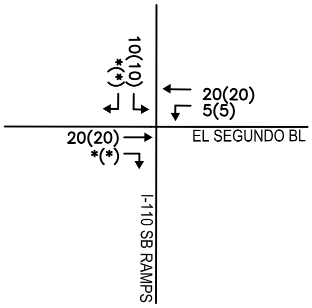
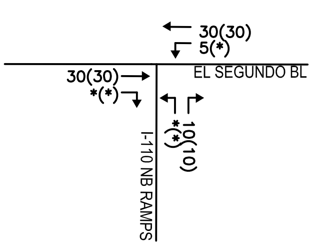


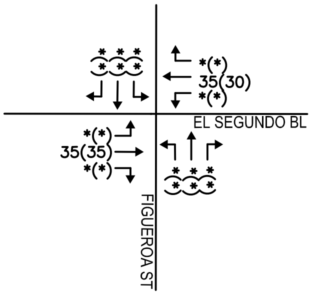
FIGURE 7
LOCATION OF RELATED PROJECTS (FUTURE YEAR 2014 CONDITIONS)



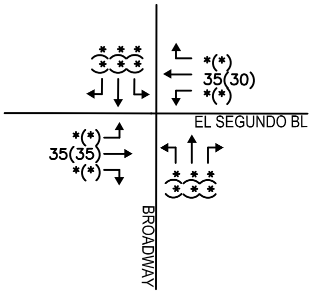
1. I-110 SB RAMPS/EL SEGUNDO BL



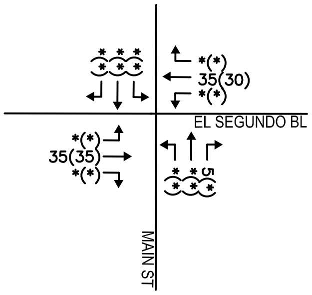
2. I-110 NB RAMPS/EL SEGUNDO BL



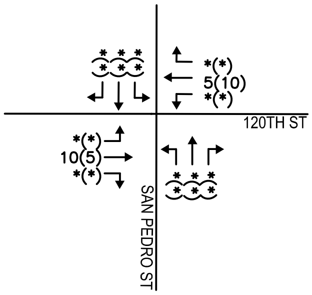
3. FIGUEROA ST/EL SEGUNDO BL



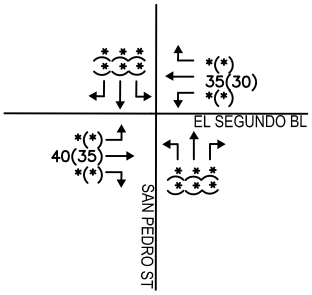
4. BROADWAY/EL SEGUNDO BL



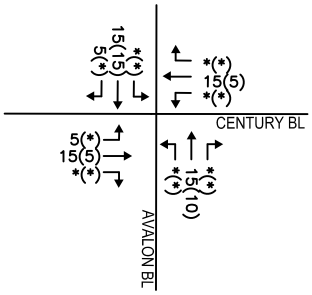
5. MAIN ST/EL SEGUNDO BL



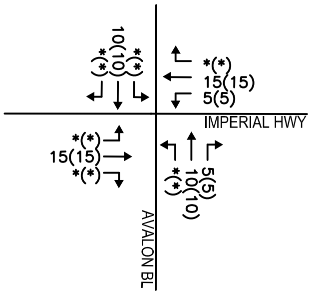
6. SAN PEDRO ST/120TH ST



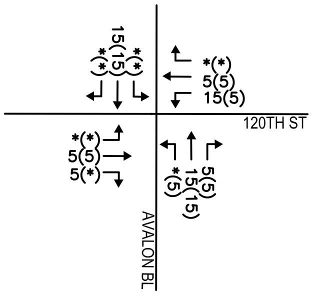
7. SAN PEDRO ST/EL SEGUNDO BL



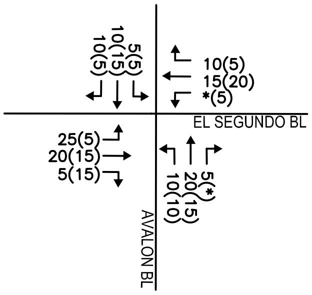
8. AVALON BL/CENTURY BL



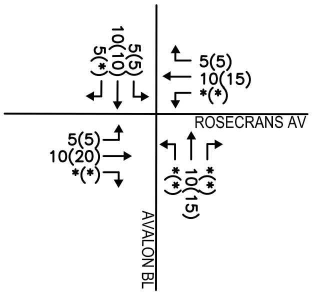
9. AVALON BL/IMPERIAL HWY



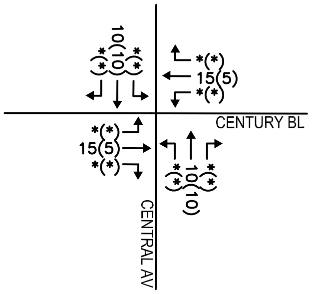
10. AVALON BL/120TH ST



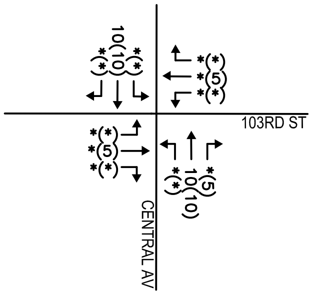
11. AVALON BL/EL SEGUNDO BL



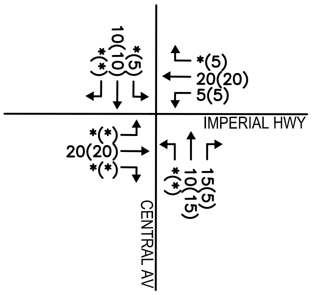
12. AVALON BL/ROSECRANS AV



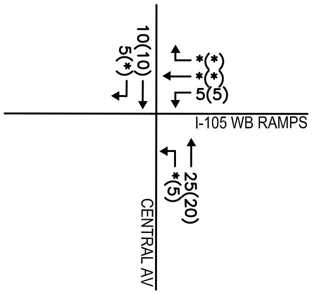
13. CENTRAL AV/CENTURY BL



14. CENTRAL AV/103RD ST



15. CENTRAL AV/IMPERIAL HWY



16. CENTRAL AV/I-105 WB RAMPS

LEGEND:

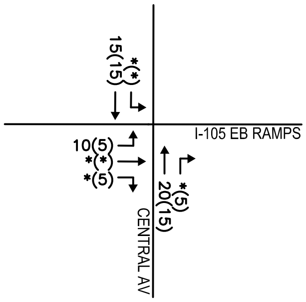
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

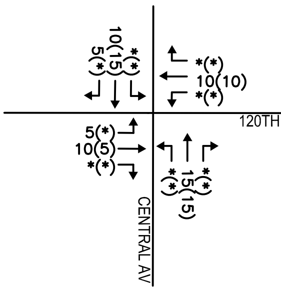
N
Not to scale

FIGURE 8A
RELATED PROJECTS (2014) PEAK HOUR TRAFFIC VOLUMES

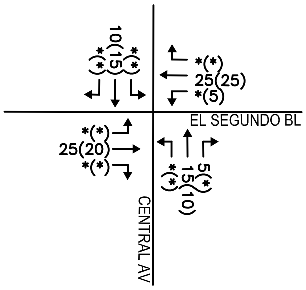
RAJU Associates, Inc.



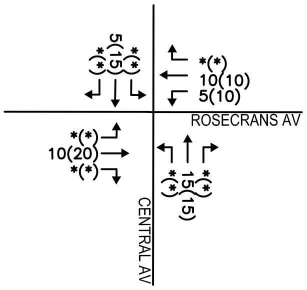
17. CENTRAL AV/I-105 EB RAMPS



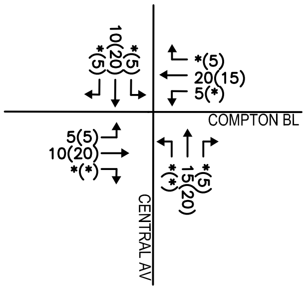
18. CENTRAL AV/120TH ST



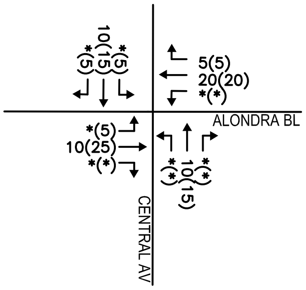
19. CENTRAL AV/EL SEGUNDO BL



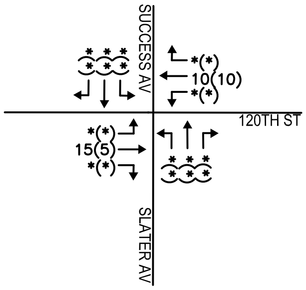
20. CENTRAL AV/ROSECRANS AV



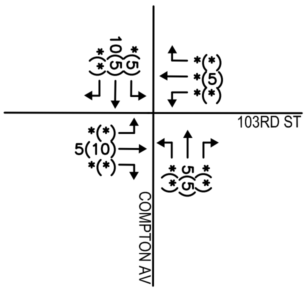
21. CENTRAL AV/COMPTON BL



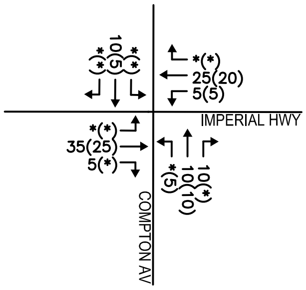
22. CENTRAL AV/ALONDRA BL



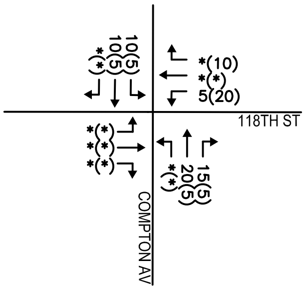
23. SUCCESS AV - SLATER AV/120TH ST



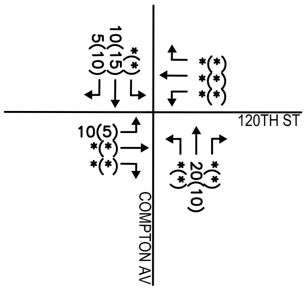
24. COMPTON AV/103RD ST



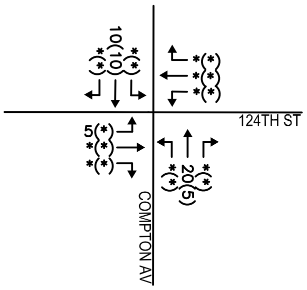
25. COMPTON AV/IMPERIAL HWY



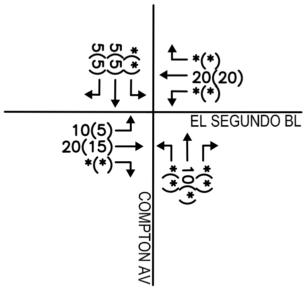
26. COMPTON AV/118TH ST



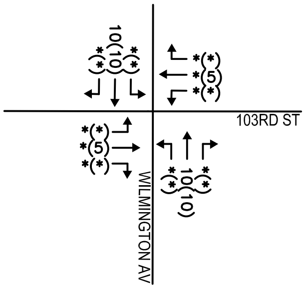
27. COMPTON AV/120TH ST



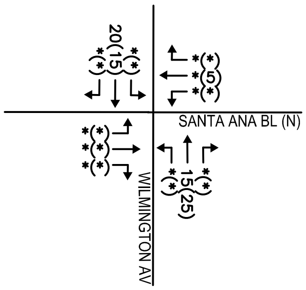
28. COMPTON AV/124TH ST



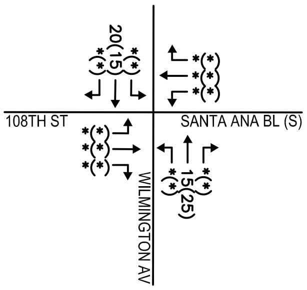
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

∗ - NEGLIGIBLE VOLUME

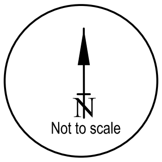
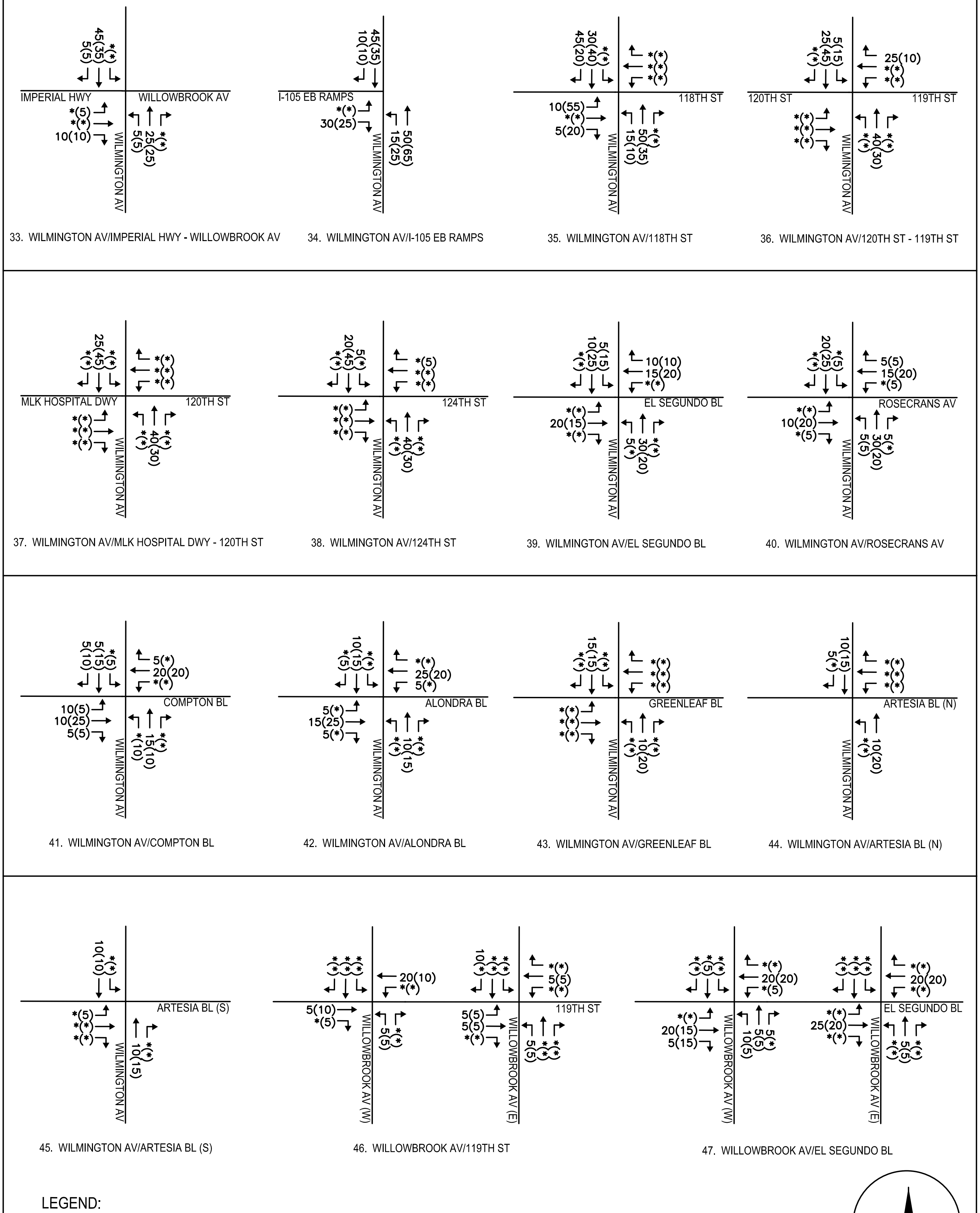


FIGURE 8B
RELATED PROJECTS (2014) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV

34. WILMINGTON AV/I-105 EB RAMPS

35. WILMINGTON AV/118TH ST

36. WILMINGTON AV/120TH ST - 119TH ST

37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST

38. WILMINGTON AV/124TH ST

39. WILMINGTON AV/EL SEGUNDO BL

40. WILMINGTON AV/ROSECRANS AV

41. WILMINGTON AV/COMPTON BL

42. WILMINGTON AV/ALONDRA BL

43. WILMINGTON AV/GREENLEAF BL

44. WILMINGTON AV/ARTESIA BL (N)

45. WILMINGTON AV/ARTESIA BL (S)

46. WILLOWBROOK AV/119TH ST

47. WILLOWBROOK AV/EL SEGUNDO BL

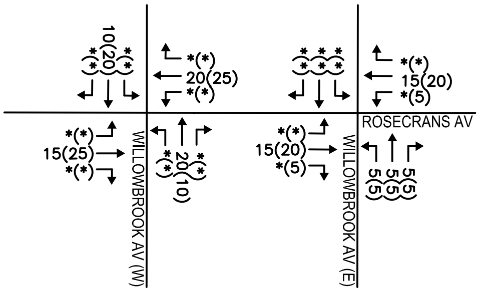
LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

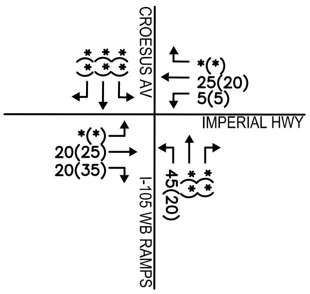
* - NEGLIGIBLE VOLUME

FIGURE 8C
RELATED PROJECTS (2014) PEAK HOUR TRAFFIC VOLUMES

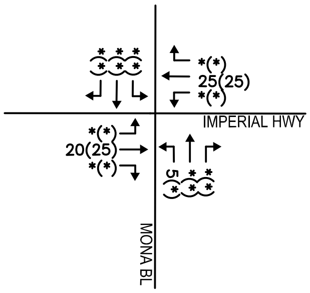
RAJU Associates, Inc.



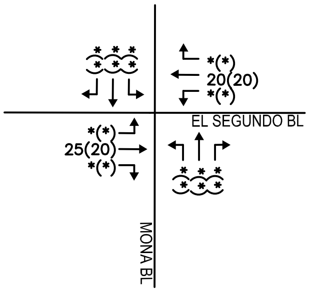
48. WILLOWBROOK AV/ROSECRANS AV



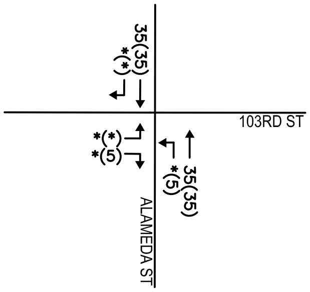
49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV



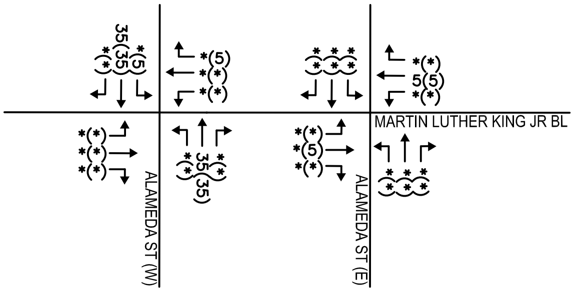
50. MONA BL/IMPERIAL HWY



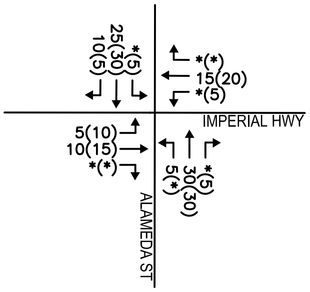
51. MONA BL/EL SEGUNDO BL



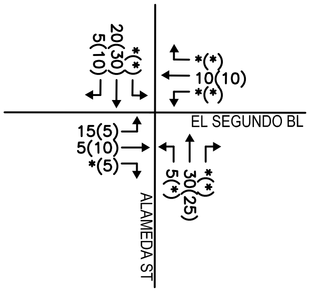
52. ALAMEDA ST/103RD ST



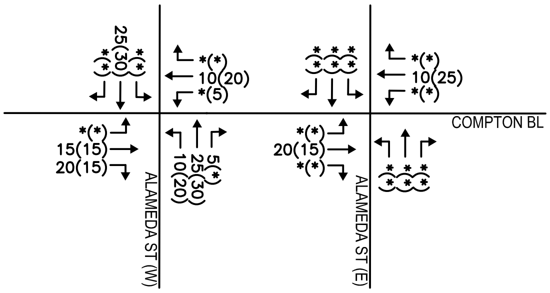
53. ALAMEDA ST/MARTIN LUTHER KING JR BL



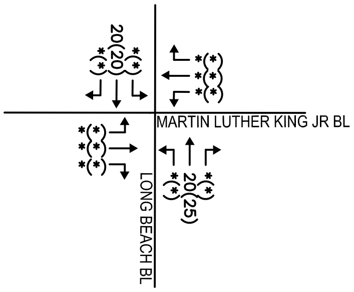
54. ALAMEDA ST/IMPERIAL HWY



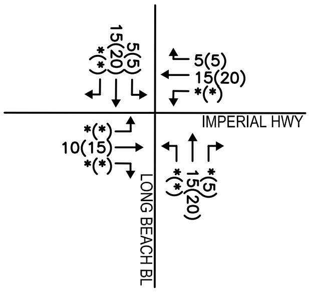
55. ALAMEDA ST/EL SEGUNDO BL



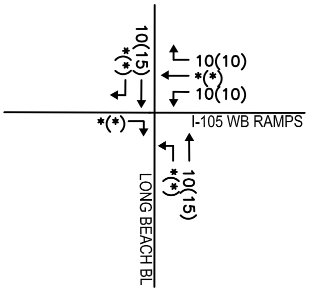
56. ALAMEDA ST/COMPTON BL



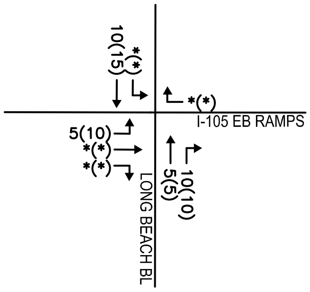
57. LONG BEACH BL/MARTIN LUTHER KING JR BL



58. LONG BEACH BL/IMPERIAL HWY



59. LONG BEACH BL/I-105 WB RAMPS



60. LONG BEACH BL/I-105 EB RAMPS

LEGEND:

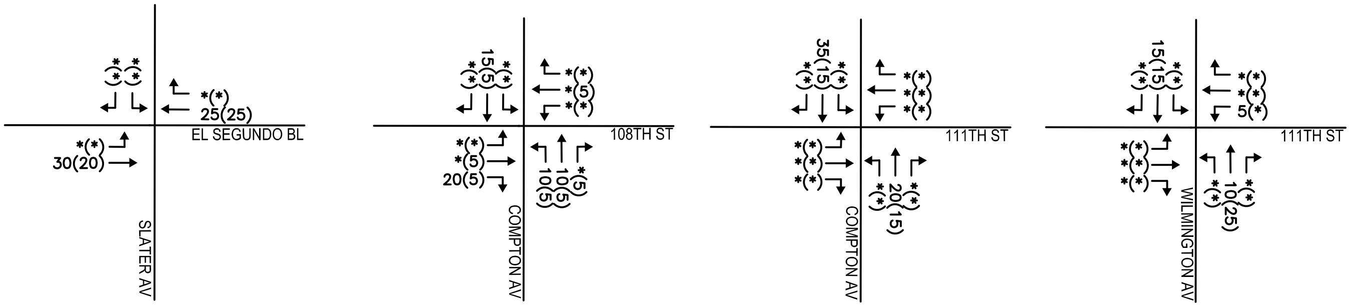
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 8D
RELATED PROJECTS (2014) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



61. SLATER AV/EL SEGUNDO BL

62. COMPTON AV/108TH ST

63. COMPTON AV/111TH ST

64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N

Not to scale

FIGURE 8E

RELATED PROJECTS (2014) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

CUMULATIVE (2014) BASE TRAFFIC CONDITIONS

This section contains the evaluation of the Cumulative (2014) Base (or Existing Baseline with Ambient Growth (2014)) Traffic Conditions. The assessment of Cumulative (2014) Base Traffic Conditions involved the following tasks:

- Cumulative (2014) Base Traffic projections at all study intersections
- Analysis of Cumulative (2014) Base Traffic Conditions at study intersections located in the Cities of Los Angeles, Compton, and Lynwood

A brief discussion of each of the tasks follows:

Cumulative (2014) Base Traffic Projections

The Cumulative (2014) Base traffic projections consist of traffic growth due to two primary sources: background ambient traffic growth and growth due to related projects within and in the vicinity of the Project study area. The existing baseline with ambient growth and related projects traffic volumes were estimated as described above.

The related projects' traffic estimates, shown in Figures 8A-8E, were added to the Existing Baseline with Ambient Growth (2014) traffic, shown in Figure 6A-6E, to obtain the Cumulative (2014) Base traffic volumes. The traffic volumes presented in Figures 9A-9E represent the Future Cumulative (2014) Base (without project) conditions.

Cumulative (2014) Base Traffic Conditions

The Cumulative (2014) Base Conditions peak hour traffic volumes were analyzed at each of the Cities of Los Angeles, Compton and Lynwood study intersections to determine the V/C ratio and corresponding level of service. Table 9 presents the results of the Cumulative (2014) Base traffic analysis. As indicated in the table, 36 of the 37 analyzed intersections in both the morning and evening peak hours are projected to operate at LOS D or better. The remaining intersection, Long Beach Boulevard/Imperial Highway, is projected to operate at LOS E and LOS F in the morning and evening peak hours, respectively.

Capacity calculation worksheets for Cumulative (2014) Base conditions are attached in Appendix G of the report.

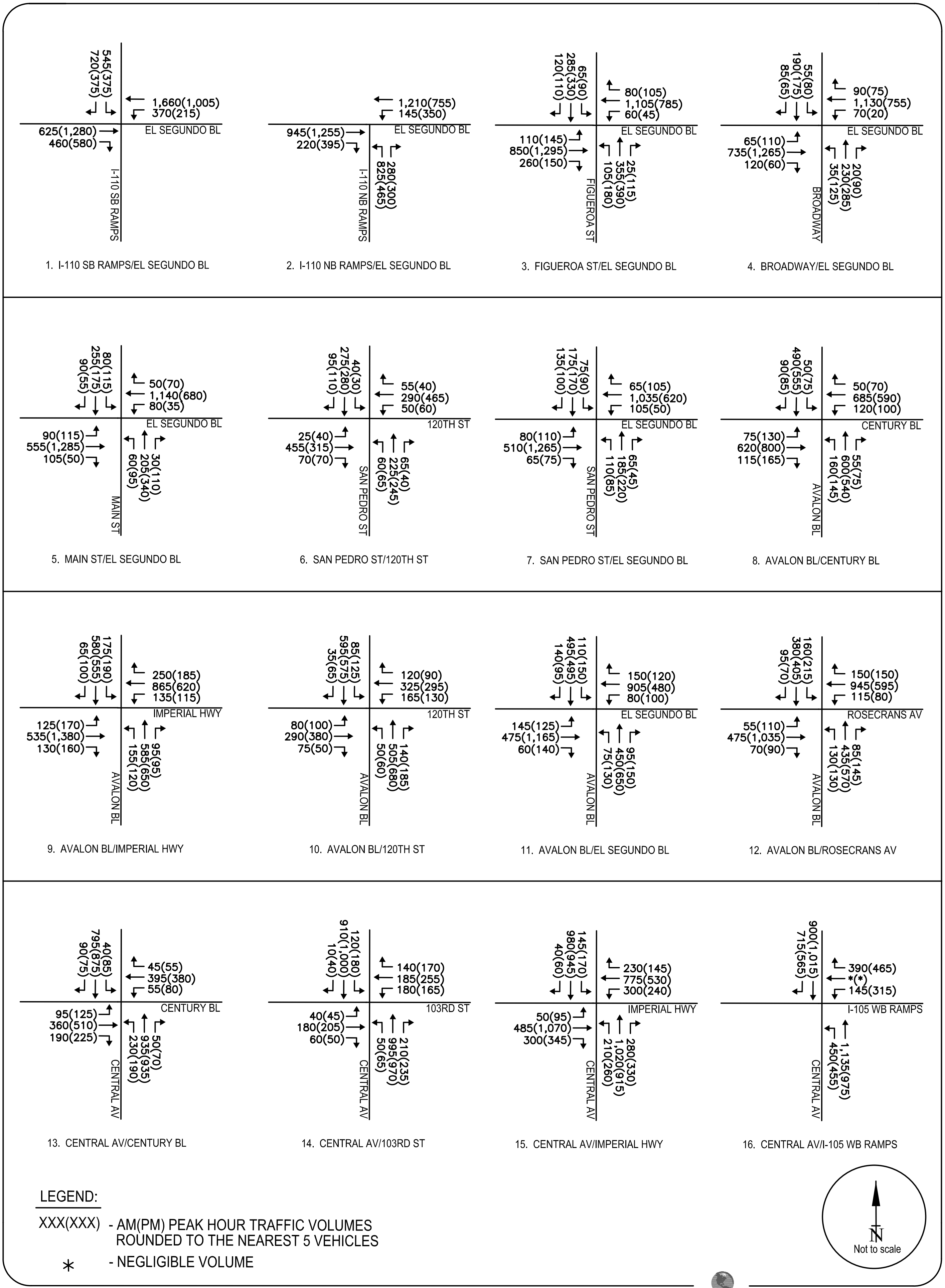
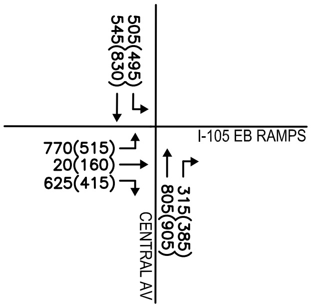
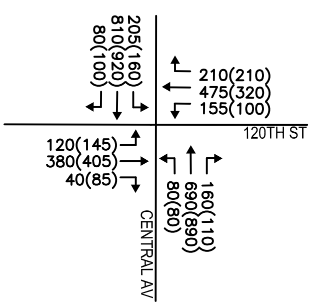


FIGURE 9A
CUMULATIVE (2014) BASE PEAK HOUR TRAFFIC VOLUMES

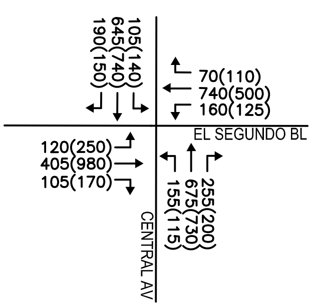
RAJU Associates, Inc.



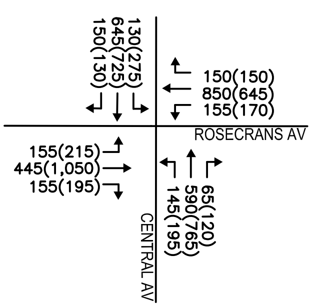
17. CENTRAL AV/I-105 EB RAMPS



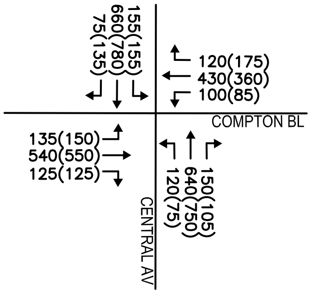
18. CENTRAL AV/120TH ST



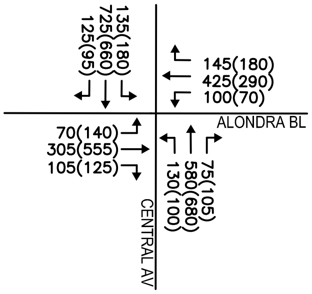
19. CENTRAL AV/EL SEGUNDO BL



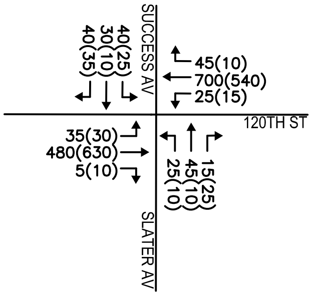
20. CENTRAL AV/ROSECRANS AV



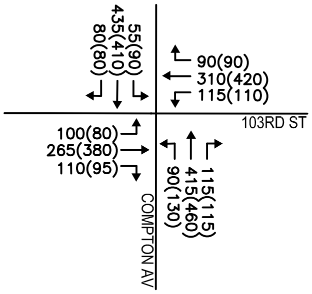
21. CENTRAL AV/COMPTON BL



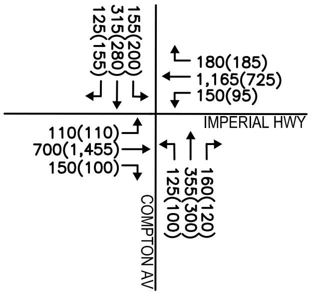
22. CENTRAL AV/ALONDRA BL



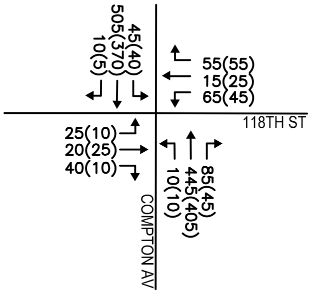
23. SUCCESS AV - SLATER AV/120TH ST



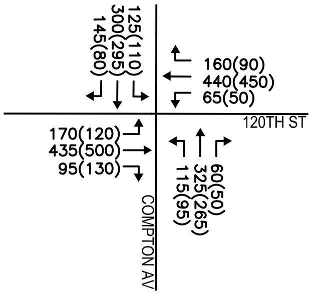
24. COMPTON AV/103RD ST



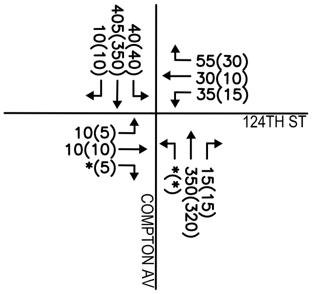
25. COMPTON AV/IMPERIAL HWY



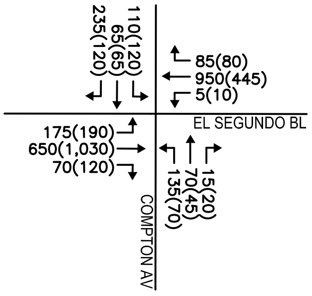
26. COMPTON AV/118TH ST



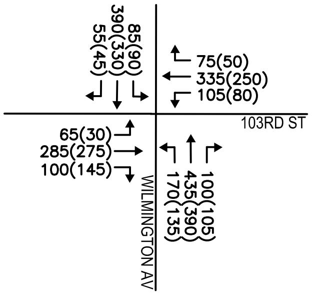
27. COMPTON AV/120TH ST



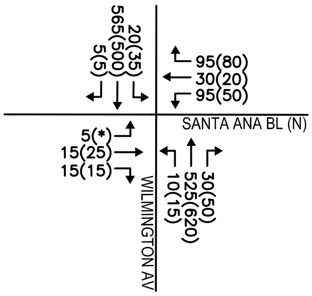
28. COMPTON AV/124TH ST



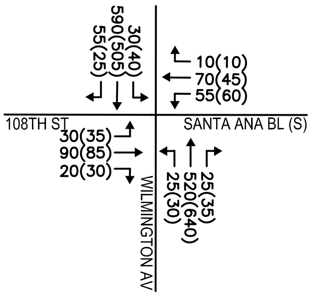
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

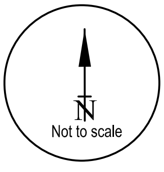
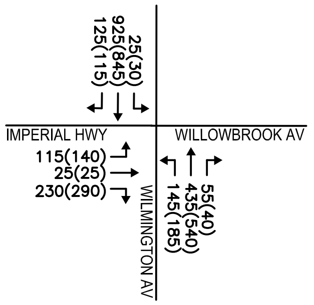
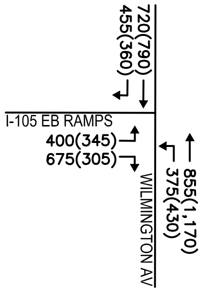


FIGURE 9B
CUMULATIVE (2014) BASE PEAK HOUR TRAFFIC VOLUMES

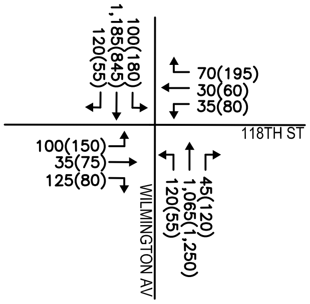
RAJU Associates, Inc.



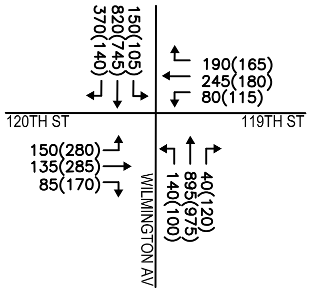
33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV



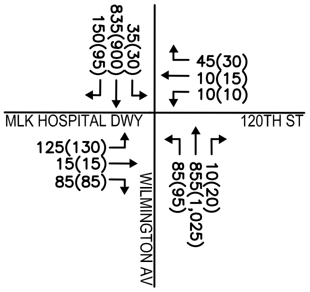
34. WILMINGTON AV/I-105 EB RAMPS



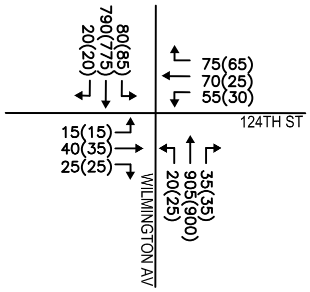
35. WILMINGTON AV/118TH ST



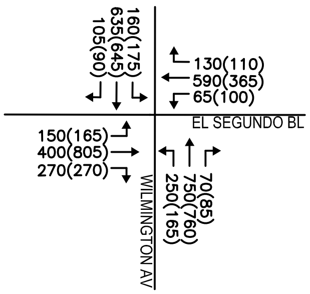
36. WILMINGTON AV/120TH ST - 119TH ST



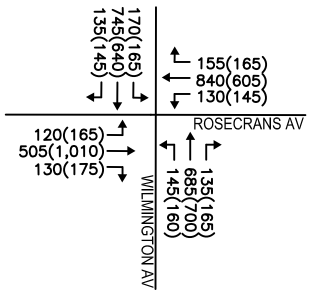
37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST



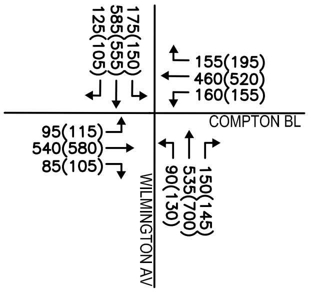
38. WILMINGTON AV/124TH ST



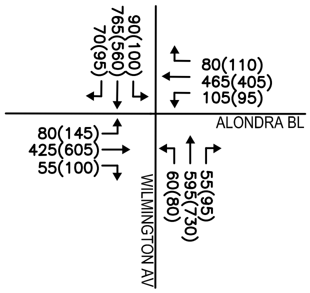
39. WILMINGTON AV/EL SEGUNDO BL



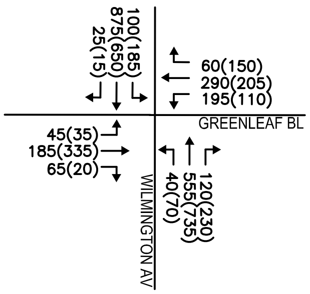
40. WILMINGTON AV/ROSECRANS AV



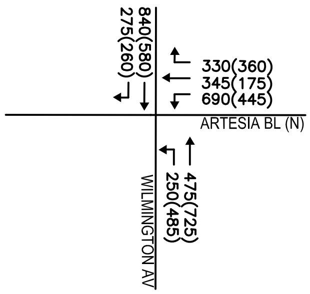
41. WILMINGTON AV/COMPTON BL



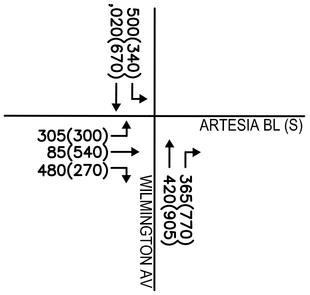
42. WILMINGTON AV/ALONDRA BL



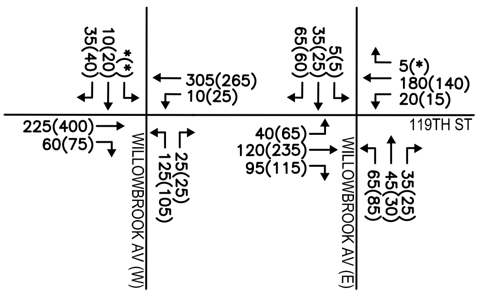
43. WILMINGTON AV/GREENLEAF BL



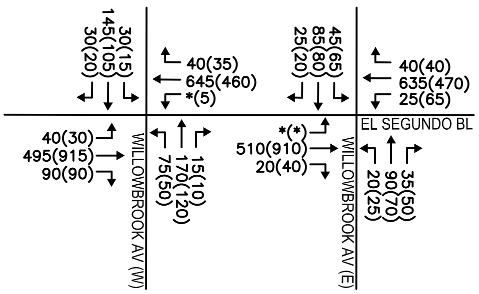
44. WILMINGTON AV/ARTESIA BL (N)



45. WILMINGTON AV/ARTESIA BL (S)



46. WILLOWBROOK AV/119TH ST



47. WILLOWBROOK AV/EL SEGUNDO BL

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 9C
CUMULATIVE (2014) BASE PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

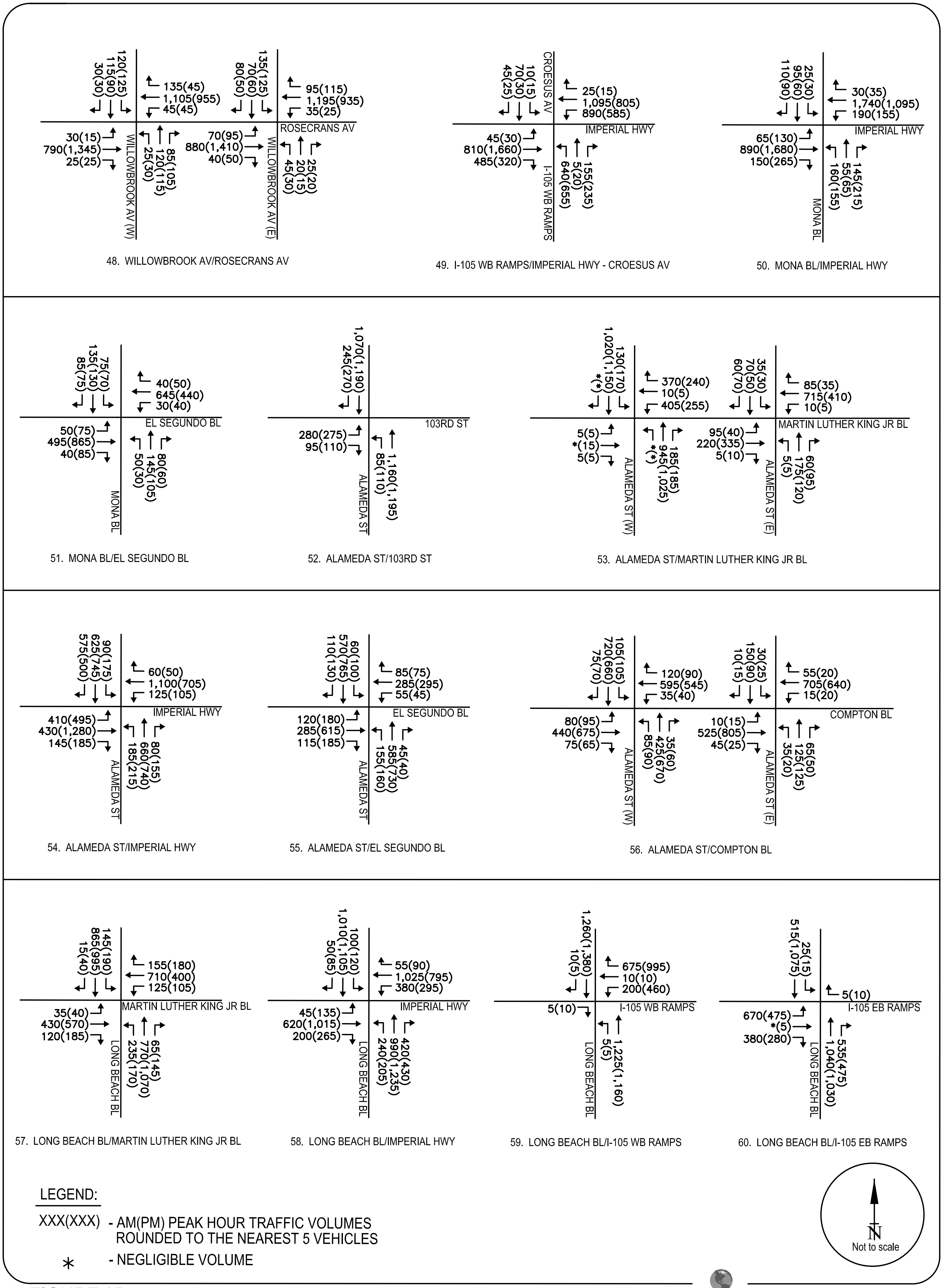
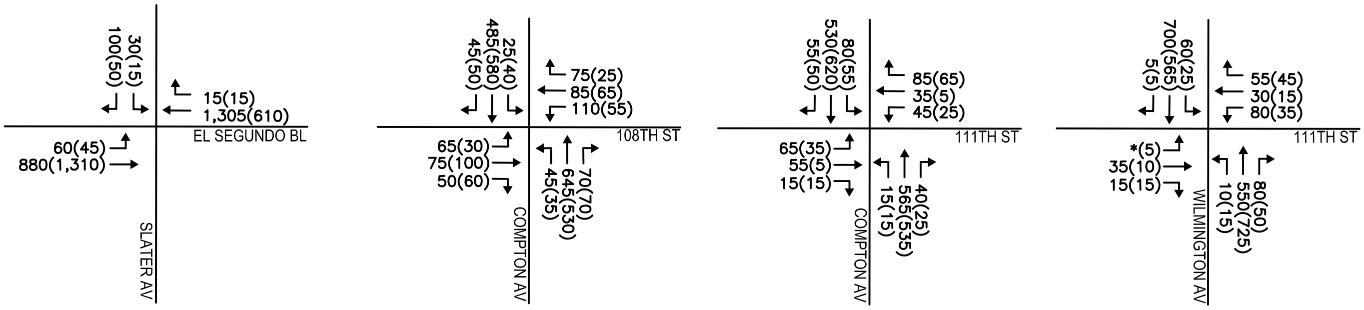


FIGURE 9D
CUMULATIVE (2014) BASE PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



61. SLATER AV/EL SEGUNDO BL

62. COMPTON AV/108TH ST

63. COMPTON AV/111TH ST

64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 9E
CUMULATIVE (2014) BASE PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

TABLE 9
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS
CUMULATIVE (2014) BASE CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
		V/C	LOS	V/C	LOS
City of Compton					
56	Alameda Street/Compton Boulevard *	0.675	B	0.664	B
22	Central Avenue/Alondra Boulevard	0.668	B	0.717	C
21	Central Avenue/Compton Boulevard	0.703	C	0.727	C
29	Compton Avenue/El Segundo Boulevard	0.765	C	0.586	A
61	Slater Avenue/El Segundo Boulevard	0.577	A	0.519	A
48	Willowbrook Avenue/Rosecrans Avenue	0.767	C	0.806	D
42	Wilmington Avenue/Alondra Boulevard	0.618	B	0.701	C
41	Wilmington Avenue/Compton Boulevard	0.673	B	0.723	C
43	Wilmington Avenue/Greenleaf Boulevard	0.686	B	0.735	C
40	Wilmington Avenue/Rosecrans Avenue	0.850	D	0.879	D
44	Wilmington Avenue/Artesia Boulevard (N) [4]	0.804	D	0.802	D
45	Wilmington Avenue/Artesia Boulevard (S) [4]	0.718	C	0.754	C
City of Los Angeles					
10	Avalon Boulevard/120th Street**	0.588	A	0.697	B
8	Avalon Boulevard/Century Boulevard**	0.585	A	0.655	B
9	Avalon Boulevard/Imperial Highway**	0.635	B	0.745	C
14	Central Avenue/103rd Street**	0.711	C	0.782	C
18	Central Avenue/120th Street**	0.686	B	0.672	B
13	Central Avenue/Century Boulevard**	0.752	C	0.783	C
15	Central Avenue/Imperial Highway**	0.685	B	0.783	C
17	Central Avenue/I-105 Eastbound Ramps [1]**	0.679	B	0.626	B
16	Central Avenue/I-105 Westbound Ramps [1]**	0.726	C	0.690	B
24	Compton Avenue/103rd Street**	0.473	A	0.547	A
62	Compton Avenue/108th Street**	0.701	C	0.595	A
63	Compton Avenue/111th Street**	0.581	A	0.543	A
3	Figueroa Street/El Segundo Boulevard	0.577	A	0.749	C
2	I-110 Northbound Ramps/El Segundo Boulevard [1]**	0.770	C	0.877	D
1	I-110 Southbound Ramps/El Segundo Boulevard [1]**	0.813	D	0.694	B
6	San Pedro Street/120th Street	0.624	B	0.617	B
30	Wilmington Avenue/103rd Street	0.641	B	0.530	A
64	Wilmington Avenue/111th Street	0.688	B	0.670	B
31	Wilmington Avenue/Santa Ana Boulevard (N)	0.606	B	0.634	B
32	Wilmington Avenue/Santa Ana Boulevard (S)	0.645	B	0.676	B
City of Lynwood					
53	Alameda Street/Martin Luther King Jr. Boulevard	0.783	C	0.723	C
58	Long Beach Boulevard/Imperial Highway	0.964	E	1.060	F
57	Long Beach Boulevard/Martin Luther King Jr. Boulevard	0.814	D	0.854	D
60	Long Beach Boulevard/I-105 Eastbound Ramps [1]	0.690	B	0.610	B
59	Long Beach Boulevard/I-105 Westbound Ramps [1]	0.493	A	0.685	B

* Los Angeles County Congestion Management Program (CMP) monitoring location.

** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.

[1] Shares jurisdiction with Caltrans.

TABLE 10
ESTIMATED PROJECT TRIP GENERATION - TIER I PROJECT

	Size	Daily	AM Peak Hour			PM Peak Hour		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed Tier I								
Hospital - Removal of Use [1]	(506,485) s.f.	(8,357)	(335)	(232)	(567)	(242)	(335)	(577)
Hospital - Addition	156,700 s.f.	2,586	104	72	176	75	104	179
Tier I Net Trip Generation Total		(5,771)	(231)	(160)	(391)	(167)	(231)	(398)
Tier I Net Trip Generation Less Transit Reduction (15%)		**(4,905)**	**(196)**	**(136)**	**(332)**	**(142)**	**(196)**	**(338)**
Trip Rates [2]								
Hospital (ITE Land Use Code 610)	Trips per 1,000 s.f.	16.50	59%	41%	1.12	42%	58%	1.14

[1] Demolition of this facility would occur in Tier II.
[2] ITE Trip Generation, Informational Report, 8th Edition, 2008

PROJECT TRAFFIC VOLUMES

The implementation of the Proposed Tier I Project involves construction of 156,700 square feet including a new MACC and ancillary buildings, tenant improvements in existing buildings, and site improvements. As proposed, the MACC building would be a four-story building consisting of approximately 132,000 square feet. The proposed ancillary building would be a two-story structure consisting of approximately 24,700 square feet. The construction of Tier I would also include the removal of four structures containing approximately 506,485 square feet. These structures include the existing MACC building, emergency room, storage building and cooling towers and will be either reused or replaced under Tier II of the Project. It is anticipated that the Tier I Project would be completed by Year 2014.

Project Trip Generation

Utilizing the rates and equations from the ITE Trip Generation 8th Edition Informational Report, the Proposed Tier I Project's trip generation was determined. Table 10 presents details of the Proposed Tier I Project's trip generation including type of use, size, applicable rate and trip generation estimates. Other calculations within the table also provide for trip generation adjustments due to transit and removal of existing uses.

From Table 10, it can be observed that the Proposed Tier I Project's trip generation would result in 2,586 daily trips of which 176 trips would occur in the morning peak hour and 179 trips would occur in the evening peak hour. Since Tier I also involves removal of existing uses, a net reduction in trips of approximately 4,905 daily trips, 332 A.M. trips (-196 inbound, -136 outbound) and 338 P.M. trips (-142 inbound, -196 outbound) would occur.

Project Trip Distribution

The trip distribution for the project trips was determined using the methodology described in *Appendix B of the 2004 CMP* as well as existing traffic patterns and engineering judgment. Exhibit B-5: General Procedure for Calculating Trip Distribution from *Appendix B of the 2004 CMP* contains detailed procedures for determining trip distribution. Below is a summary of the procedures from Exhibit B-5:

1. Determine the proportion of project trip generation which is work versus non-work trips. This is based on a table (Exhibit B-2: Daily Trip Purpose Breakdown By Land Use Type) provided in the 2004 CMP.

2. Determine the Regional Statistical Area (RSA) in which the project is located using the table and figures contained in Exhibit B-4: Regional Statistical Areas of the 2004 CMP. It was determined that the Martin Luther King Jr. Medical Center Campus Project is in RSA 21.

3. Determine the RSA-level work and non-work trip distributions for the project using the Exhibit B-3: Regional Daily Trip Distribution Factors.

4. While specific characteristics of the project and study area must be considered, traffic assignment should be conducted according to the following guidelines:

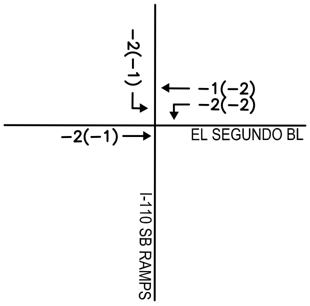
   a. Trips internal to the project RSA may be primarily assigned to the non-CMP routes:

   b. Trips from the project RSA to adjacent RSAs should be primarily assigned to CMP arterials or freeways, if present; and

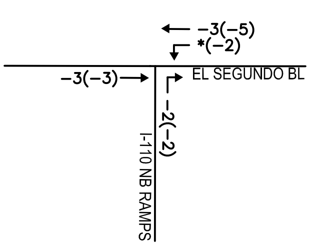
   c. Trips from the project RSA to RSAs not adjacent to the project RSA should be primarily assigned to freeways, if present.

Appendix H of the report documents the trip distribution calculations including the breakdown of trips, work versus non-work trips, by land use type and the exhibits used from the 2004 CMP. The resulting individual intersection work and non-work trip distribution percentages for both the morning and evening peak hours are also included in Appendix H. Based on these distribution assumptions, location and points of access of the project driveways, and net trip generation from the Proposed Project, traffic estimates of net project-only trips were developed. These Tier I Project-only peak hour trips are presented in Figures 10A-10G. Based on the overall general project distribution patterns, it can be observed that the project trips will utilize the following key travel corridors within the study area as listed below:

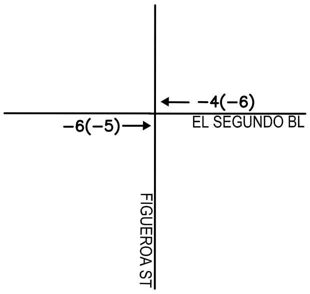
- Wilmington Avenue Corridor to/from points north – 35%
- Wilmington Avenue Corridor to/from points south – 20%
- 120th Street-119th Street Corridor to/from points east – 3%
- 120th Street-119th Street Corridor to/from points west – 11%
- El Segundo Boulevard Corridor to/from points east – 3%
- El Segundo Boulevard Corridor to/from points west – 4%
- Central Avenue Corridor to/from points north – 11%
- Central Avenue Corridor to/from points south – 5%
- Compton Avenue Corridors to/from points north – 6%
- Compton Avenue Corridors to/from points south – 2%



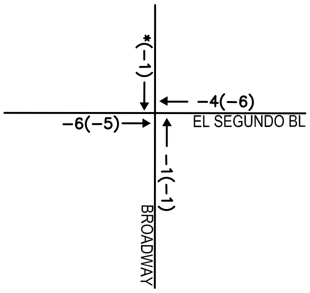
1. I-110 SB RAMPS/EL SEGUNDO BL



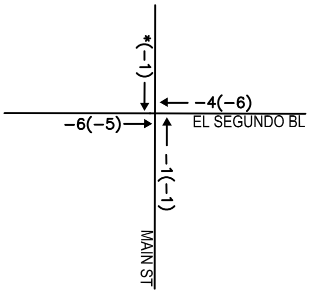
2. I-110 NB RAMPS/EL SEGUNDO BL



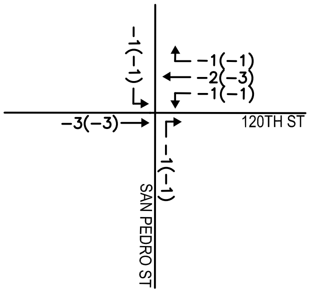
3. FIGUEROA ST/EL SEGUNDO BL



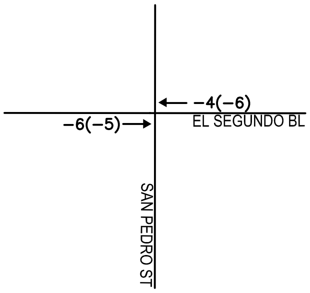
4. BROADWAY/EL SEGUNDO BL



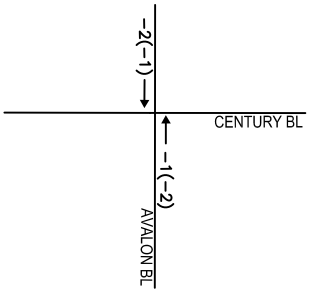
5. MAIN ST/EL SEGUNDO BL



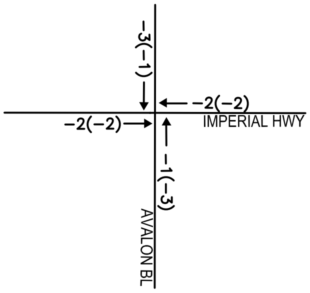
6. SAN PEDRO ST/120TH ST



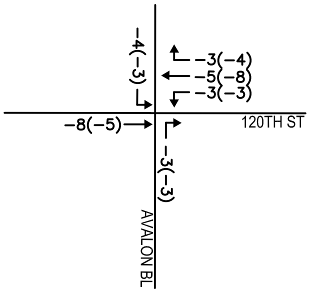
7. SAN PEDRO ST/EL SEGUNDO BL



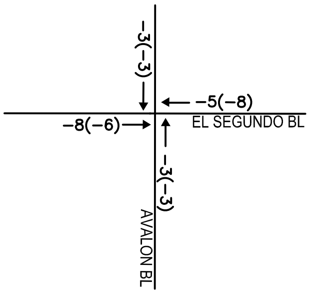
8. AVALON BL/CENTURY BL



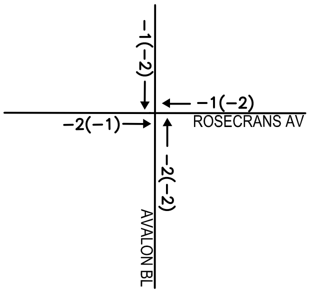
9. AVALON BL/IMPERIAL HWY



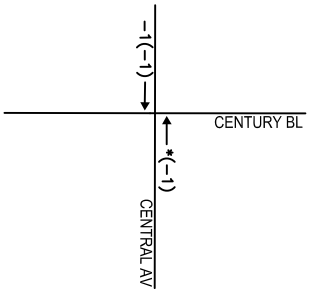
10. AVALON BL/120TH ST



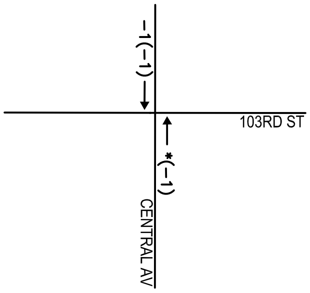
11. AVALON BL/EL SEGUNDO BL



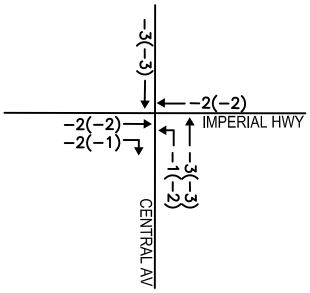
12. AVALON BL/ROSECRANS AV



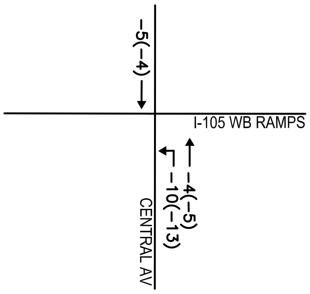
13. CENTRAL AV/CENTURY BL



14. CENTRAL AV/103RD ST



15. CENTRAL AV/IMPERIAL HWY



16. CENTRAL AV/I-105 WB RAMPS

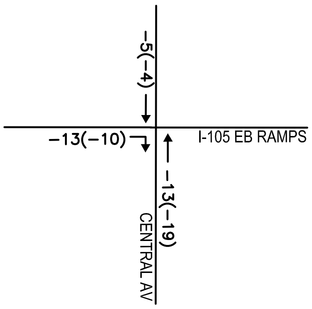
LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

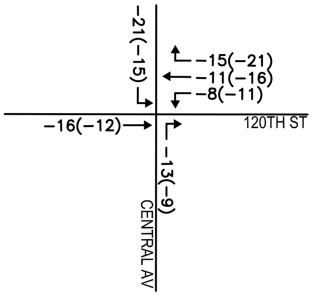
* - NEGLIGIBLE VOLUMES

N
Not to scale

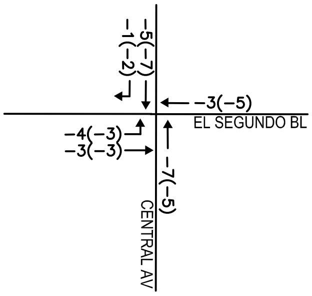
FIGURE 10A
TIER 1 PROJECT PEAK HOUR TRAFFIC VOLUMES



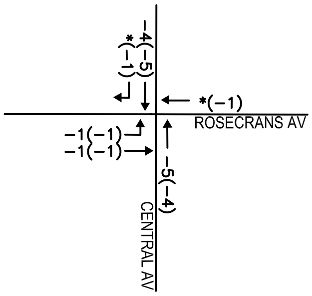
17. CENTRAL AV/I-105 EB RAMPS



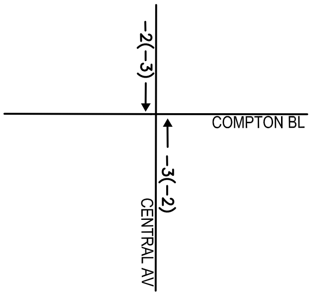
18. CENTRAL AV/120TH ST



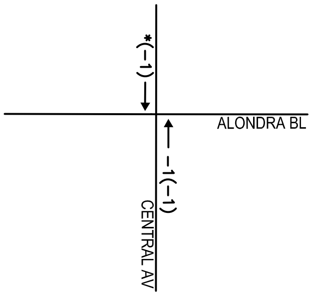
19. CENTRAL AV/EL SEGUNDO BL



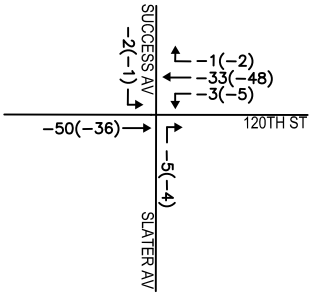
20. CENTRAL AV/ROSECRANS AV



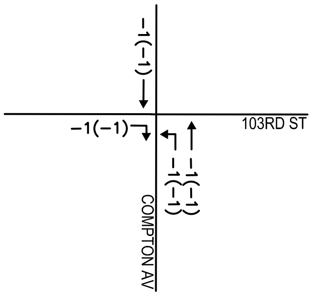
21. CENTRAL AV/COMPTON BL



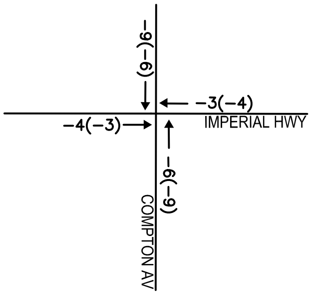
22. CENTRAL AV/ALONDRA BL



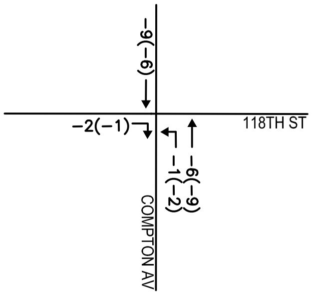
23. SUCCESS AV - SLATER AV/120TH ST



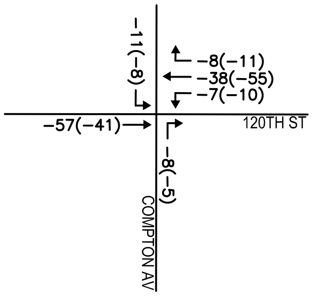
24. COMPTON AV/103RD ST



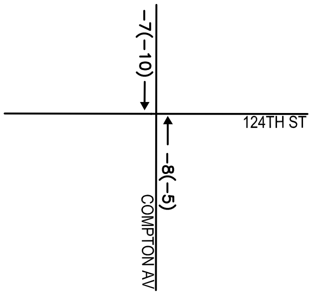
25. COMPTON AV/IMPERIAL HWY



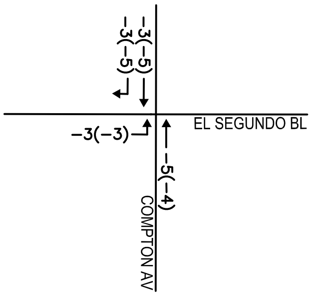
26. COMPTON AV/118TH ST



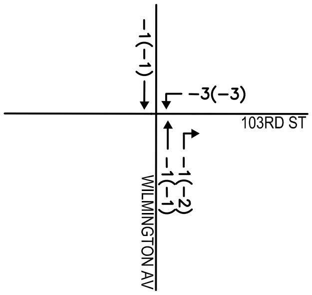
27. COMPTON AV/120TH ST



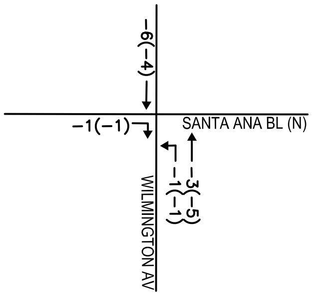
28. COMPTON AV/124TH ST



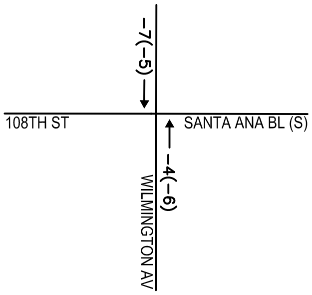
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

* - NEGLIGIBLE VOLUMES

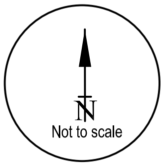


FIGURE 10B
TIER 1 PROJECT PEAK HOUR TRAFFIC VOLUMES

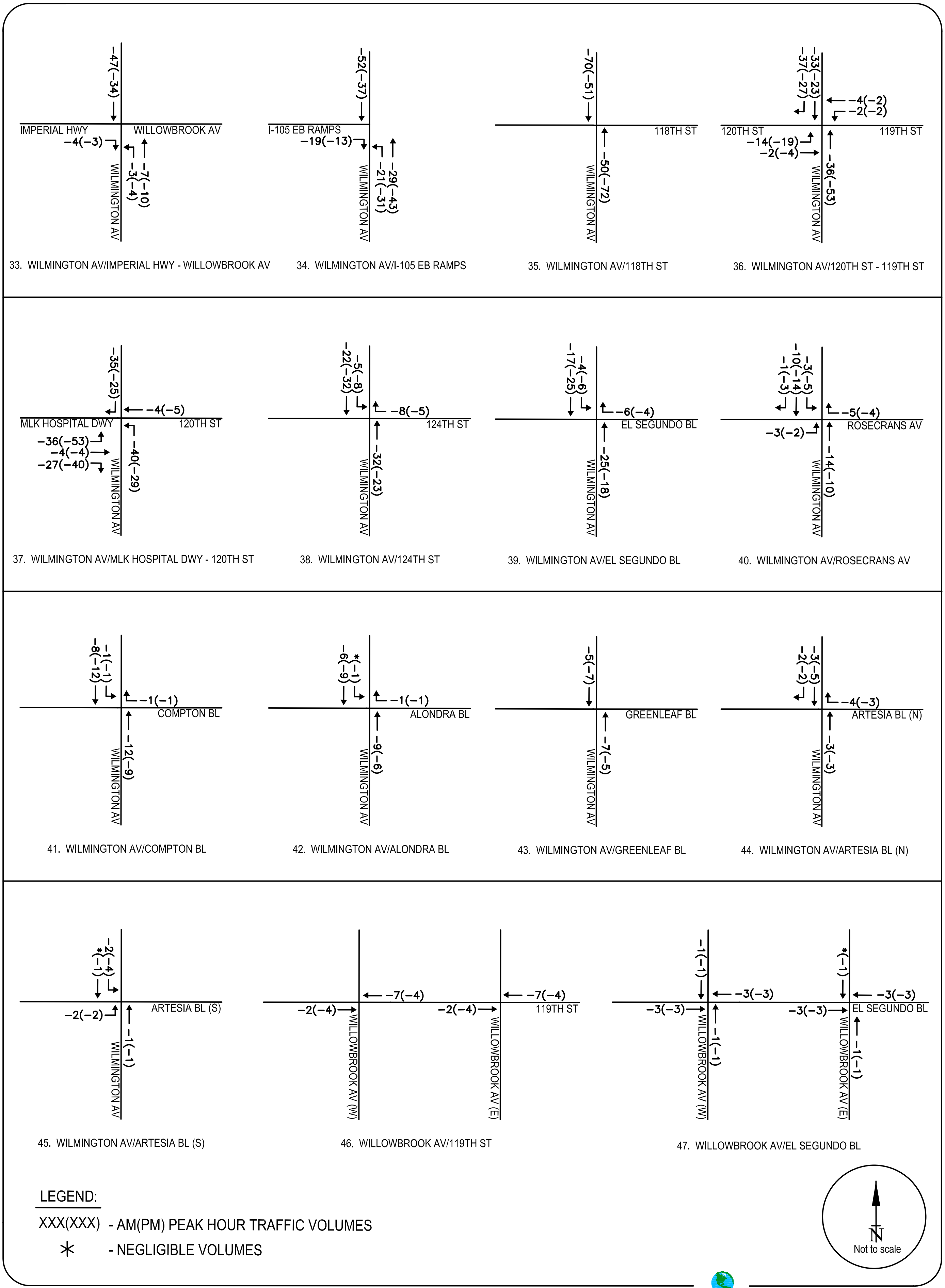
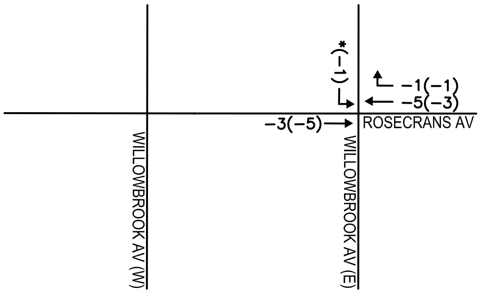
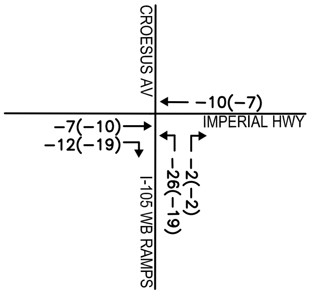


FIGURE 10C
TIER 1 PROJECT PEAK HOUR TRAFFIC VOLUMES

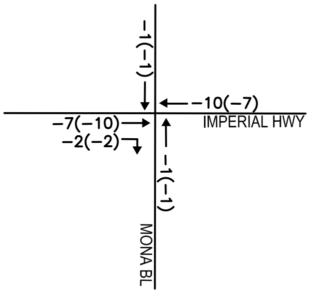
RAJU Associates, Inc.



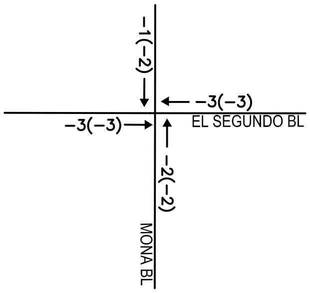
48. WILLOWBROOK AV/ROSECRANS AV



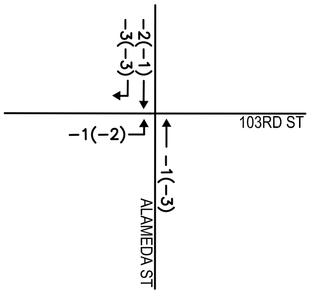
49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV



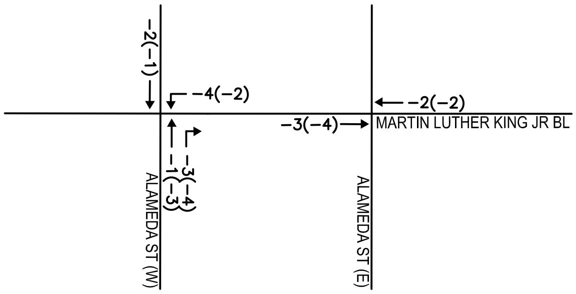
50. MONA BL/IMPERIAL HWY



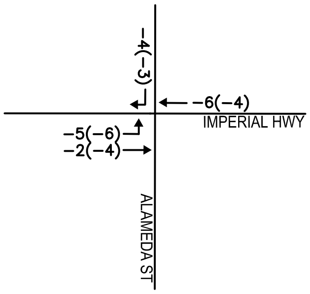
51. MONA BL/EL SEGUNDO BL



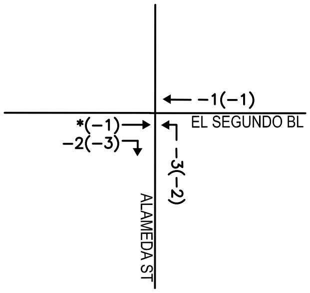
52. ALAMEDA ST/103RD ST



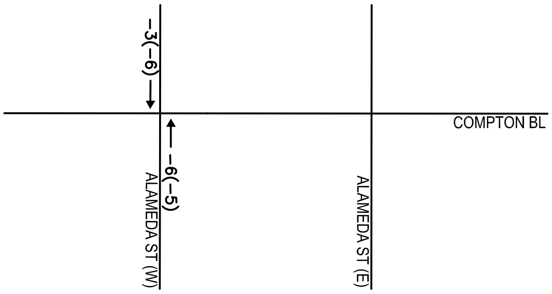
53. ALAMEDA ST/MARTIN LUTHER KING JR BL



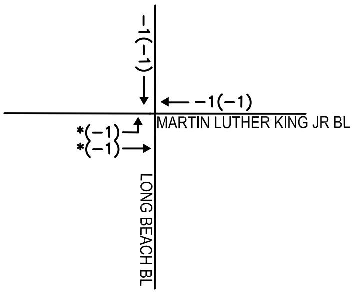
54. ALAMEDA ST/IMPERIAL HWY



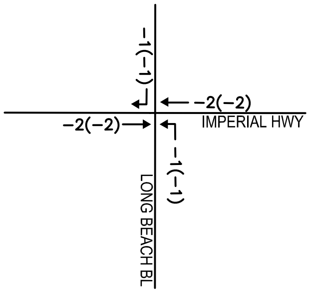
55. ALAMEDA ST/EL SEGUNDO BL



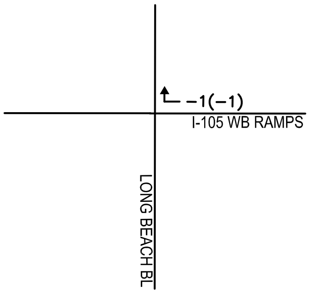
56. ALAMEDA ST/COMPTON BL



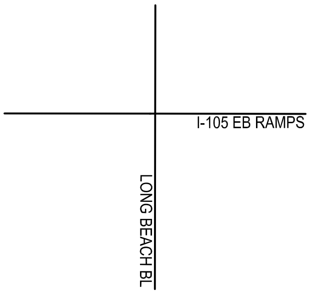
57. LONG BEACH BL/MARTIN LUTHER KING JR BL



58. LONG BEACH BL/IMPERIAL HWY



59. LONG BEACH BL/I-105 WB RAMPS



60. LONG BEACH BL/I-105 EB RAMPS

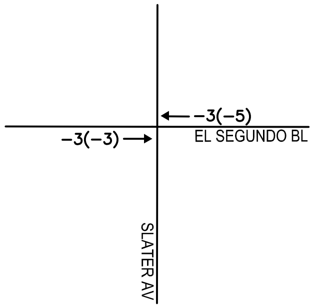
LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
* - NEGLIGIBLE VOLUMES

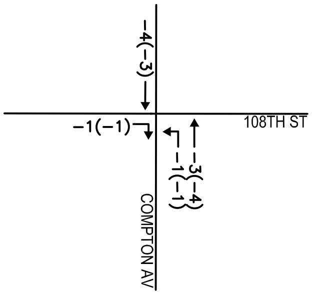
N
Not to scale

FIGURE 10D
TIER 1 PROJECT PEAK HOUR TRAFFIC VOLUMES

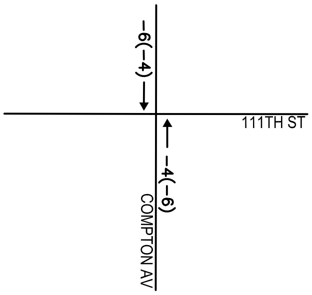
RAJU Associates, Inc.



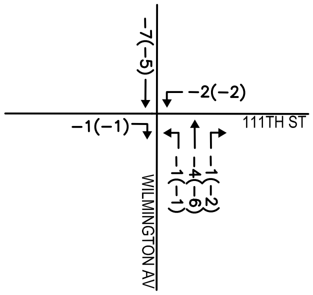
61. SLATER AV/EL SEGUNDO BL



62. COMPTON AV/108TH ST



63. COMPTON AV/111TH ST



64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

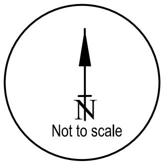


FIGURE 10E
TIER 1 PROJECT PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

Due to the mixed-use nature of the project, some of the project trips remain internal to the MLK. The majority of the Martin Luther King Jr. Medical Center Campus traffic effects are felt close to the project, and the effects drop off quickly farther away from the project.

EXISTING BASELINE WITH AMBIENT GROWTH (2014) PLUS TIER I PROJECT TRAFFIC CONDITIONS

This section contains the evaluation of the Existing Baseline with Ambient Growth (2014) plus Tier I Project Traffic Conditions. The assessment of Existing Baseline with Ambient Growth (2014) plus Tier I Project Traffic Conditions involved the following tasks:

- Existing Baseline with Ambient Growth (2014) plus Tier I Project Traffic projections at all study intersections
- Analysis of Existing Baseline with Ambient Growth (2014) plus Tier I Project Traffic Conditions at study intersections located in the County of Los Angeles

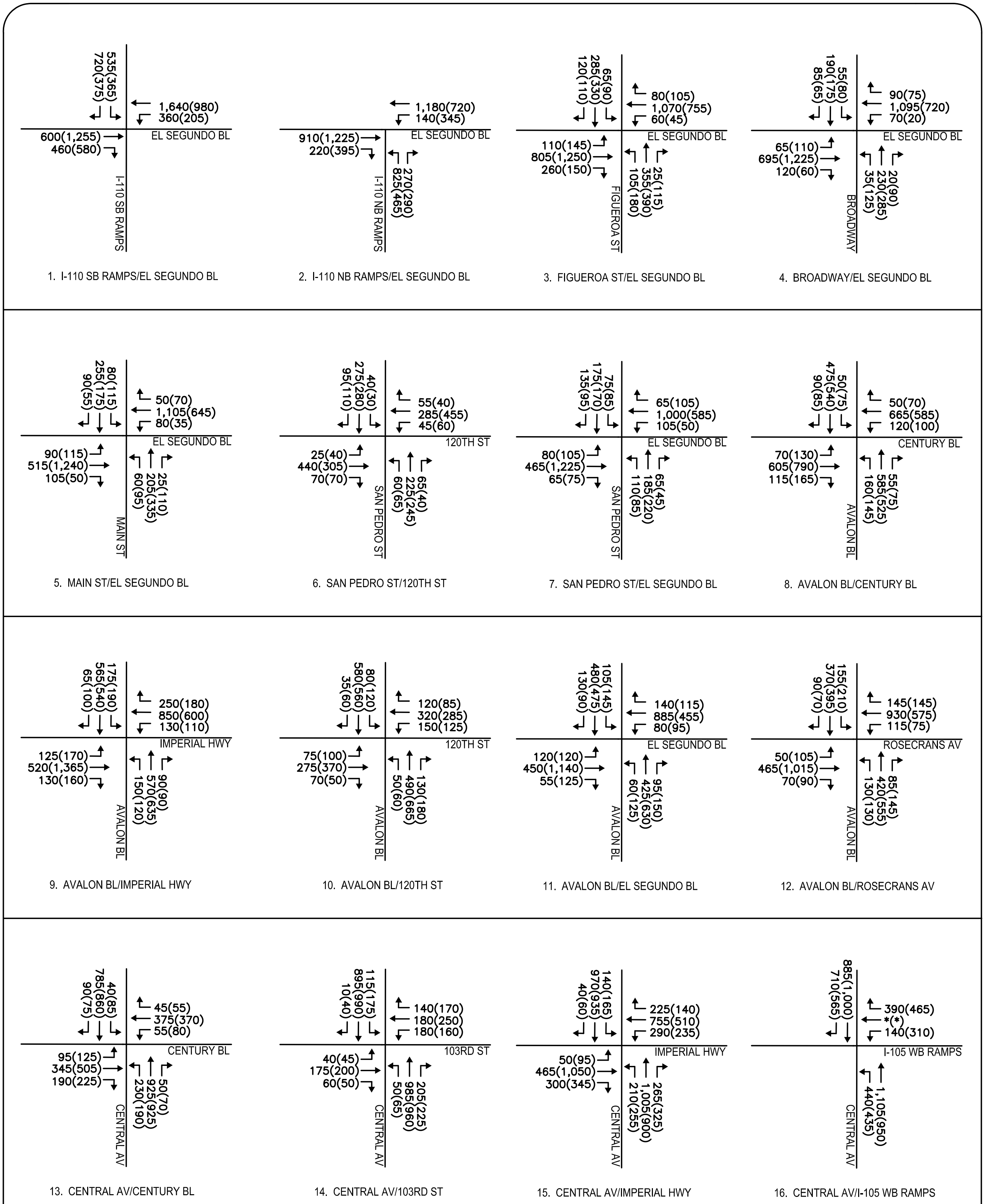
A brief discussion of each of the tasks follows:

Existing Baseline with Ambient Growth (2014) plus Tier I Project Traffic Projections

Utilizing the project-only traffic estimates developed for both AM and PM peak hours, traffic forecasts for the Existing Baseline with Ambient Growth (2014) plus Tier I Project conditions were developed. The Existing Baseline with Ambient Growth (2014) Base traffic forecasts were combined with the Tier I Project-only traffic volumes to obtain the Existing Baseline with Ambient Growth (2014) plus Project traffic volume forecasts. The Existing Baseline with Ambient Growth (2014) plus Tier I Project traffic volumes during both A.M. and P.M. peak hours are presented in Figures 11A-11E.

Existing Baseline with Ambient Growth (2014) plus Tier I Project Traffic Conditions

The Existing Baseline with Ambient Growth (2014) plus Tier I Project peak hour traffic volumes were analyzed at each of the County of Los Angeles study intersections to determine the V/C ratio and corresponding level of service. Table 11 presents the results of the Future Existing Baseline with Ambient Growth (2014) plus Tier I Project traffic analysis.



1. I-110 SB RAMPS/EL SEGUNDO BL

2. I-110 NB RAMPS/EL SEGUNDO BL

3. FIGUEROA ST/EL SEGUNDO BL

4. BROADWAY/EL SEGUNDO BL

5. MAIN ST/EL SEGUNDO BL

6. SAN PEDRO ST/120TH ST

7. SAN PEDRO ST/EL SEGUNDO BL

8. AVALON BL/CENTURY BL

9. AVALON BL/IMPERIAL HWY

10. AVALON BL/120TH ST

11. AVALON BL/EL SEGUNDO BL

12. AVALON BL/ROSECRANS AV

13. CENTRAL AV/CENTURY BL

14. CENTRAL AV/103RD ST

15. CENTRAL AV/IMPERIAL HWY

16. CENTRAL AV/I-105 WB RAMPS

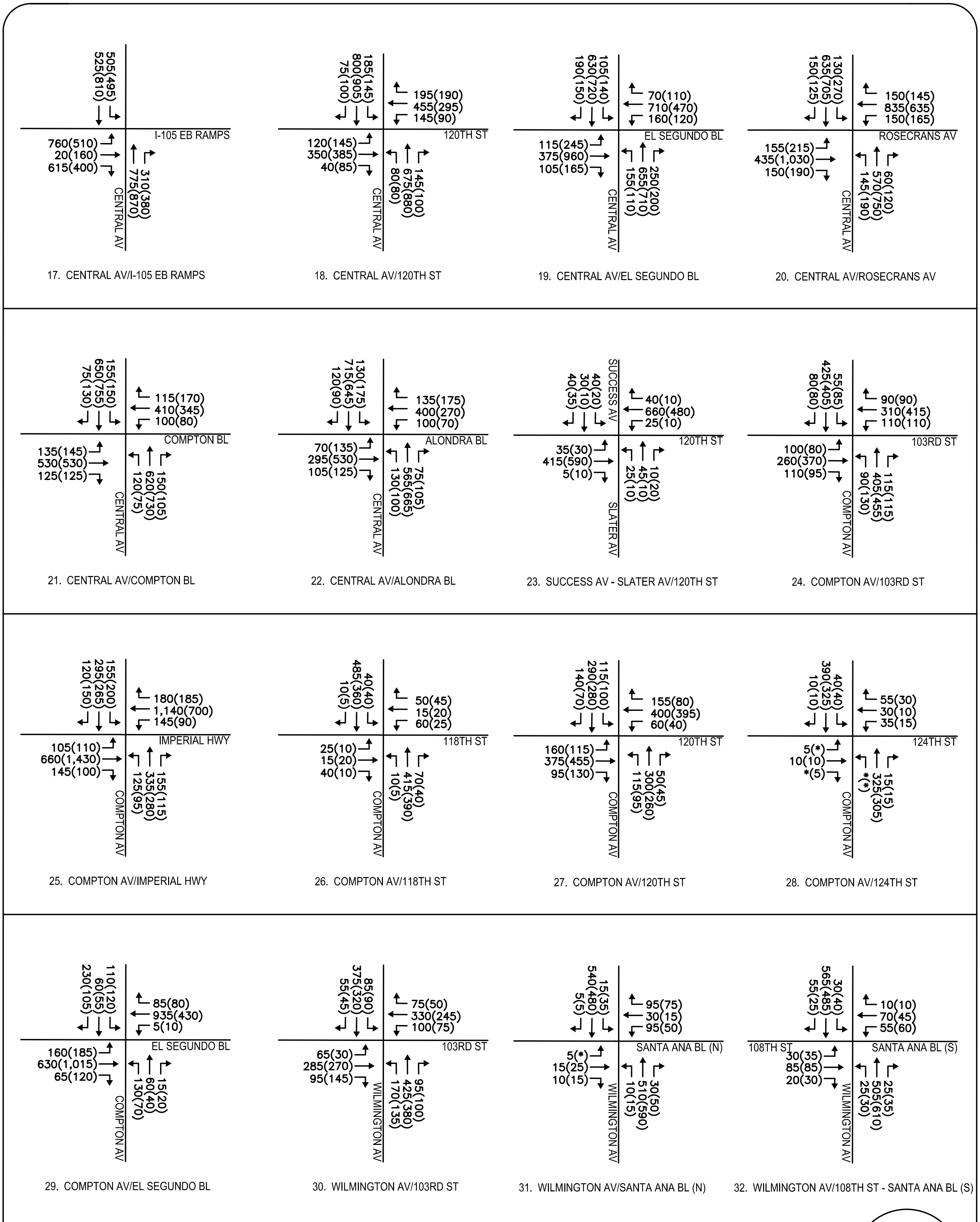
LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

FIGURE 11A
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER 1 PROJECT PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



17. CENTRAL AV/I-105 EB RAMPS

18. CENTRAL AV/120TH ST

19. CENTRAL AV/EL SEGUNDO BL

20. CENTRAL AV/ROSECRANS AV

21. CENTRAL AV/COMPTON BL

22. CENTRAL AV/ALONDRA BL

23. SUCCESS AV - SLATER AV/120TH ST

24. COMPTON AV/103RD ST

25. COMPTON AV/IMPERIAL HWY

26. COMPTON AV/118TH ST

27. COMPTON AV/120TH ST

28. COMPTON AV/124TH ST

29. COMPTON AV/EL SEGUNDO BL

30. WILMINGTON AV/103RD ST

31. WILMINGTON AV/SANTA ANA BL (N)

32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

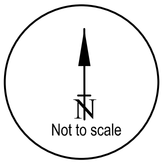
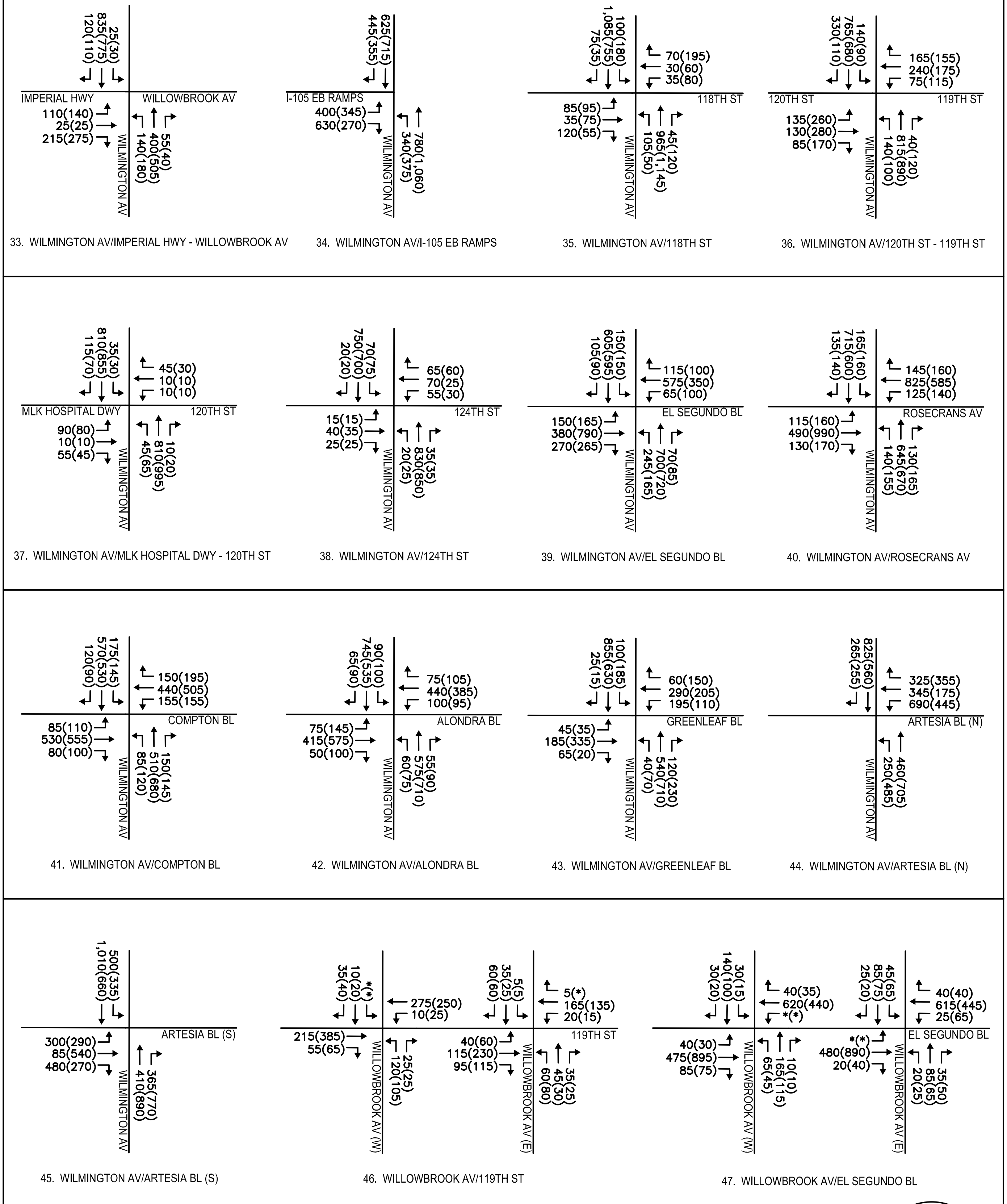


FIGURE 11B
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER 1
PROJECT PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

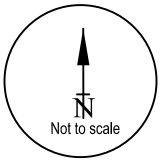
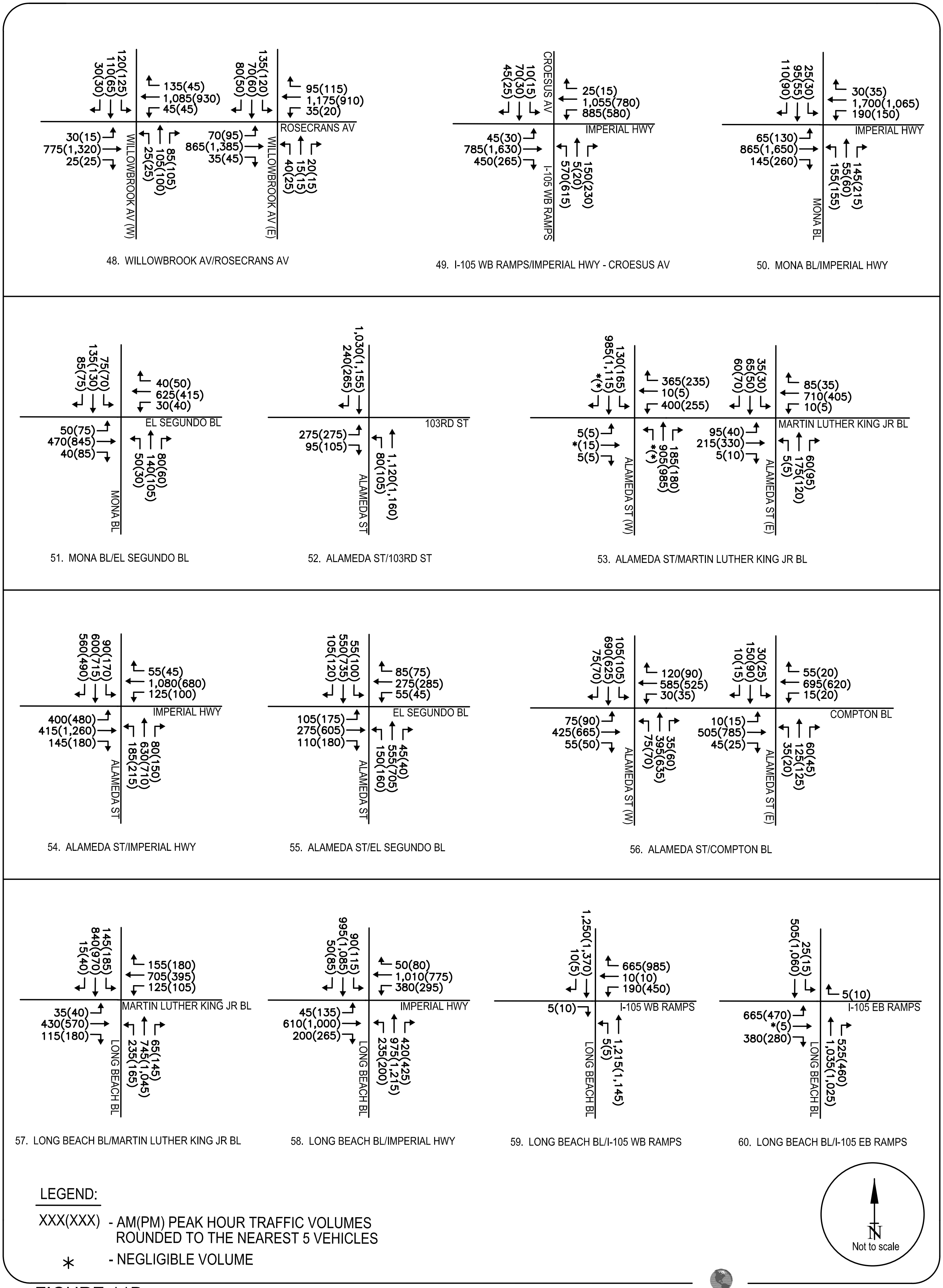


FIGURE 11C
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER 1
PROJECT PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



48. WILLOWBROOK AV/ROSECRANS AV

49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV

50. MONA BL/IMPERIAL HWY

51. MONA BL/EL SEGUNDO BL

52. ALAMEDA ST/103RD ST

53. ALAMEDA ST/MARTIN LUTHER KING JR BL

54. ALAMEDA ST/IMPERIAL HWY

55. ALAMEDA ST/EL SEGUNDO BL

56. ALAMEDA ST/COMPTON BL

57. LONG BEACH BL/MARTIN LUTHER KING JR BL

58. LONG BEACH BL/IMPERIAL HWY

59. LONG BEACH BL/I-105 WB RAMPS

60. LONG BEACH BL/I-105 EB RAMPS

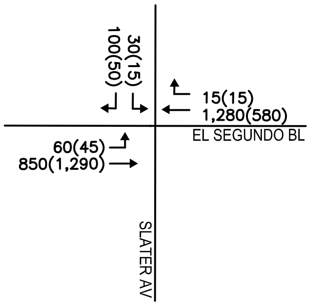
LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

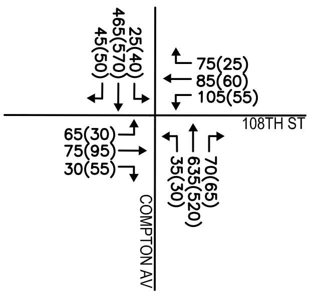
* - NEGLIGIBLE VOLUME

FIGURE 11D
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER 1 PROJECT PEAK HOUR TRAFFIC VOLUMES

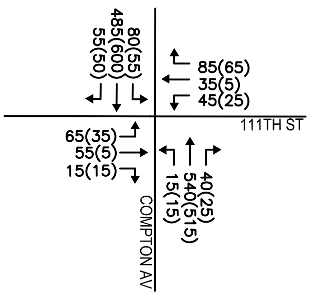
RAJU Associates, Inc.



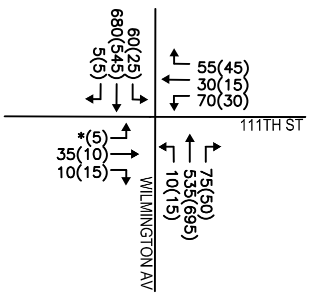
61. SLATER AV/EL SEGUNDO BL



62. COMPTON AV/108TH ST



63. COMPTON AV/111TH ST



64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 11E
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER 1 PROJECT PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

TABLE 11
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER 1 PROJECT CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR V/C	AM PEAK HOUR LOS	PM PEAK HOUR V/C	PM PEAK HOUR LOS
Los Angeles County					
52	Alameda Street/103rd Street [1]	0.781	C	0.847	D
55	Alameda Street/El Segundo Boulevard [2]	0.635	B	0.752	C
54	Alameda Street/Imperial Highway [1]*	0.754	C	0.841	D
11	Avalon Boulevard/El Segundo Boulevard	0.619	B	0.760	C
12	Avalon Boulevard/Rosecrans Avenue	0.611	B	0.726	C
4	Broadway/El Segundo Boulevard	0.500	A	0.550	A
19	Central Avenue/El Segundo Boulevard [2]	0.771	C	0.845	D
20	Central Avenue/Rosecrans Avenue [2]	0.792	C	0.919	E
26	Compton Avenue/118th Street	0.376	A	0.323	A
27	Compton Avenue/120th Street	0.576	A	0.492	A
28	Compton Avenue/124th Street	0.317	A	0.265	A
25	Compton Avenue/Imperial Highway [3]**	0.820	D	0.697	B
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	0.737	C	0.720	C
5	Main Street/El Segundo Boulevard	0.541	A	0.604	B
51	Mona Boulevard/El Segundo Boulevard	0.554	A	0.577	A
50	Mona Boulevard/Imperial Highway [1,3]**	0.642	B	0.703	C
7	San Pedro Street/El Segundo Boulevard	0.536	A	0.541	A
23	Success Avenue - Slater Avenue/120th Street	0.426	A	0.345	A
46	Willowbrook Avenue/119th Street	0.496	A	0.674	B
47	Willowbrook Avenue/El Segundo Boulevard	0.545	A	0.616	B
35	Wilmington Avenue/118th Street	0.700	B	0.695	B
36	Wilmington Avenue/120th Street-119th Street	0.741	C	0.736	C
38	Wilmington Avenue/124th Street	0.543	A	0.503	A
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.757	C	0.772	C
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	0.512	A	0.516	A
39	Wilmington Avenue/El Segundo Boulevard [2]	0.784	C	0.839	D
33	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.454	A	0.473	A

* Los Angeles County Congestion Management Program (CMP) monitoring location.
** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

As indicated in the Table 11, all 27 analyzed intersections in the morning peak hour and 26 analyzed intersections in the evening peak hour are projected to operate at LOS D or better. The remaining intersection, Central Avenue/Rosecrans Avenue, in the evening peak hour is projected to operate at LOS E. Overall, since Tier I Project result in the reduction of trips, all of the intersections would experience better operating conditions under Tier I Project conditions compared to without project conditions.

Capacity calculation worksheets for Existing Baseline with Ambient Growth (2014) plus Tier I Project conditions are attached in Appendix I of the report.

EXISTING BASELINE WITH AMBIENT GROWTH (2014) PLUS TIER I PROJECT AND RELATED PROJECTS/CUMULATIVE (2014) PLUS TIER I PROJECT TRAFFIC CONDITIONS

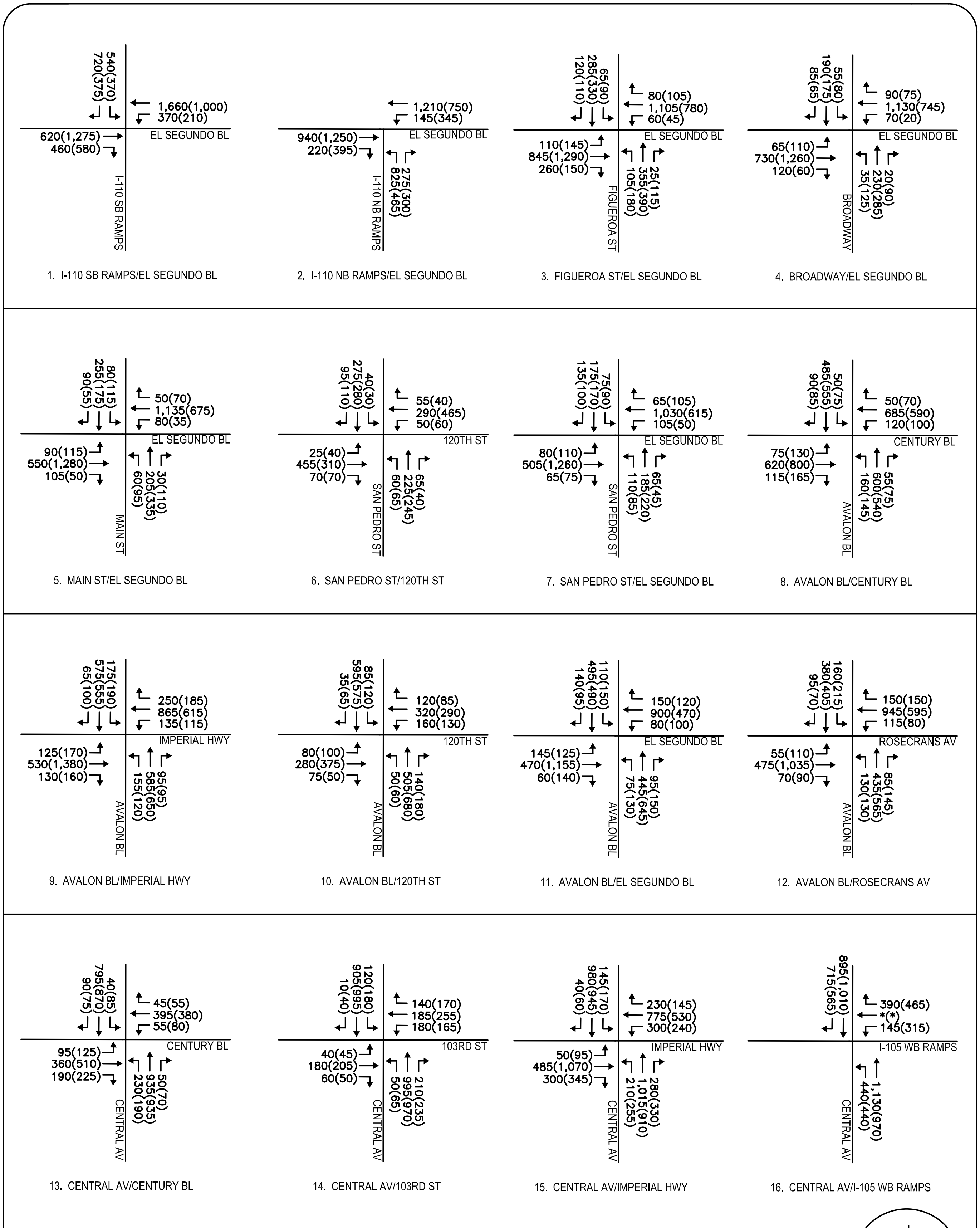
This section contains the evaluation of the Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects or Cumulative (2014) plus Tier I Project Traffic Conditions. The assessment of Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects Traffic Conditions involved the following tasks:

- Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects (same as Cumulative (2014) plus Tier I Project) Traffic projections at all study intersections.
- Analysis of Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects (same as Cumulative (2014) plus Tier I Project) Traffic Conditions at all study intersections.

A brief discussion of each of the tasks follows:

Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects (Cumulative (2014) plus Tier I Project) Traffic Projections

The Existing Baseline with Ambient Growth (2014) traffic forecasts were combined with the Tier I Project-only traffic volumes and related projects traffic volumes to obtain the Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects traffic volume forecasts. The Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Project (or Cumulative (2014) plus Tier I Project) traffic volumes during both A.M. and P.M. peak hours are presented in Figures 12A-12E.



1. I-110 SB RAMPS/EL SEGUNDO BL
2. I-110 NB RAMPS/EL SEGUNDO BL
3. FIGUEROA ST/EL SEGUNDO BL
4. BROADWAY/EL SEGUNDO BL
5. MAIN ST/EL SEGUNDO BL
6. SAN PEDRO ST/120TH ST
7. SAN PEDRO ST/EL SEGUNDO BL
8. AVALON BL/CENTURY BL
9. AVALON BL/IMPERIAL HWY
10. AVALON BL/120TH ST
11. AVALON BL/EL SEGUNDO BL
12. AVALON BL/ROSECRANS AV
13. CENTRAL AV/CENTURY BL
14. CENTRAL AV/103RD ST
15. CENTRAL AV/IMPERIAL HWY
16. CENTRAL AV/I-105 WB RAMPS

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 12A
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER I PROJECT AND RELATED PROJECTS (CUMULATIVE (2014) PLUS TIER I PROJECT) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

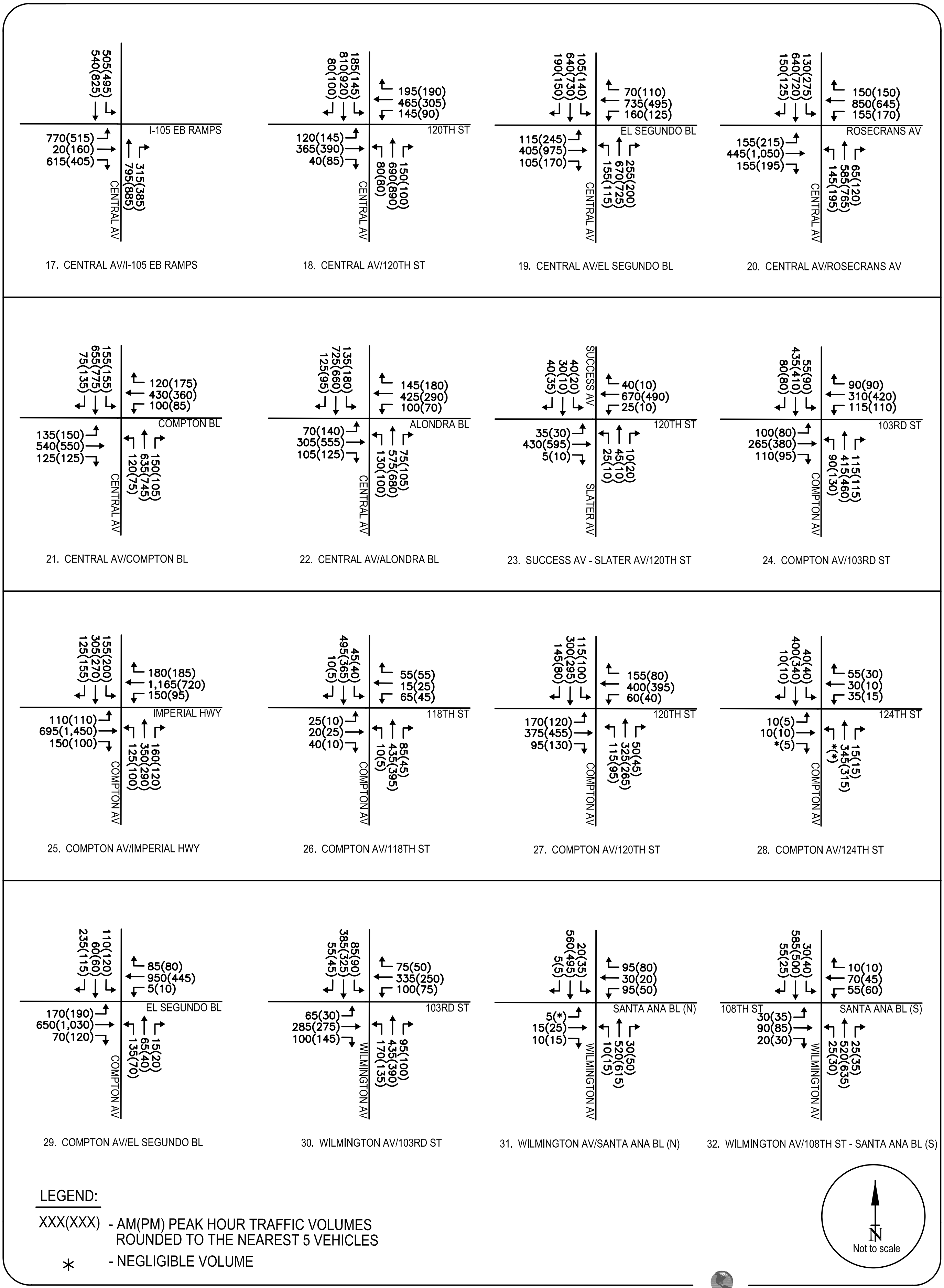
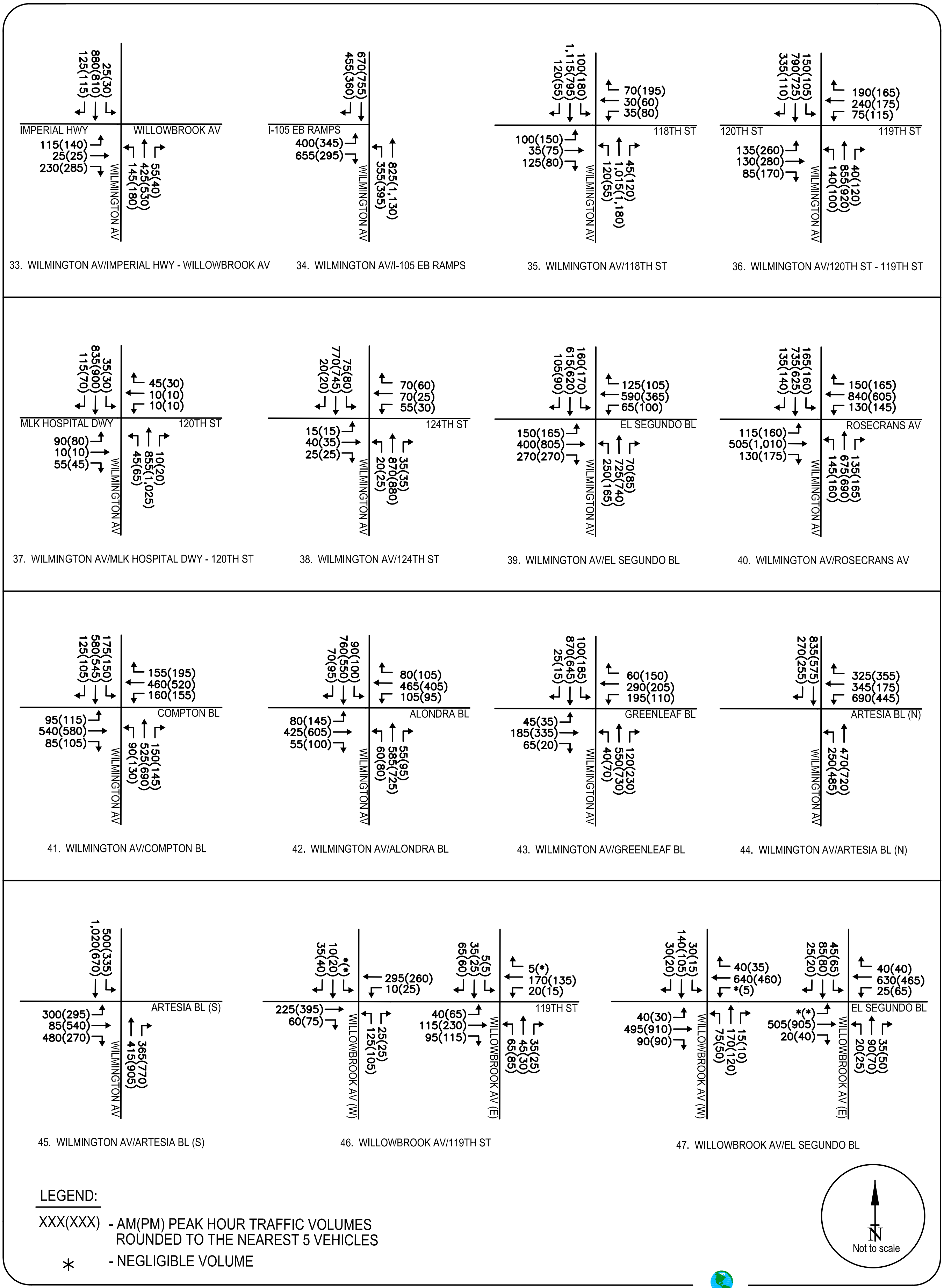


FIGURE 12B
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER I PROJECT AND RELATED PROJECTS (CUMULATIVE (2014) PLUS TIER I PROJECT) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV

34. WILMINGTON AV/I-105 EB RAMPS

35. WILMINGTON AV/118TH ST

36. WILMINGTON AV/120TH ST - 119TH ST

37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST

38. WILMINGTON AV/124TH ST

39. WILMINGTON AV/EL SEGUNDO BL

40. WILMINGTON AV/ROSECRANS AV

41. WILMINGTON AV/COMPTON BL

42. WILMINGTON AV/ALONDRA BL

43. WILMINGTON AV/GREENLEAF BL

44. WILMINGTON AV/ARTESIA BL (N)

45. WILMINGTON AV/ARTESIA BL (S)

46. WILLOWBROOK AV/119TH ST

47. WILLOWBROOK AV/EL SEGUNDO BL

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

FIGURE 12C
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER I PROJECT AND RELATED PROJECTS (CUMULATIVE (2014) PLUS TIER I PROJECT) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

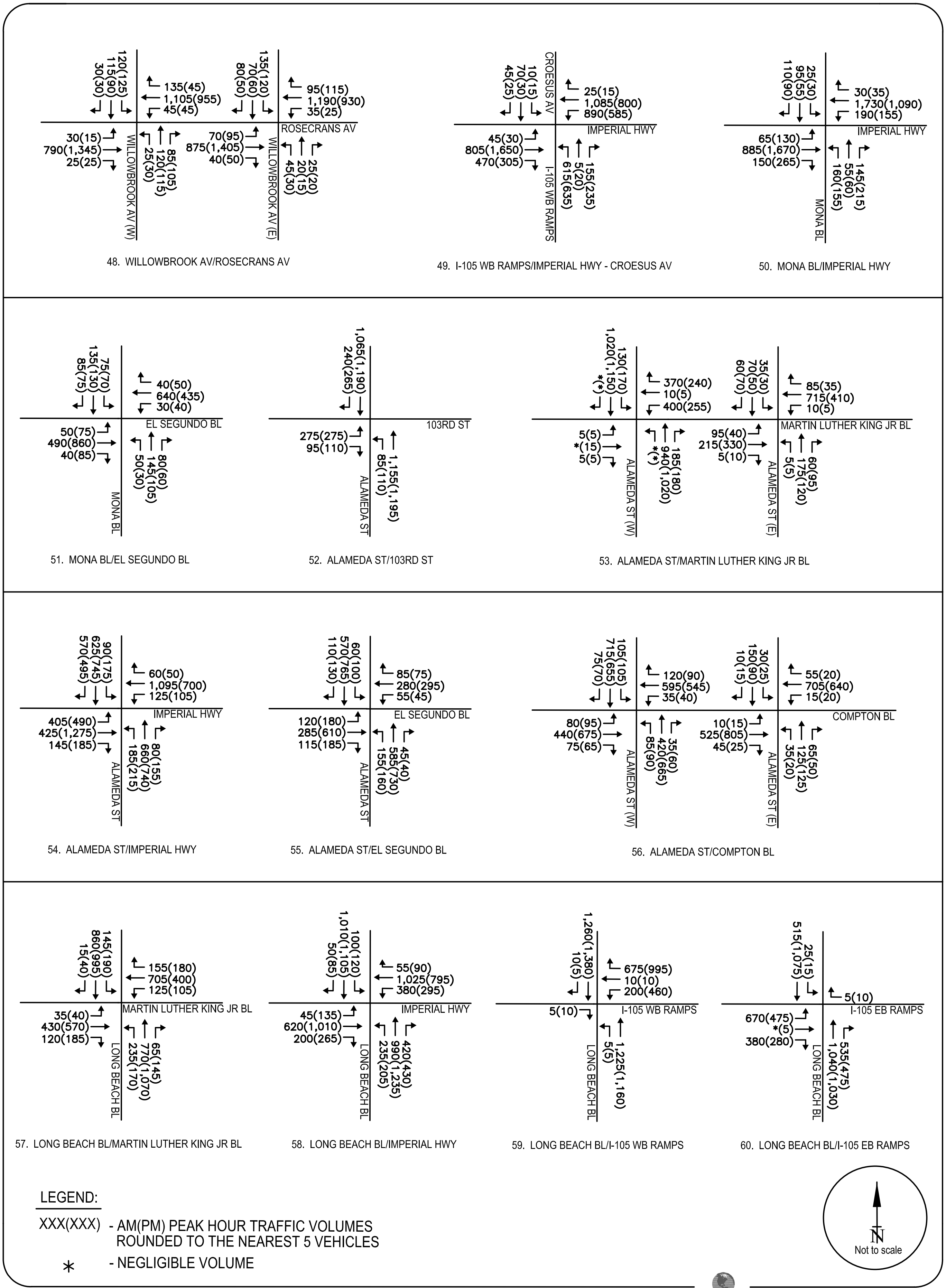


FIGURE 12D
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER I PROJECT AND RELATED PROJECTS (CUMULATIVE (2014) PLUS TIER I PROJECT) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

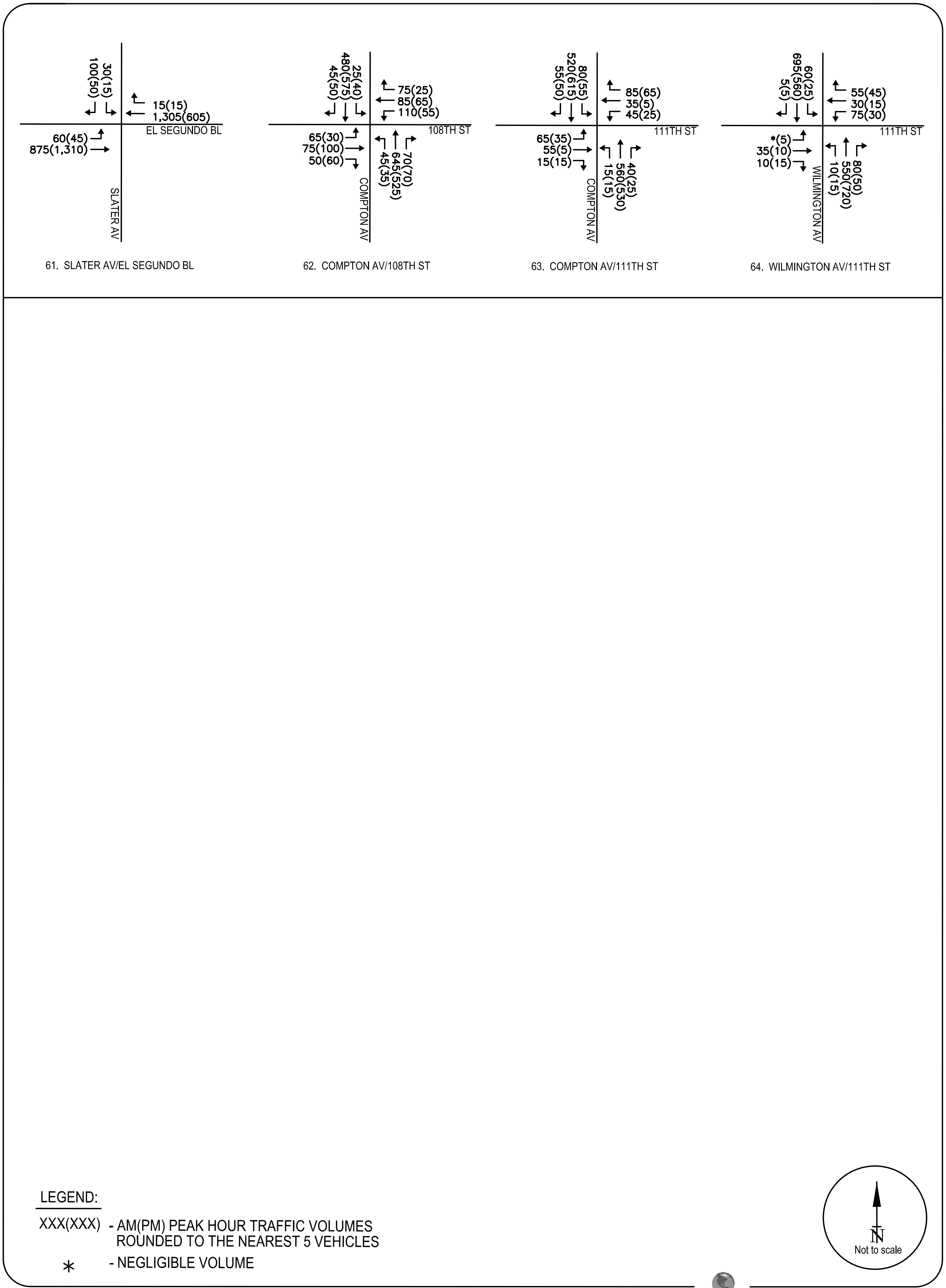


FIGURE 12E
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER I PROJECT AND RELATED PROJECTS (CUMULATIVE (2014) PLUS TIER I PROJECT) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects (Cumulative (2014) plus Tier I Project) Traffic Conditions

The Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects (or Cumulative (2014) plus Tier I Project) peak hour traffic volumes were analyzed at each of the study intersections to determine the V/C ratio and corresponding level of service.

Table 12 presents the results of the Future Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects traffic analysis. As indicated in the table, 63 of the 64 analyzed intersections in the morning peak hour are projected to operate at LOS D or better. The remaining intersection, Long Beach Boulevard/Imperial Highway, is projected to operate at LOS E.

During the evening peak hour, 62 of the 64 analyzed intersections are projected to operate at LOS D or better. The remaining intersections, Central Avenue/Rosecrans Avenue and Long Beach Boulevard/Imperial Highway, are projected to operate at LOS E and LOS F, respectively.

Capacity calculation worksheets for Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Projects conditions are attached in Appendix J of the report.

TRAFFIC IMPACT ANALYSIS – TIER I PROJECT

The Future Year 2014 conditions were analyzed utilizing the methodologies and assumptions per the County of Los Angeles, City of Los Angeles, and Los Angeles County CMP traffic study guidelines. The results were then used to assess the potential impact of the Proposed Tier I Project as well as the cumulative impacts including Tier I Project on the local street system.

County of Los Angeles Traffic Impact Analysis

This section includes the traffic impact analysis for the study intersection in the County of Los Angeles determined using the specified significant impact criteria included in County's traffic study guidelines. The traffic impact analysis compares the volume to capacity (V/C) ratios at each study location under the future base and future plus project conditions to determine the incremental difference in V/C ratios caused by the Proposed Tier I Project.

TABLE 12
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER I PROJECT AND RELATED PROJECT/ CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
		V/C	LOS	V/C	LOS
Los Angeles County					
52	Alameda Street/103rd Street [1]	0.795	C	0.865	D
55	Alameda Street/El Segundo Boulevard [2]	0.662	B	0.774	C
54	Alameda Street/Imperial Highway [1]*	0.765	C	0.858	D
11	Avalon Boulevard/El Segundo Boulevard	0.654	B	0.776	C
12	Avalon Boulevard/Rosecrans Avenue	0.623	B	0.739	C
4	Broadway/El Segundo Boulevard	0.507	A	0.557	A
19	Central Avenue/El Segundo Boulevard [2]	0.782	C	0.857	D
20	Central Avenue/Rosecrans Avenue [2]	0.799	C	0.929	E
26	Compton Avenue/118th Street	0.397	A	0.348	A
27	Compton Avenue/120th Street	0.589	A	0.502	A
28	Compton Avenue/124th Street	0.322	A	0.268	A
25	Compton Avenue/Imperial Highway [3]**	0.835	D	0.711	C
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	0.759	C	0.734	C
5	Main Street/El Segundo Boulevard	0.549	A	0.613	B
51	Mona Boulevard/El Segundo Boulevard	0.561	A	0.583	A
50	Mona Boulevard/Imperial Highway [1,3]**	0.650	B	0.710	C
7	San Pedro Street/El Segundo Boulevard	0.543	A	0.550	A
23	Success Avenue - Slater Avenue/120th Street	0.430	A	0.347	A
46	Willowbrook Avenue/119th Street	0.528	A	0.693	B
47	Willowbrook Avenue/El Segundo Boulevard	0.560	A	0.627	B
35	Wilmington Avenue/118th Street	0.744	C	0.736	C
36	Wilmington Avenue/120th Street-119th Street	0.757	C	0.758	C
38	Wilmington Avenue/124th Street	0.562	A	0.515	A
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.780	C	0.798	C
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	0.519	A	0.526	A
39	Wilmington Avenue/El Segundo Boulevard [2]	0.799	C	0.862	D
33	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.475	A	0.489	A
City of Compton					
56	Alameda Street/Compton Boulevard *	0.675	B	0.663	B
22	Central Avenue/Alondra Boulevard	0.668	B	0.717	C
21	Central Avenue/Compton Boulevard	0.702	C	0.726	C
29	Compton Avenue/El Segundo Boulevard	0.762	C	0.583	A
61	Slater Avenue/El Segundo Boulevard	0.576	A	0.518	A
48	Willowbrook Avenue/Rosecrans Avenue	0.765	C	0.804	D
42	Wilmington Avenue/Alondra Boulevard	0.616	B	0.698	B
41	Wilmington Avenue/Compton Boulevard	0.670	B	0.721	C
43	Wilmington Avenue/Greenleaf Boulevard	0.684	B	0.734	C
40	Wilmington Avenue/Rosecrans Avenue	0.844	D	0.873	D
44	Wilmington Avenue/Artesia Boulevard (N) [4]	0.802	D	0.800	C
45	Wilmington Avenue/Artesia Boulevard (S) [4]	0.718	C	0.753	C
City of Los Angeles					
10	Avalon Boulevard/120th Street**	0.578	A	0.689	B
8	Avalon Boulevard/Century Boulevard**	0.585	A	0.655	B
9	Avalon Boulevard/Imperial Highway**	0.634	B	0.744	C
14	Central Avenue/103rd Street**	0.711	C	0.781	C
18	Central Avenue/120th Street**	0.661	B	0.647	B
13	Central Avenue/Century Boulevard**	0.751	C	0.782	C
15	Central Avenue/Imperial Highway**	0.681	B	0.781	C
17	Central Avenue/I-105 Eastbound Ramps [4]**	0.674	B	0.621	B
16	Central Avenue/I-105 Westbound Ramps [4]**	0.723	C	0.686	B
24	Compton Avenue/103rd Street**	0.472	A	0.547	A

TABLE 12 (continued)
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS
EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) PLUS TIER I PROJECT AND RELATED PROJECT/ CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR V/C	AM PEAK HOUR LOS	PM PEAK HOUR V/C	PM PEAK HOUR LOS
62	Compton Avenue/108th Street**	0.699	B	0.592	A
63	Compton Avenue/111th Street**	0.579	A	0.540	A
3	Figueroa Street/El Segundo Boulevard	0.576	A	0.748	C
2	I-110 Northbound Ramps/El Segundo Boulevard [4]**	0.768	C	0.874	D
1	I-110 Southbound Ramps/El Segundo Boulevard [4]**	0.812	D	0.692	B
6	San Pedro Street/120th Street	0.621	B	0.615	B
30	Wilmington Avenue/103rd Street	0.641	B	0.528	A
64	Wilmington Avenue/111th Street	0.682	B	0.664	B
31	Wilmington Avenue/Santa Ana Boulevard (N)	0.601	B	0.631	B
32	Wilmington Avenue/Santa Ana Boulevard (S)	0.640	B	0.673	B
City of Lynwood					
53	Alameda Street/Martin Luther King Jr. Boulevard	0.782	C	0.719	C
58	Long Beach Boulevard/Imperial Highway	0.962	E	1.058	F
57	Long Beach Boulevard/Martin Luther King Jr. Boulevard	0.814	D	0.853	D
60	Long Beach Boulevard/I-105 Eastbound Ramps [4]	0.690	B	0.610	B
59	Long Beach Boulevard/I-105 Westbound Ramps [4]	0.493	A	0.685	B

* Los Angeles County Congestion Management Program (CMP) monitoring location.
** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

An additional analysis compares the future base and future plus project with related projects to determine the cumulative impacts. This provides the information needed to assess the potential Tier I Project impacts (and cumulative impacts) using significance criteria established by the County of Los Angeles.

Significant Traffic Impact Criteria. The County of Los Angeles Department of Public Works has established threshold criteria that determine if a project has a significant traffic impact at a specific intersection. According to the criteria provided by the County of Los Angeles, a project impact is considered significant if the following conditions are met:

Pre-Project Conditions		Project-Related Increase in V/C Ratio
LOS	V/C Ratio	
C	0.71 – 0.80	equal to or greater than 0.040
D	0.81 – 0.90	equal to or greater than 0.020
E, F	> 0.91	equal to or greater than 0.010

Using these criteria, for example, a project would not have a significant impact at an intersection if it is operating at LOS D after the addition of project traffic and the incremental change in the V/C ratio is less than 0.020. However, if the intersection is operating at a LOS F after the addition of project traffic and the incremental change in the V/C ratio is 0.010 or greater, the project would be considered to have a significant impact.

Tier I Project Impacts. Using the specified significant impact criteria, the traffic impacts at the 27 analysis locations in the County of Los Angeles were determined for Existing Baseline with Ambient Growth (2014) plus Tier I Project conditions. Table 13 summarizes the V/C ratio and corresponding level of service and identifies the individual impacts during both A.M. and P.M. peak hours at each of the analysis locations. It can be observed that none of the 27 analyzed intersections would be significantly impacted by the Proposed Tier I Project. Therefore, no mitigation measures would be required for the Proposed Tier I Project.

Cumulative Projects Impacts. Using the specified significant impact criteria, the traffic impacts at the 27 analysis locations in the County of Los Angeles were determined for cumulative conditions (i.e. Existing Baseline with Ambient Growth (2014) plus Tier I Project and Related Project conditions.

TABLE 13
TRAFFIC IMPACT ANALYSIS - FUTURE 2014 CONDITIONS
LOS ANGELES COUNTY LOCATIONS

Map #	INTERSECTION	Peak Hour	Existing (Baseline) + Ambient (2014) V/C	Existing (Baseline) + Ambient (2014) LOS	Existing (Baseline) + Ambient (2014) with Tier I Project V/C	Existing (Baseline) + Ambient (2014) with Tier I Project LOS	Project Increase in V/C	Significant Impact	Existing (Baseline) + Ambient (2014) with Tier I Project and Related Projects V/C	Existing (Baseline) + Ambient (2014) with Tier I Project and Related Projects LOS	Project Increase in V/C	Significant Impact
Los Angeles County												
52	Alameda Street/103rd Street [1]	AM	0.783	C	0.781	C	-0.002	No	0.795	C	0.012	No
		PM	0.850	D	0.847	D	-0.003	No	0.865	D	0.015	No
55	Alameda Street/El Segundo Boulevard [2]	AM	0.638	B	0.635	B	-0.003	No	0.662	B	0.024	No
		PM	0.753	C	0.752	C	-0.001	No	0.774	C	0.021	No
54	Alameda Street/Imperial Highway [1]*	AM	0.757	C	0.754	C	-0.003	No	0.765	C	0.008	No
		PM	0.842	D	0.841	D	-0.001	No	0.858	D	0.016	No
11	Avalon Boulevard/El Segundo Boulevard	AM	0.621	B	0.619	B	-0.002	No	0.654	B	0.033	No
		PM	0.762	C	0.760	C	-0.002	No	0.776	C	0.014	No
12	Avalon Boulevard/Rosecrans Avenue	AM	0.612	B	0.611	B	-0.001	No	0.623	B	0.011	No
		PM	0.727	C	0.726	C	-0.001	No	0.739	C	0.012	No
4	Broadway/El Segundo Boulevard	AM	0.501	A	0.500	A	-0.001	No	0.507	A	0.006	No
		PM	0.552	A	0.550	A	-0.002	No	0.557	A	0.005	No
19	Central Avenue/El Segundo Boulevard [2]	AM	0.775	C	0.771	C	-0.004	No	0.782	C	0.007	No
		PM	0.848	D	0.845	D	-0.003	No	0.857	D	0.009	No
20	Central Avenue/Rosecrans Avenue [2]	AM	0.793	C	0.792	C	-0.001	No	0.799	C	0.006	No
		PM	0.922	E	0.919	E	-0.003	No	0.929	E	0.007	No
26	Compton Avenue/118th Street	AM	0.378	A	0.376	A	-0.002	No	0.397	A	0.019	No
		PM	0.326	A	0.323	A	-0.003	No	0.348	A	0.022	No
27	Compton Avenue/120th Street	AM	0.591	A	0.576	A	-0.015	No	0.589	A	-0.002	No
		PM	0.512	A	0.492	A	-0.020	No	0.502	A	-0.010	No
28	Compton Avenue/124th Street	AM	0.319	A	0.317	A	-0.002	No	0.322	A	0.003	No
		PM	0.267	A	0.265	A	-0.002	No	0.268	A	0.001	No
25	Compton Avenue/Imperial Highway [3]**	AM	0.826	D	0.820	D	-0.006	No	0.835	D	0.009	No
		PM	0.702	C	0.697	B	-0.005	No	0.711	C	0.009	No

TABLE 13 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2014 CONDITIONS
LOS ANGELES COUNTY LOCATIONS

Map #	INTERSECTION	Peak Hour	Existing (Baseline) + Ambient (2014) V/C	Existing (Baseline) + Ambient (2014) LOS	Existing (Baseline) + Ambient (2014) with Tier I Project V/C	Existing (Baseline) + Ambient (2014) with Tier I Project LOS	Project Increase in V/C	Significant Impact	Existing (Baseline) + Ambient (2014) with Tier I Project and Related Projects V/C	Existing (Baseline) + Ambient (2014) with Tier I Project and Related Projects LOS	Project Increase in V/C	Significant Impact
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	AM	0.749	C	0.737	C	-0.012	No	0.759	C	0.010	No
		PM	0.728	C	0.720	C	-0.008	No	0.734	C	0.006	No
5	Main Street/El Segundo Boulevard	AM	0.542	A	0.541	A	-0.001	No	0.549	A	0.007	No
		PM	0.606	B	0.604	B	-0.002	No	0.613	B	0.007	No
51	Mona Boulevard/El Segundo Boulevard	AM	0.556	A	0.554	A	-0.002	No	0.561	A	0.005	No
		PM	0.579	A	0.577	A	-0.002	No	0.583	A	0.004	No
50	Mona Boulevard/Imperial Highway [1,3]**	AM	0.645	B	0.642	B	-0.003	No	0.650	B	0.005	No
		PM	0.705	C	0.703	C	-0.002	No	0.710	C	0.005	No
7	San Pedro Street/El Segundo Boulevard	AM	0.537	A	0.536	A	-0.001	No	0.543	A	0.006	No
		PM	0.542	A	0.541	A	-0.001	No	0.550	A	0.008	No
23	Success Avenue - Slater Avenue/120th Street	AM	0.437	A	0.426	A	-0.011	No	0.430	A	-0.007	No
		PM	0.359	A	0.345	A	-0.014	No	0.347	A	-0.012	No
46	Willowbrook Avenue/119th Street	AM	0.502	A	0.496	A	-0.006	No	0.528	A	0.026	No
		PM	0.677	B	0.674	B	-0.003	No	0.693	B	0.016	No
47	Willowbrook Avenue/El Segundo Boulevard	AM	0.548	A	0.545	A	-0.003	No	0.560	A	0.012	No
		PM	0.618	B	0.616	B	-0.002	No	0.627	B	0.009	No
35	Wilmington Avenue/118th Street	AM	0.722	C	0.700	B	-0.022	No	0.744	C	0.022	No
		PM	0.710	C	0.695	B	-0.015	No	0.736	C	0.026	No
36	Wilmington Avenue/120th Street-119th Street	AM	0.773	C	0.741	C	-0.032	No	0.757	C	-0.016	No
		PM	0.764	C	0.736	C	-0.028	No	0.758	C	-0.006	No
38	Wilmington Avenue/124th Street	AM	0.561	A	0.543	A	-0.018	No	0.562	A	0.001	No
		PM	0.519	A	0.503	A	-0.016	No	0.515	A	-0.004	No
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	AM	0.786	C	0.757	C	-0.029	No	0.780	C	-0.006	No
		PM	0.804	D	0.772	C	-0.032	No	0.798	C	-0.006	No
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	AM	0.573	A	0.512	A	-0.061	No	0.519	A	-0.054	No
		PM	0.571	A	0.516	A	-0.055	No	0.526	A	-0.045	No

TABLE 13 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2014 CONDITIONS
LOS ANGELES COUNTY LOCATIONS

Map #	INTERSECTION	Peak Hour	Existing (Baseline) + Ambient (2014) V/C	Existing (Baseline) + Ambient (2014) LOS	Existing (Baseline) + Ambient (2014) with Tier I Project V/C	Existing (Baseline) + Ambient (2014) with Tier I Project LOS	Project Increase in V/C	Significant Impact	Existing (Baseline) + Ambient (2014) with Tier I Project and Related Projects V/C	Existing (Baseline) + Ambient (2014) with Tier I Project and Related Projects LOS	Project Increase in V/C	Significant Impact
39	Wilmington Avenue/El Segundo Boulevard [2]	AM	0.791	C	0.784	C	-0.007	No	0.799	C	0.008	No
		PM	0.849	D	0.839	D	-0.010	No	0.862	D	0.013	No
33	Wilmington Avenue/Imperial Highway-Willowbrook Ave [3]**	AM	0.471	A	0.454	A	-0.017	No	0.475	A	0.004	No
		PM	0.487	A	0.473	A	-0.014	No	0.489	A	0.002	No

* Los Angeles County Congestion Management Program (CMP) monitoring location

** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10

[1] Shares jurisdiction with City of Lynwood

[2] Shares jurisdiction with City of Compton

[3] Shares jurisdiction with City of Los Angeles

[4] Shares jurisdiction with Caltrans.

Table 13 summarizes the V/C ratio and corresponding level of service and identifies the individual impacts during both A.M. and P.M. peak hours at each of the analysis locations. It can be observed that none of the 27 analyzed intersections would be significantly impacted by the effects of Proposed Tier I Project and related projects. Therefore, no mitigation measures would be required under cumulative conditions.

Other Jurisdictions Traffic Impact Analysis

This section includes the traffic impact analysis for the study intersections in the Cities of Compton and Lynwood determined by using the specified significant impact criteria included in the Los Angeles County Congestion Management Program (CMP) traffic study guidelines. Also included in this section is the traffic impact analysis for study intersections within the City of Los Angeles. City of Los Angeles significant impact criteria were utilized to assess significant impacts for these City of Los Angeles locations.

The traffic impact analysis compares the volume to capacity (V/C) ratios at each study location under the future base and future plus project conditions to determine the incremental difference in V/C ratios caused by the Proposed Tier I Project. This provides the information needed to assess the potential Tier I Project impacts at various locations in each of these jurisdictions using significance criteria acceptable in these jurisdictions.

City of Los Angeles Significant Traffic Impact Criteria. The City of Los Angeles Department of Transportation (LADOT) has established threshold criteria that determine if a project has a significant traffic impact at a specific intersection. According to the criteria provided by the City of Los Angeles, a project impact is considered significant if the following conditions are met:

Intersection Condition With Project Traffic		Project-Related Increase in V/C Ratio
LOS	V/C Ratio	
C	0.701 – 0.800	equal to or greater than 0.040
D	0.801 – 0.900	equal to or greater than 0.020
E, F	> 0.901	equal to or greater than 0.010

Using these criteria, for example, a project would not have a significant impact at an intersection if it is operating at LOS C after the addition of project traffic and the incremental change in the V/C ratio is less than 0.040. However, if the intersection is operating at a LOS F after the addition of project traffic and the incremental change in the V/C ratio is 0.010 or greater, the project would be considered to have a significant impact.

Los Angeles County Congestion Management Program Significant Traffic Impact Criteria. The Cities of Compton and Lynwood locations have been evaluated based on the criteria from the Los Angeles County Congestion Management Program (CMP) to determine if a project has a significant traffic impact at a specific intersection. A project impact is considered significant if the following conditions are met:

Intersection Condition With Project Traffic		Project-Related Increase in V/C Ratio
LOS	V/C Ratio	
F	> 1.000	equal to or greater than 0.020

Using these criteria, for example, a project would not have a significant impact at an intersection if it is operating at LOS C after the addition of project traffic and the incremental change in the V/C ratio is less than 0.040. However, if the intersection is operating at a LOS F after the addition of project traffic and the incremental change in the V/C ratio is 0.020 or greater, the project would be considered to have a significant impact.

Tier I Project Impacts. Using the specified significant impact criteria, the traffic impacts at the 37 analysis locations in the Cities of Los Angeles, Compton and Lynwood were determined for Cumulative (2014) plus Tier Project conditions. Table 14 summarizes the V/C ratio and corresponding level of service and identifies the individual impacts during both A.M. and P.M. peak hours at each of the analysis locations. It can be observed that none of the 37 analyzed intersections would be significantly impacted by the Proposed Tier I Project. Therefore, no mitigation measures would be required for the Proposed Tier I Project.

TABLE 14
TRAFFIC IMPACT ANALYSIS - FUTURE 2014 CONDITIONS
OTHER JURISDICTIONS

Map #	INTERSECTION	Peak Hour	Cumulative (2014) Base Conditions V/C	Cumulative (2014) Base Conditions LOS	Cumulative (2014) Plus Tier I Project V/C	Cumulative (2014) Plus Tier I Project LOS	Project Increase in V/C	Significant Impact
City of Compton [1]								
56	Alameda Street/Compton Boulevard *	AM	0.675	B	0.675	B	0.000	No
		PM	0.664	B	0.663	B	-0.001	No
22	Central Avenue/Alondra Boulevard	AM	0.668	B	0.668	B	0.000	No
		PM	0.717	C	0.717	C	0.000	No
21	Central Avenue/Compton Boulevard	AM	0.703	C	0.702	C	-0.001	No
		PM	0.727	C	0.726	C	-0.001	No
29	Compton Avenue/El Segundo Boulevard	AM	0.765	C	0.762	C	-0.003	No
		PM	0.586	A	0.583	A	-0.003	No
61	Slater Avenue/El Segundo Boulevard	AM	0.577	A	0.576	A	-0.001	No
		PM	0.519	A	0.518	A	-0.001	No
48	Willowbrook Avenue/Rosecrans Avenue	AM	0.767	C	0.765	C	-0.002	No
		PM	0.806	D	0.804	D	-0.002	No
42	Wilmington Avenue/Alondra Boulevard	AM	0.618	B	0.616	B	-0.002	No
		PM	0.701	C	0.698	B	-0.003	No
41	Wilmington Avenue/Compton Boulevard	AM	0.673	B	0.670	B	-0.003	No
		PM	0.723	C	0.721	C	-0.002	No
43	Wilmington Avenue/Greenleaf Boulevard	AM	0.686	B	0.684	B	-0.002	No
		PM	0.735	C	0.734	C	-0.001	No

TABLE 14 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2014 CONDITIONS
OTHER JURISDICTIONS

Map #	INTERSECTION	Peak Hour	Cumulative (2014) Base Conditions V/C	Cumulative (2014) Base Conditions LOS	Cumulative (2014) Plus Tier I Project V/C	Cumulative (2014) Plus Tier I Project LOS	Project Increase in V/C	Significant Impact
40	Wilmington Avenue/Rosecrans Avenue	AM	0.850	D	0.844	D	-0.006	No
		PM	0.879	D	0.873	D	-0.006	No
44	Wilmington Avenue/Artesia Boulevard (N) [2]	AM	0.804	D	0.802	D	-0.002	No
		PM	0.802	D	0.800	C	-0.002	No
45	Wilmington Avenue/Artesia Boulevard (S) [2]	AM	0.718	C	0.718	C	0.000	No
		PM	0.754	C	0.753	C	-0.001	No
	City of Los Angeles [3]							
10	Avalon Boulevard/120th Street**	AM	0.588	A	0.578	A	-0.010	No
		PM	0.697	B	0.689	B	-0.008	No
8	Avalon Boulevard/Century Boulevard**	AM	0.585	A	0.585	A	0.000	No
		PM	0.655	B	0.655	B	0.000	No
9	Avalon Boulevard/Imperial Highway**	AM	0.635	B	0.634	B	-0.001	No
		PM	0.745	C	0.744	C	-0.001	No
14	Central Avenue/103rd Street**	AM	0.711	C	0.711	C	0.000	No
		PM	0.782	C	0.781	C	-0.001	No
18	Central Avenue/120th Street**	AM	0.686	B	0.661	B	-0.025	No
		PM	0.672	B	0.647	B	-0.025	No

TABLE 14 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2014 CONDITIONS
OTHER JURISDICTIONS

			Cumulative (2014) Base Conditions		Cumulative (2014) Plus Tier I Project		Project	
Map #	INTERSECTION	Peak Hour	V/C	LOS	V/C	LOS	Increase in V/C	Significant Impact
13	Central Avenue/Century Boulevard**	AM	0.752	C	0.751	C	-0.001	No
		PM	0.783	C	0.782	C	-0.001	No
15	Central Avenue/Imperial Highway**	AM	0.685	B	0.681	B	-0.004	No
		PM	0.783	C	0.781	C	-0.002	No
17	Central Avenue/I-105 Eastbound Ramps [2]**	AM	0.679	B	0.674	B	-0.005	No
		PM	0.626	B	0.621	B	-0.005	No
16	Central Avenue/I-105 Westbound Ramps [2]**	AM	0.726	C	0.723	C	-0.003	No
		PM	0.690	B	0.686	B	-0.004	No
24	Compton Avenue/103rd Street**	AM	0.473	A	0.472	A	-0.001	No
		PM	0.547	A	0.547	A	0.000	No
62	Compton Avenue/108th Street**	AM	0.701	C	0.699	B	-0.002	No
		PM	0.595	A	0.592	A	-0.003	No
63	Compton Avenue/111th Street**	AM	0.581	A	0.579	A	-0.002	No
		PM	0.543	A	0.540	A	-0.003	No
3	Figueroa Street/El Segundo Boulevard	AM	0.577	A	0.576	A	-0.001	No
		PM	0.749	C	0.748	C	-0.001	No
2	I-110 Northbound Ramps/El Segundo Boulevard [2]**	AM	0.770	C	0.768	C	-0.002	No
		PM	0.877	D	0.874	D	-0.003	No

TABLE 14 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2014 CONDITIONS
OTHER JURISDICTIONS

Map #	INTERSECTION	Peak Hour	Cumulative (2014) Base Conditions V/C	Cumulative (2014) Base Conditions LOS	Cumulative (2014) Plus Tier I Project V/C	Cumulative (2014) Plus Tier I Project LOS	Project Increase in V/C	Significant Impact
1	I-110 Southbound Ramps/El Segundo Boulevard [2]**	AM	0.813	D	0.812	D	-0.001	No
		PM	0.694	B	0.692	B	-0.002	No
6	San Pedro Street/120th Street	AM	0.624	B	0.621	B	-0.003	No
		PM	0.617	B	0.615	B	-0.002	No
30	Wilmington Avenue/103rd Street	AM	0.641	B	0.641	B	0.000	No
		PM	0.530	A	0.528	A	-0.002	No
64	Wilmington Avenue/111th Street	AM	0.688	B	0.682	B	-0.006	No
		PM	0.670	B	0.664	B	-0.006	No
31	Wilmington Avenue/Santa Ana Boulevard (N)	AM	0.606	B	0.601	B	-0.005	No
		PM	0.634	B	0.631	B	-0.003	No
32	Wilmington Avenue/Santa Ana Boulevard (S)	AM	0.645	B	0.640	B	-0.005	No
		PM	0.676	B	0.673	B	-0.003	No
City of Lynwood [1]								
53	Alameda Street/Martin Luther King Jr. Boulevard	AM	0.783	C	0.782	C	-0.001	No
		PM	0.723	C	0.719	C	-0.004	No
58	Long Beach Boulevard/Imperial Highway	AM	0.964	E	0.962	E	-0.002	No
		PM	1.060	F	1.058	F	-0.002	No
57	Long Beach Boulevard/Martin Luther King Jr. Boulevard	AM	0.814	D	0.814	D	0.000	No
		PM	0.854	D	0.853	D	-0.001	No

TABLE 14 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2014 CONDITIONS
OTHER JURISDICTIONS

Map #	INTERSECTION	Peak Hour	Cumulative (2014) Base Conditions V/C	Cumulative (2014) Base Conditions LOS	Cumulative (2014) Plus Tier I Project V/C	Cumulative (2014) Plus Tier I Project LOS	Project Increase in V/C	Significant Impact
60	Long Beach Boulevard/I-105 Eastbound Ramps [2]	AM	0.690	B	0.690	B	0.000	No
		PM	0.610	B	0.610	B	0.000	No
59	Long Beach Boulevard/I-105 Westbound Ramps [2]	AM	0.493	A	0.493	A	0.000	No
		PM	0.685	B	0.685	B	0.000	No

* Los Angeles County Congestion Management Program (CMP) monitoring location.

** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.

[1] Determination of significant impacts based on Los Angeles County Congestion Management Program (CMP) significant impact criteria.

[2] Shares jurisdiction with Caltrans.

[3] Determination of significant impacts based on City of Los Angeles significant impact criteria.

IV. FUTURE YEAR 2020 TRAFFIC CONDITIONS – TIER II ANALYSIS

This Chapter provides details of the development of travel forecasts for future year 2020 conditions and describes the findings of the analysis of the transportation system within the Study Area with the Tier II development of the Project under the assumptions and methodologies required by County of Los Angles, and Cities of Los Angeles, Compton and Lynwood. This results in the assessment of a conservative set of conditions based on the projections and assumptions outlined in this study. The planning horizon for these analyses is the year 2020 corresponding with the buildout year of the Proposed Tier II Project.

EXISTING BASELINE WITH AMBIENT GROWTH (2020) TRAFFIC CONDITIONS

This section contains the evaluation of the Existing Baseline with Ambient Growth (2020) Traffic Conditions. The assessment of Existing Baseline with Ambient Growth (2020) Traffic Conditions involved the following tasks:

- Existing Baseline with Ambient Growth (2020) Traffic projections at all study intersections
- Analysis of Existing Baseline with Ambient Growth (2020) Traffic Conditions at study intersections located in the County of Los Angeles

A brief discussion of each of the tasks follows:

Existing Baseline with Ambient Growth (2020) Traffic Projections

The Existing Baseline with Ambient Growth (2020) traffic projections reflect growth in traffic from two primary sources: Firstly, the background, or ambient growth, to reflect the effects of overall area-wide regional growth both within and outside the study area; and secondly, from traffic generated by existing “entitled” site trips that are currently not accounted for on the existing street system since the existing site is not currently fully operational. Each of these components was described earlier in Chapter III.

The traffic in the vicinity of the study area has been estimated to increase at a rate of about 0.72% per year. This growth rate was obtained from the 2004 Congestion Management Program (CMP) for Los Angeles County. Future increases in background traffic volumes due to regional growth and development are expected to continue at this rate. With the assumed completion date of 2020, the existing 2010 traffic volumes were adjusted upward by a factor of 7.2% to reflect this area-wide regional growth.

The existing “baseline” peak hour trips which are included in Appendix E and are added to the existing with ambient growth peak hour traffic volumes. The resulting Existing Baseline with Ambient Growth (2020) traffic volumes are illustrated in Figure 13A-13E.

Existing Baseline with Ambient Growth (2020) Traffic Conditions

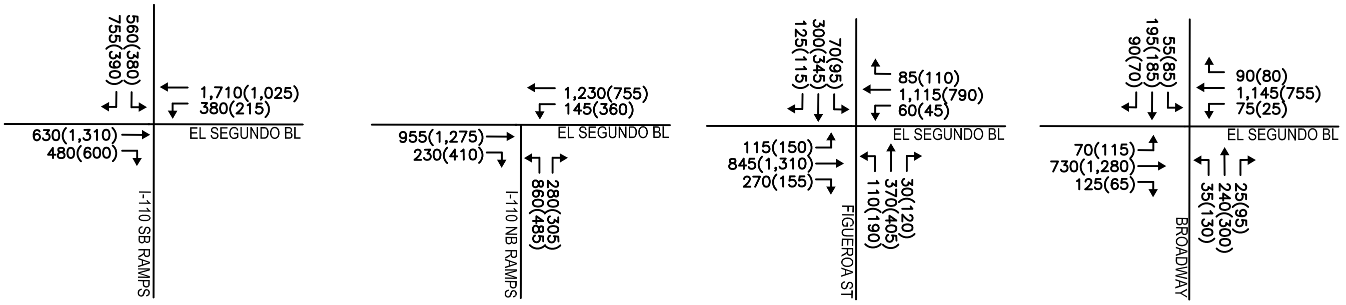
The Existing Baseline with Ambient Growth (2020) without proposed project peak hour traffic volumes were analyzed at each of the County of Los Angeles study intersections to determine the V/C ratio and corresponding level of service. Table 15 presents the results of the Future Existing Baseline with Ambient Growth (2020) (without project) traffic analysis.

As indicated in the Table 15, all 27 analyzed intersections in the morning peak hour and 26 analyzed intersections in the evening peak hour are projected to operate at LOS D or better. The remaining intersection, Central Avenue/Rosecrans Avenue, in the evening peak hour is projected to operate at LOS E.

Capacity calculation worksheets for Existing Baseline with Ambient Growth (2020) conditions are attached in Appendix K of the report.

RELATED PROJECTS TRAFFIC GENERATION AND ASSIGNMENT

Forty-one related projects from the County of Los Angeles and Cities of Los Angeles, Compton, Lynwood and South Gate were identified within the study area under 2020 conditions. The related projects are described in Table 16. The locations of these related projects are shown in Figure 14.

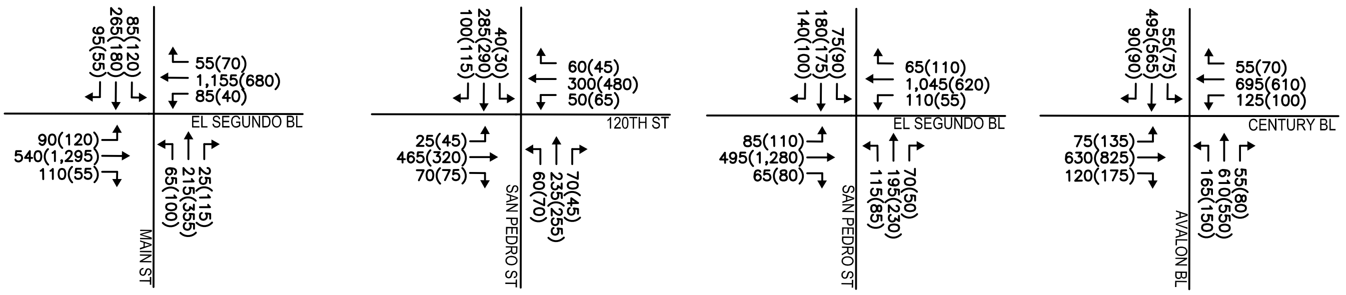


1. I-110 SB RAMPS/EL SEGUNDO BL

2. I-110 NB RAMPS/EL SEGUNDO BL

3. FIGUEROA ST/EL SEGUNDO BL

4. BROADWAY/EL SEGUNDO BL

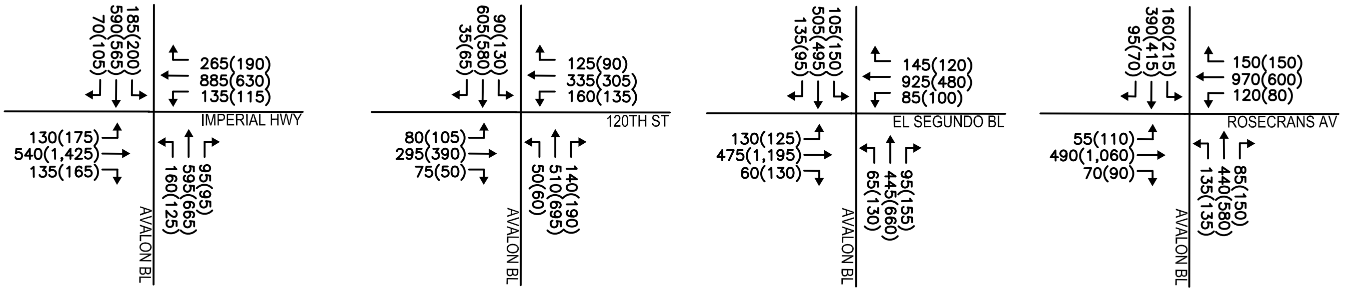


5. MAIN ST/EL SEGUNDO BL

6. SAN PEDRO ST/120TH ST

7. SAN PEDRO ST/EL SEGUNDO BL

8. AVALON BL/CENTURY BL

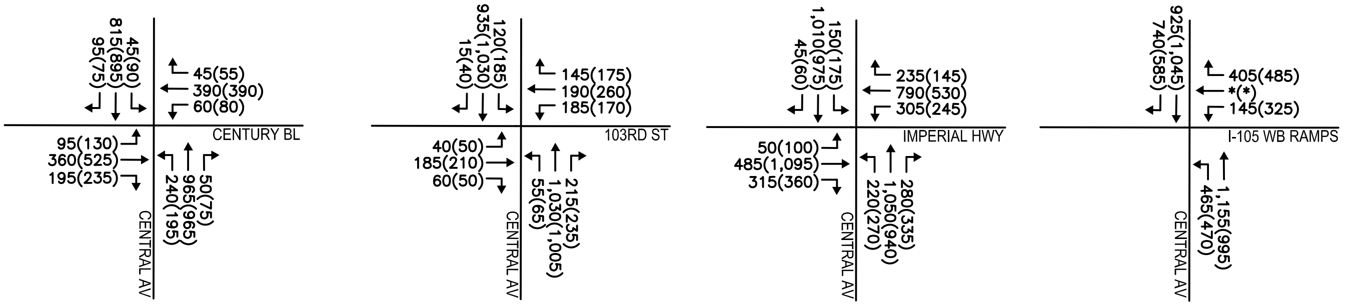


9. AVALON BL/IMPERIAL HWY

10. AVALON BL/120TH ST

11. AVALON BL/EL SEGUNDO BL

12. AVALON BL/ROSECRANS AV



13. CENTRAL AV/CENTURY BL

14. CENTRAL AV/103RD ST

15. CENTRAL AV/IMPERIAL HWY

16. CENTRAL AV/I-105 WB RAMPS

LEGEND:

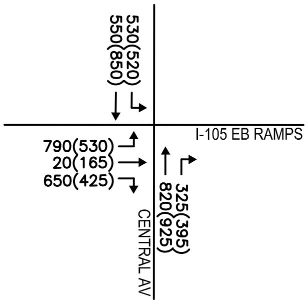
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

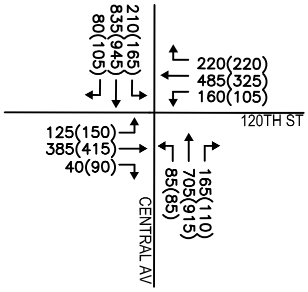
N
Not to scale

FIGURE 13A
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020)
PEAK HOUR TRAFFIC VOLUMES

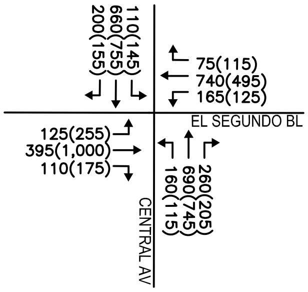
RAJU Associates, Inc.



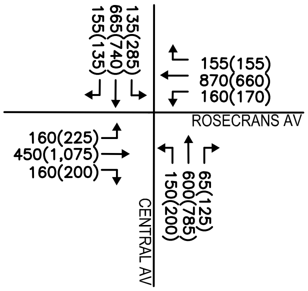
17. CENTRAL AV/I-105 EB RAMPS



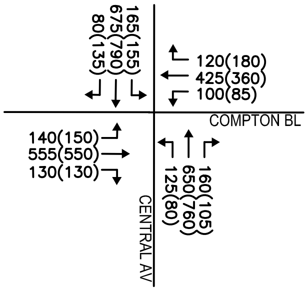
18. CENTRAL AV/120TH ST



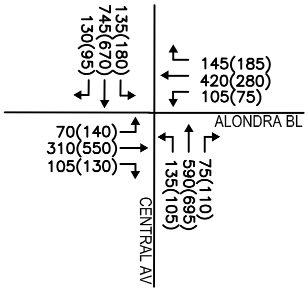
19. CENTRAL AV/EL SEGUNDO BL



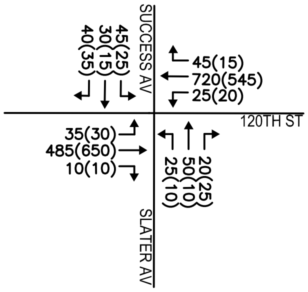
20. CENTRAL AV/ROSECRANS AV



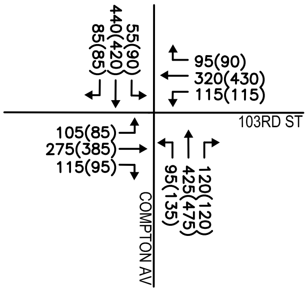
21. CENTRAL AV/COMPTON BL



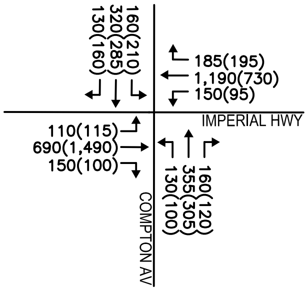
22. CENTRAL AV/ALONDRA BL



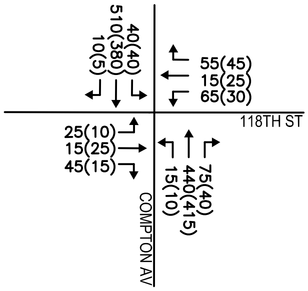
23. SUCCESS AV - SLATER AV/120TH ST



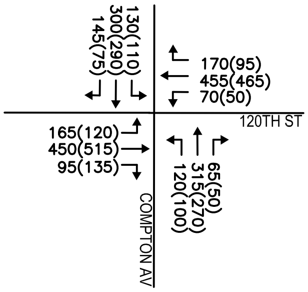
24. COMPTON AV/103RD ST



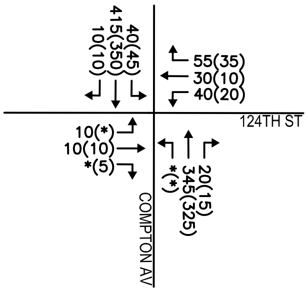
25. COMPTON AV/IMPERIAL HWY



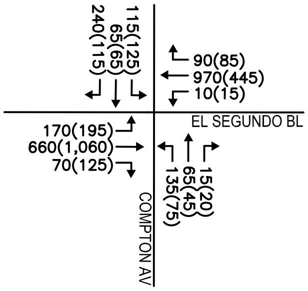
26. COMPTON AV/118TH ST



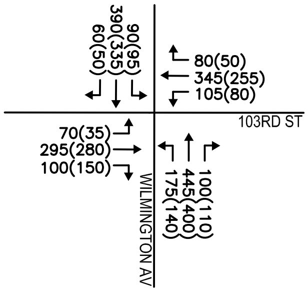
27. COMPTON AV/120TH ST



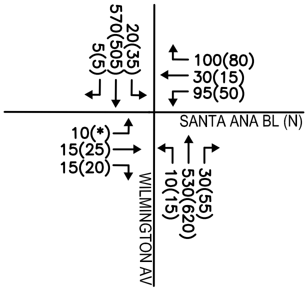
28. COMPTON AV/124TH ST



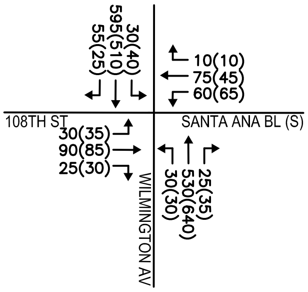
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

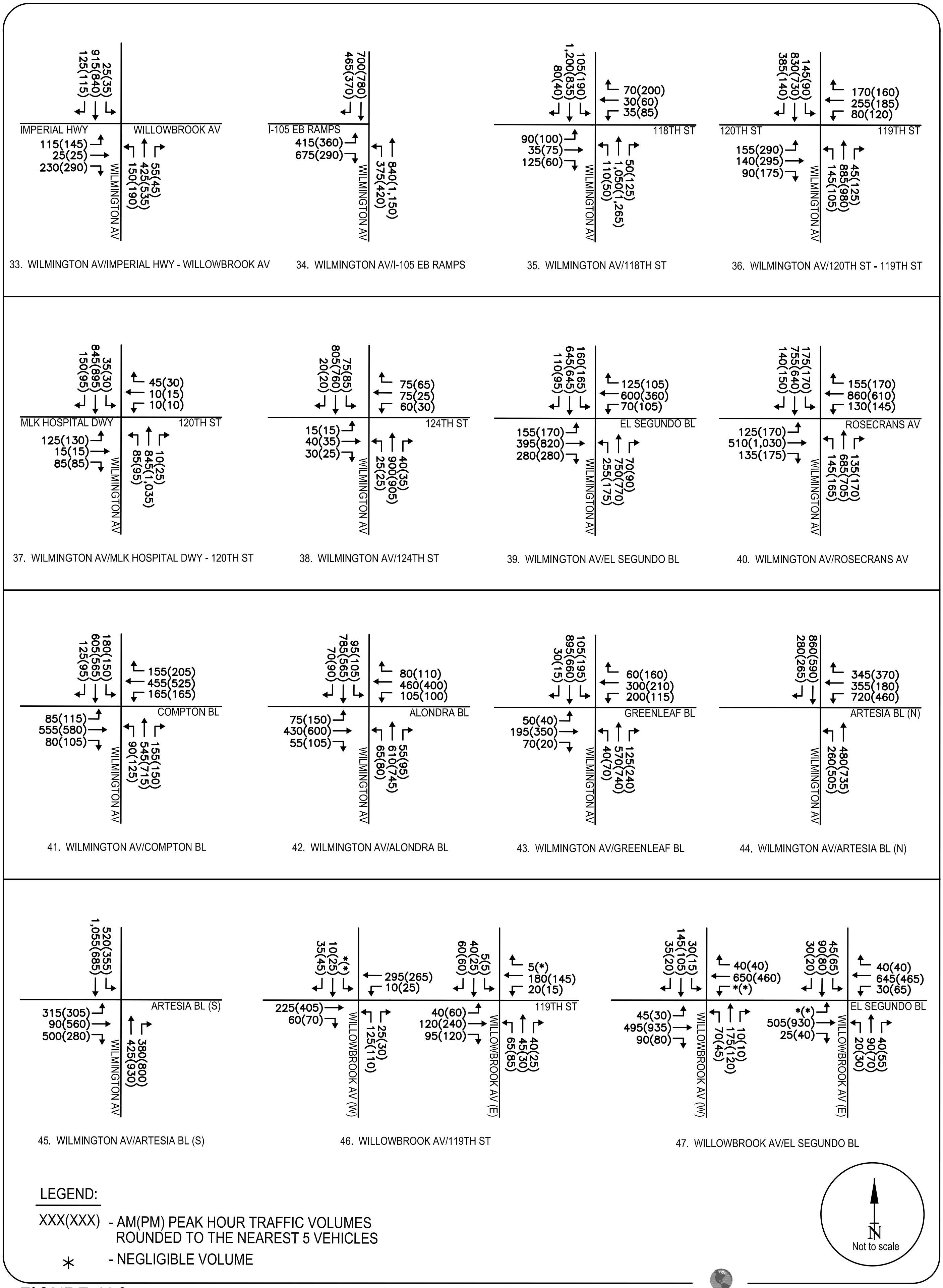
* - NEGLIGIBLE VOLUME

N

Not to scale

FIGURE 13B
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020)
PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV

34. WILMINGTON AV/I-105 EB RAMPS

35. WILMINGTON AV/118TH ST

36. WILMINGTON AV/120TH ST - 119TH ST

37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST

38. WILMINGTON AV/124TH ST

39. WILMINGTON AV/EL SEGUNDO BL

40. WILMINGTON AV/ROSECRANS AV

41. WILMINGTON AV/COMPTON BL

42. WILMINGTON AV/ALONDRA BL

43. WILMINGTON AV/GREENLEAF BL

44. WILMINGTON AV/ARTESIA BL (N)

45. WILMINGTON AV/ARTESIA BL (S)

46. WILLOWBROOK AV/119TH ST

47. WILLOWBROOK AV/EL SEGUNDO BL

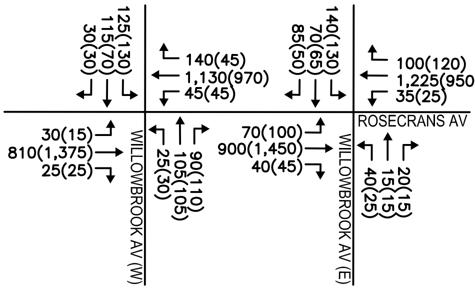
LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

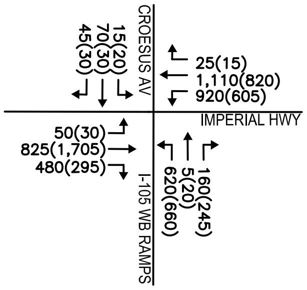
* - NEGLIGIBLE VOLUME

FIGURE 13C
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020)
PEAK HOUR TRAFFIC VOLUMES

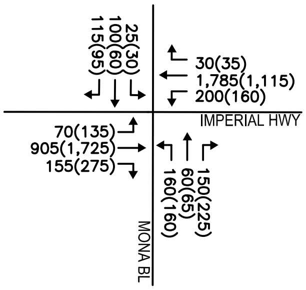
RAJU Associates, Inc.



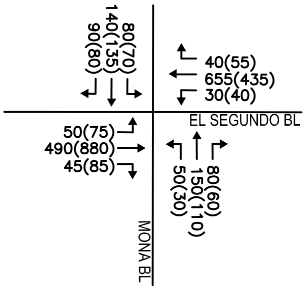
48. WILLOWBROOK AV/ROSECRANS AV



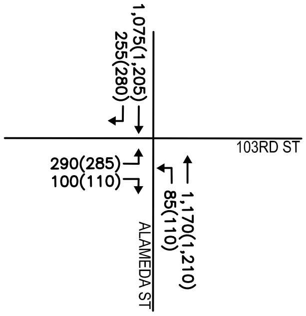
49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV



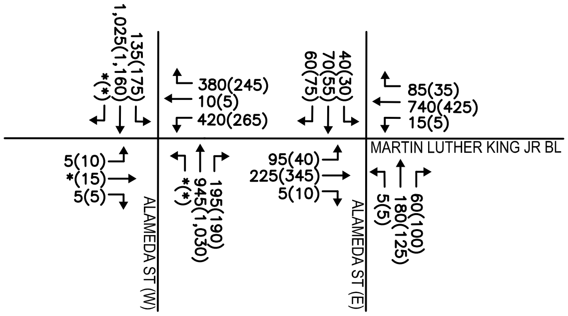
50. MONA BL/IMPERIAL HWY



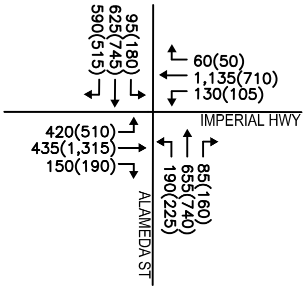
51. MONA BL/EL SEGUNDO BL



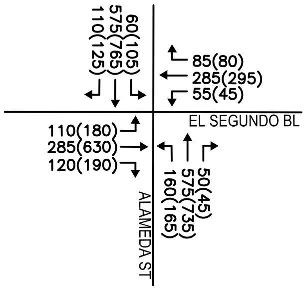
52. ALAMEDA ST/103RD ST



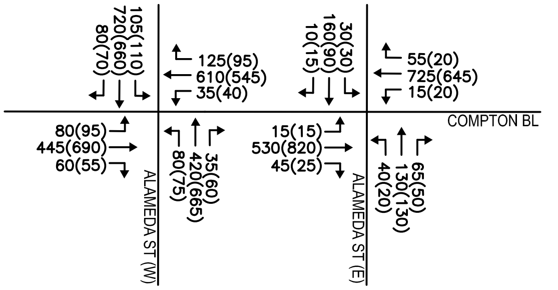
53. ALAMEDA ST/MARTIN LUTHER KING JR BL



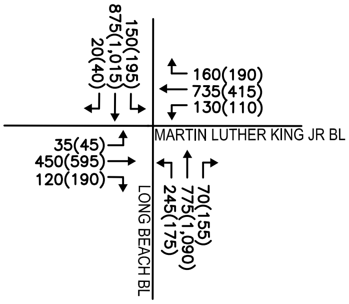
54. ALAMEDA ST/IMPERIAL HWY



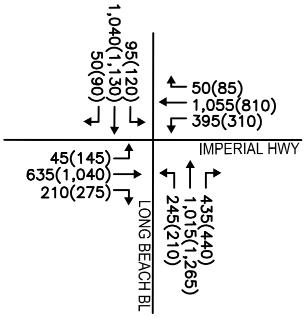
55. ALAMEDA ST/EL SEGUNDO BL



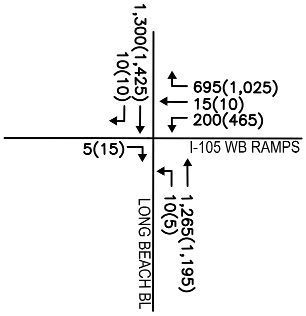
56. ALAMEDA ST/COMPTON BL



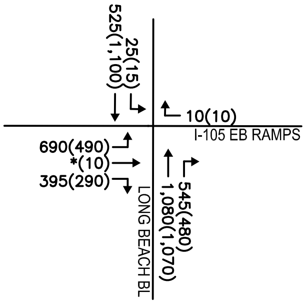
57. LONG BEACH BL/MARTIN LUTHER KING JR BL



58. LONG BEACH BL/IMPERIAL HWY



59. LONG BEACH BL/I-105 WB RAMPS



60. LONG BEACH BL/I-105 EB RAMPS

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

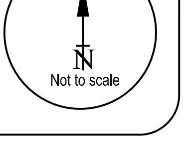
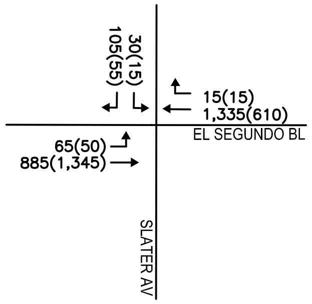
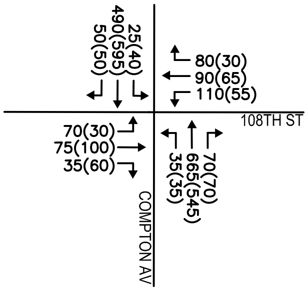


FIGURE 13D
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020)
PEAK HOUR TRAFFIC VOLUMES

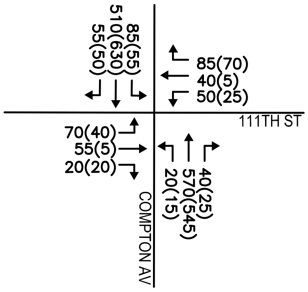
RAJU Associates, Inc.



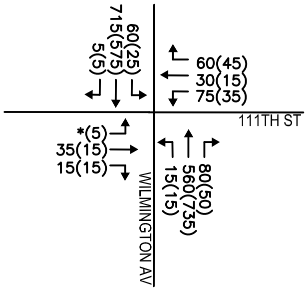
61. SLATER AV/EL SEGUNDO BL



62. COMPTON AV/108TH ST



63. COMPTON AV/111TH ST



64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

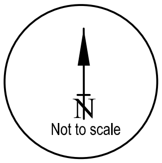


FIGURE 13E
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020)
PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

TABLE 15
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR V/C	AM PEAK HOUR LOS	PM PEAK HOUR V/C	PM PEAK HOUR LOS
Los Angeles County					
52	Alameda Street/103rd Street [1]	0.812	D	0.880	D
55	Alameda Street/El Segundo Boulevard [2]	0.661	B	0.781	C
54	Alameda Street/Imperial Highway [1]*	0.785	C	0.872	D
11	Avalon Boulevard/El Segundo Boulevard	0.642	B	0.788	C
12	Avalon Boulevard/Rosecrans Avenue	0.634	B	0.753	C
4	Broadway/El Segundo Boulevard	0.520	A	0.569	A
19	Central Avenue/El Segundo Boulevard [2]	0.803	D	0.879	D
20	Central Avenue/Rosecrans Avenue [2]	0.824	D	0.956	E
26	Compton Avenue/118th Street	0.391	A	0.336	A
27	Compton Avenue/120th Street	0.610	B	0.527	A
28	Compton Avenue/124th Street	0.330	A	0.274	A
25	Compton Avenue/Imperial Highway [3]**	0.860	D	0.731	C
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	0.779	C	0.759	C
5	Main Street/El Segundo Boulevard	0.561	A	0.628	B
51	Mona Boulevard/El Segundo Boulevard	0.574	A	0.599	A
50	Mona Boulevard/Imperial Highway [1,3]**	0.673	B	0.734	C
7	San Pedro Street/El Segundo Boulevard	0.554	A	0.563	A
23	Success Avenue - Slater Avenue/120th Street	0.452	A	0.367	A
46	Willowbrook Avenue/119th Street	0.519	A	0.699	B
47	Willowbrook Avenue/El Segundo Boulevard	0.567	A	0.641	B
35	Wilmington Avenue/118th Street	0.746	C	0.735	C
36	Wilmington Avenue/120th Street-119th Street	0.800	C	0.792	C
38	Wilmington Avenue/124th Street	0.581	A	0.533	A
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.812	D	0.830	D
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	0.585	A	0.583	A
39	Wilmington Avenue/El Segundo Boulevard [2]	0.819	D	0.879	D
33	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.492	A	0.506	A

* Los Angeles County Congestion Management Program (CMP) monitoring location.

** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.

[1] Shares jurisdiction with City of Lynwood.

[2] Shares jurisdiction with City of Compton.

[3] Shares jurisdiction with City of Los Angeles.

[4] Shares jurisdiction with Caltrans.

TABLE 16
ESTIMATED WEEKDAY TRIP GENERATION OF RELATED PROJECTS - FUTURE YEAR 2020 CONDITIONS

Map					Daily	AM Peak Hour			PM Peak Hour		
No.	Project Name	Location	Land Use	Size	Trips	IN	OUT	TOTAL	IN	OUT	TOTAL
County of Los Angeles [1]											
1	Medical Office	11815 Bandera Street	Medical Office	48,000 s.f.	1,748	87	23	110	40	108	148
2	Charter High School	12628 Avalon Boulevard	High School	32,000 s.f.	412	70	28	98	17	14	31
3	Avalon II Apartment Project [2]	13218 Avalon Boulevard	Apartments	55 d.u.	461	6	23	29	30	16	46
4	Townhouses	E. 121st Street b/w Main St & San Pedro St	Townhouses	14 d.u.	116	2	9	11	8	4	12
5	Single Family Houses	2354 E. 118th Street	Single Family Residential	4 d.u.	54	3	10	13	4	2	6
6	South Region Elementary School #7	1536 E. 89th Street	Elementary School	950 students	1,226	235	193	428	70	73	143
City of Compton [3]											
7	Recycle Center	3100 N. Alameda Street	Recycle Center [4]	43,350 s.f.	33	41	11	52	9	26	35
8	Warehouse	409 E. Euclid Avenue	Warehouse	10,874 s.f.	39	2	1	3	1	2	3
9	Commercial	2215 W. Rosecrans Avenue	Commercial	25,000 s.f.	1,074	15	10	25	46	47	93
10	Apartment	2301-2307 W. Compton Boulevard	Apartments	4 d.u.	27	0	2	2	1	1	2
11	Townhouses	930 W. Compton Boulevard	Townhouses	41 d.u.	296	4	21	25	19	10	29
12	Mixed-Use	509 N. Tamarind Avenue	Condominiums	136 d.u.	841	11	55	66	52	25	77
			Retail	4,000 s.f.	172	2	2	4	7	8	15
13	Senior Center	Tamarind Avenue and Palmer Street	Senior Center	20,000 s.f.	458	20	12	32	11	18	29
14	Residential	1409 W. 130th Street	Single Family Residential	4 d.u.	54	3	10	13	4	2	6
15	Townhouses	809 E. Pine Street	Townhouses	8 d.u.	71	1	6	7	5	3	8
16	Residential	2709 N. Wilmington Avenue	Single Family Residential	4 d.u.	54	3	10	13	4	2	6
17	Townhouses	501 S. Alameda Street	Townhouses	28 d.u.	213	3	16	19	14	7	21
18	Retail	909 S. Central Avenue	Retail	6,500 s.f.	279	4	2	6	12	12	24
19	Mixed-Use	950 W. Alondra Boulevard	Townhouses	28 d.u.	213	3	16	19	14	7	21
			Church	3,000 s.f.	27	1	1	2	1	1	2
20	Senior Housing	nwc Alameda Street/Palmer Street	Senior Housing	200 d.u.	696	9	17	26	19	13	32
21	Condominium	swc Alameda Street/Elm Street	Condominiums	186 d.u.	1,104	14	71	85	67	33	100
22	Mixed-Use	nwc Tamarind Avenue/Palmer Street	Live/Work Units	12 d.u.	80	1	5	6	5	2	7
			Apartments	6 d.u.	40	1	2	3	3	1	4
			Retail	11,500 s.f.	494	7	5	12	21	22	43
23	Apartment Complex	202 S. Rose Avenue	Apartments	4 d.u.	27	0	2	2	1	1	2
24	Apartment Complex	205 N. Willow Avenue	Apartments	4 d.u.	27	0	2	2	1	1	2
City of Lynwood [5]											
25	Warehouse	11298 Alameda Street	Warehouse	7,200 s.f.	26	2	0	2	0	2	2
26	Oakwood Plaza	3211 Oakwood Avenue	Retail	14,800 s.f.	636	9	6	15	27	28	55
27	Retail Building	3801-3831 Martin Luther King Jr. Bl.	Retail	15,900 s.f.	683	10	6	16	29	30	59
28	Commercial Building	3791 Martin Luther King Jr. Bl.	Office	4,140 s.f.	46	5	1	6	1	5	6
29	Habatit for Humanity	4237 Imperial Highway	Condominiums	10 d.u.	87	1	7	8	6	3	9
30	Retail Building	10838 Long Beach Boulevard	Retail	5,300 s.f.	228	3	2	5	10	10	20
City of South Gate [6]											
31	Calden Avenue Condominiums	swc of Firestone Boulevard and Calden Av	Condominiums	107 units	682	9	46	55	43	21	64
			Mini-Warehouse	100,000 s.f.	250	9	6	15	13	13	26
32	Firestone Village Mixed-Use Project	Firestone Boulevard between South Gate	Shopping Center	18,090 s.f.	777	11	7	18	33	34	67
		Avenue and Gardenview Avenue	Single Family Residential	47 units	519	11	32	43	33	20	53
33	Villa Santa Rosa Mixed-Use Project	s/s Firestone Boulevard between Long	Shopping Center	8,642 s.f.	371	5	4	9	16	16	32
		Beach Boulevard and Santa Fe Avenue	Office	9,109 s.f.	100	12	2	14	2	12	14
			Condominiums	56 d.u.	388	5	27	32	25	12	37
34	LAUSD Elementary School #9	2777 Willow Place	Elementary School	650 students	839	161	132	293	48	50	98
35	Bank	nwc of Firestone Bl. & Long Beach Bl.	Bank	8,000 s.f.	1,185	55	44	99	104	103	207
36	Food Market	nwc of Firestone Bl. & State St.	Shopping Center	20,000 s.f.	859	12	8	20	37	38	75
City of Los Angeles [7]											
37	Movie Theater [8]	10341 Graham Avenue	Movie Theater w/Matinee	1,040 seats	632	10	10	20	45	26	71
			Education Center	12,000 s.f.							
38	High School [8]	11300 Monitor Avenue	High School	500 students	855	146	59	205	38	32	70
39	Amino Watts #2 at Flournoy ES	1630 E. 111th Street	High School	125 students	214	26	23	49	8	8	16
40	South Region High School #12	8800 S. San Pedro Street	High School	2,025 students	3,463	425	365	790	124	139	263
41	Jordan Downs Redevelopment Project	nwc of Alameda Street and 103rd Street	Apartments (net new)	1,100 d.u.	7,315	112	449	561	443	239	682
			Retail	200,000 s.f.	10,656	142	90	232	496	516	1,012
			Office	130,000 s.f.	1,633	203	28	231	38	186	224
			industrial	190,000 s.f.	1,317	119	16	135	14	100	114
				TOTAL RELATED PROJECT TRIP GENERATION	**44,097**	**2,051**	**1,935**	**3,986**	**2,119**	**2,104**	**4,223**
Trip Generation Rates [9]											
		ITE Land Use Code 150	Warehousing	Trips per 1,000 s.f.	3.56	79%	21%	0.30	25%	75%	0.32
		ITE Land Use Code 151	Mini-Warehouse	Trips per 1,000 s.f.	2.50	59%	41%	0.15	51%	49%	0.26
		ITE Land Use Code 210	Single Family Detached Housing	Trips per d.u	[10]	25%	75%	[10]	63%	37%	[10]
		ITE Land Use Code 220	Apartment	Trips per d.u.	6.65	20%	80%	0.51	65%	35%	0.62
		ITE Land Use Code 230	Condominium/Townhouse	Trips per d.u.	[11]	17%	83%	[11]	67%	33%	[11]
		ITE Land Use Code 252	Senior Adult Housing-Attached	Trips per d.u	3.48	36%	64%	0.13	60%	40%	0.16
		ITE Land Use Code 495	Recreational Community Center	Trips per 1,000 s.f.	22.88	61%	39%	1.62	37%	63%	1.45
		ITE Land Use Code 520	Elementary School	Trips per student	1.29	55%	45%	0.45	49%	51%	0.15
		ITE Land Use Code 530	High School	Trips per 1,000 s.f.	12.89	71%	29%	3.06	54%	46%	0.97
				Trips per student	1.71	68%	32%	0.42	47%	53%	0.13
			Within City of Los Angeles [13]	Trips per student		54%	46%	0.39			
		ITE Land Use Code 560	Church	Trips per 1,000 s.f.	9.11	62%	38%	0.56	48%	52%	0.55
		ITE Land Use Code 710	General Office	Trips per 1,000 s.f.	11.01	88%	12%	1.55	17%	83%	1.49
		ITE Land Use Code 720	Medical Office	Trips per 1,000 s.f.	[12]	79%	21%	2.30	27%	73%	[12]
		ITE Land Use Code 820	Shopping Center	Trips per 1,000 s.f.	42.94	61%	39%	1.00	49%	51%	3.73
		ITE Land Use Code 912	Drive-In Bank	Trips per 1,000 s.f.	148.15	56%	44%	12.35	50%	50%	25.82

[1] Source: County of Los Angeles Regional Planning

[2] Trip generation from *Traffic Study for the Avalon II Affordable Housing Residential Project* , Raju Associates, June 2006

[3] Source: City of Compton Planning Department website

[4] Trip gerenation estimates based on warehousing trip generation rates since no trip rates available for recycle centers.

[5] Source: City of Lynwood Planning Department website

[6] Source: City of South Gate Planning Department website and *Traffic Study for the Tierra Luna Specific Plan Project* , Raju Associates, January 2009.

[7] Source: City of Los Angeles. Trip generation totals provided by the City of Los Angeles.

[8] Trip generation totals provided by the City of Los Angeles. Directional distribution based on *ITE Trip Generation Manual, 8th Edition.*

[9] Source: *ITE Trip Generation Manual, 8th Edition, 2008*

[10] Trip generation for single-family residential was calculated using the following formulas:

Where:
Daily: $Ln(T) = 0.92\ Ln(X) + 2.71$ Ln = Natural logarithm
AM Peak Hour: $T = 0.70\ (X) + 9.74$ T = Two-way volume of traffic (total trip-ends)
PM Peak Hour: $Ln(T) = 0.90\ Ln(X) + 0.51$ X = Number of dwelling units

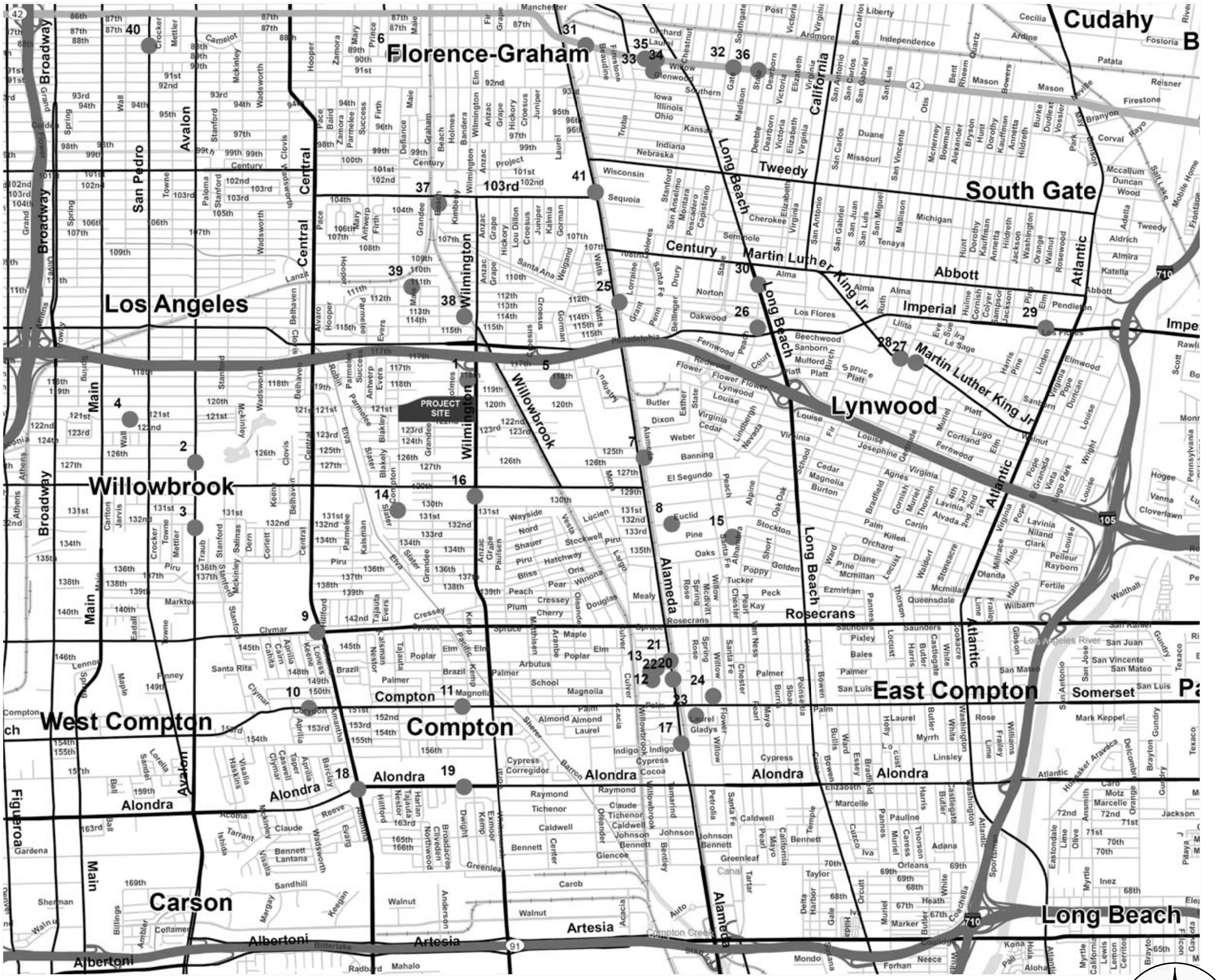
[11] Trip generation for condominium/townhouse was calculated using the following formulas:

Where:
Daily: $Ln(T) = 0.87\ Ln(X) + 2.46$ Ln = Natural logarithm
AM Peak Hour: $Ln(T) = 0.80\ Ln(X) + 0.26$ T = Two-way volume of traffic (total trip-ends)
PM Peak Hour: $Ln(T) = 0.82\ Ln(X) + 0.32$ X = Number of dwelling units

[12] Trip generation for medical office was calculated using the following formulas:

Where:
Daily: $T = 40.89\ (X) - 214.97$ Ln = Natural logarithm
PM Peak Hour: $Ln(T) = 0.88Ln(X) + 1.59$ T = Two-way volume of traffic (total trip-ends)
X = Area in 1,000 gross square feet of leasable area

[13] Source: Memorandum of Cooperation between LAUSD and LADOT, November 2004.



LEGEND:

● - RELATED PROJECTS

▬ - PROJECT SITE

FIGURE 14
LOCATION OF RELATED PROJECTS (FUTURE YEAR 2020 CONDITIONS)

RAJU Associates, Inc.

The trip generation estimates for the related projects were developed using trip generation rates contained in the Institute of Transportation Engineers (ITE), Trip Generation Informational Report, 8th Edition. These rates are summarized in Table 16. Table 16 furthers indicates the location, type of use, size and these related projects' trip generation. As indicated in Table 16, the related projects are expected to generate approximately 3,986 trips during the morning peak hour and 4,223 trips during the evening peak hour.

The geographic distribution (based existing traffic patterns and methodology for determining trip distribution contained in the 2004 CMP) and the traffic assignment of the related projects were performed and the resulting volumes at each of the analysis intersections during both AM and PM peak hours are shown in Figure 15A-15E. The traffic volumes presented in Figure 15A-15E represent the Related Project only peak hour traffic volumes for future year 2020 conditions.

CUMULATIVE (2020) BASE TRAFFIC CONDITIONS

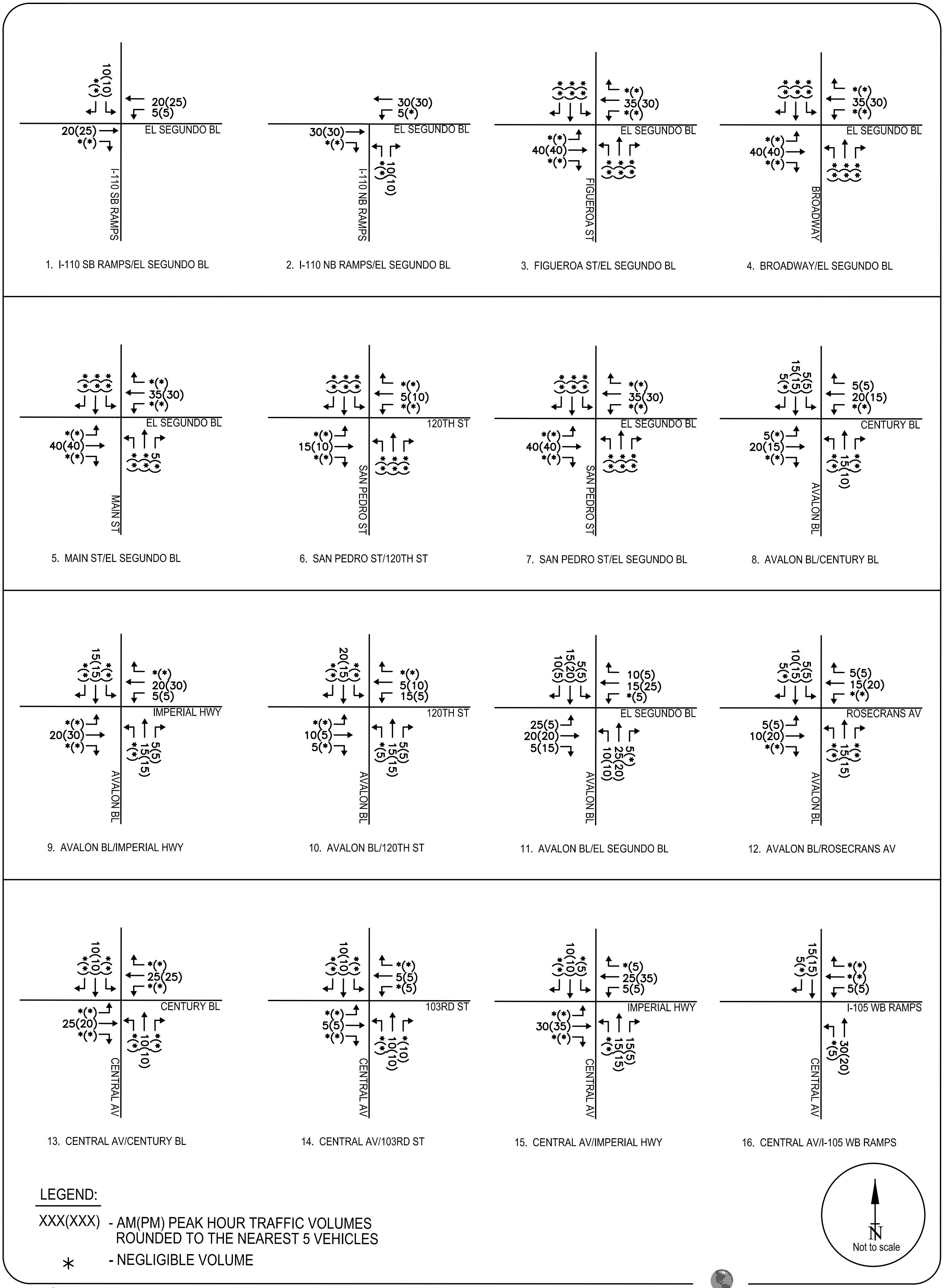
This section contains the evaluation of the Cumulative (2020) Base (or Existing Baseline with Ambient Growth (2020)) Traffic Conditions. The assessment of Cumulative (2020) Base Traffic Conditions involved the following tasks:

- Cumulative (2020) Base Traffic projections at all study intersections
- Analysis of Cumulative (2020) Base Traffic Conditions at study intersections located in the Cities of Los Angeles, Compton, and Lynwood

A brief discussion of each of the tasks follows:

Cumulative (2020) Base Traffic Projections

The Cumulative (2020) Base traffic projections consist of traffic growth due to two primary sources: background ambient traffic growth and growth due to related projects within and in the vicinity of the Project study area. The existing baseline with ambient growth and related projects traffic volumes were estimated as described above.



1. I-110 SB RAMPS/EL SEGUNDO BL

2. I-110 NB RAMPS/EL SEGUNDO BL

3. FIGUEROA ST/EL SEGUNDO BL

4. BROADWAY/EL SEGUNDO BL

5. MAIN ST/EL SEGUNDO BL

6. SAN PEDRO ST/120TH ST

7. SAN PEDRO ST/EL SEGUNDO BL

8. AVALON BL/CENTURY BL

9. AVALON BL/IMPERIAL HWY

10. AVALON BL/120TH ST

11. AVALON BL/EL SEGUNDO BL

12. AVALON BL/ROSECRANS AV

13. CENTRAL AV/CENTURY BL

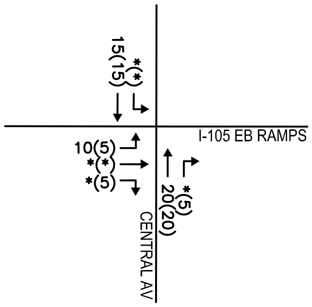
14. CENTRAL AV/103RD ST

15. CENTRAL AV/IMPERIAL HWY

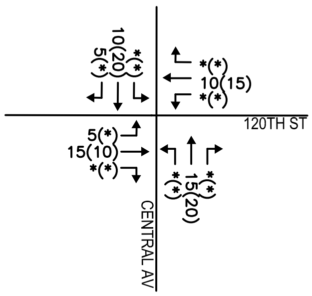
16. CENTRAL AV/I-105 WB RAMPS

FIGURE 15A
RELATED PROJECTS (2020) PEAK HOUR TRAFFIC VOLUMES

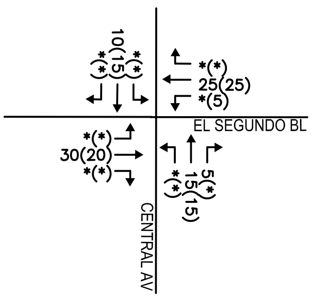
RAJU Associates, Inc.



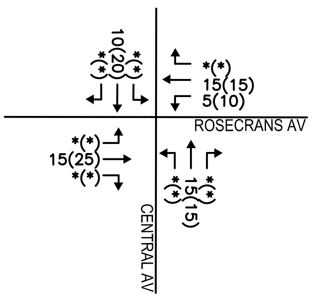
17. CENTRAL AV/I-105 EB RAMPS



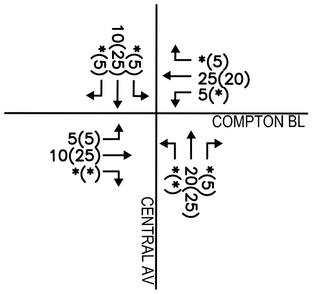
18. CENTRAL AV/120TH ST



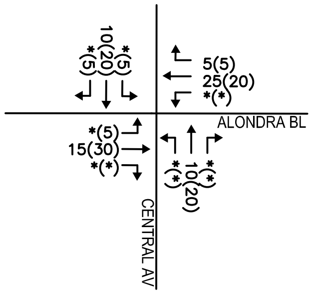
19. CENTRAL AV/EL SEGUNDO BL



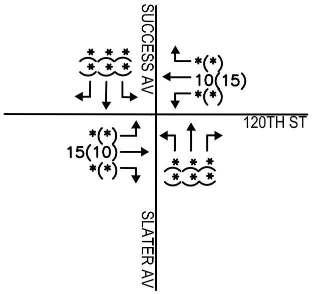
20. CENTRAL AV/ROSECRANS AV



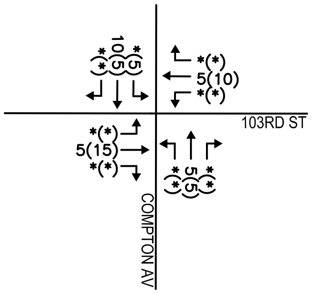
21. CENTRAL AV/COMPTON BL



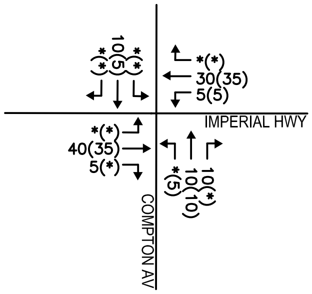
22. CENTRAL AV/ALONDRA BL



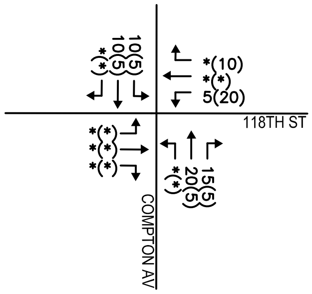
23. SUCCESS AV - SLATER AV/120TH ST



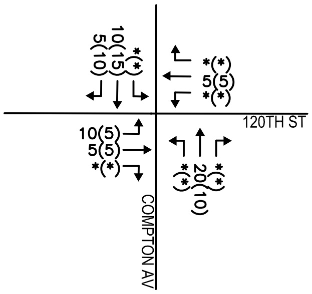
24. COMPTON AV/103RD ST



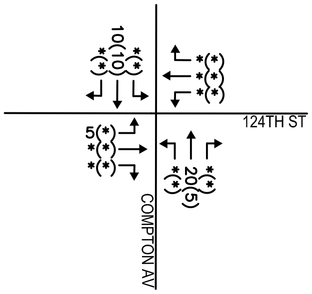
25. COMPTON AV/IMPERIAL HWY



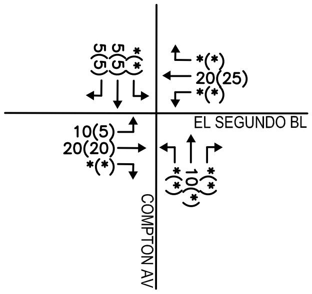
26. COMPTON AV/118TH ST



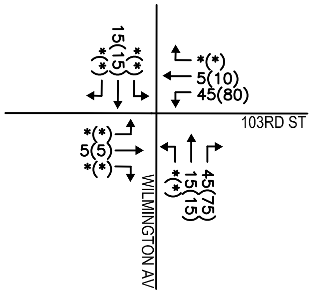
27. COMPTON AV/120TH ST



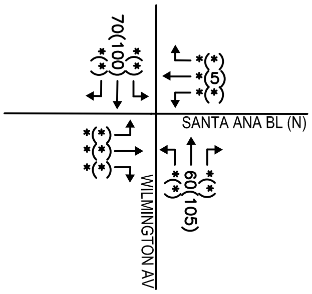
28. COMPTON AV/124TH ST



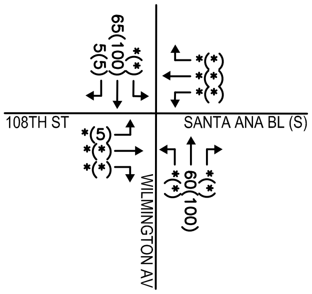
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

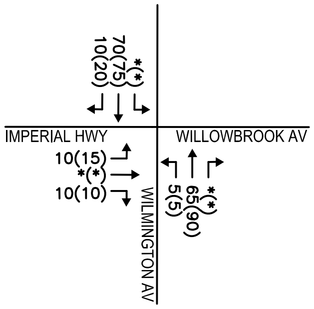
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

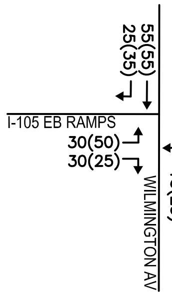
N
Not to scale

FIGURE 15B
RELATED PROJECTS (2020) PEAK HOUR TRAFFIC VOLUMES

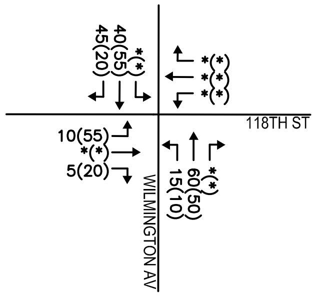
RAJU Associates, Inc.



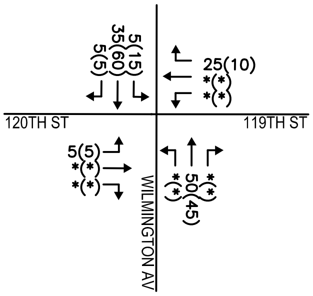
33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV



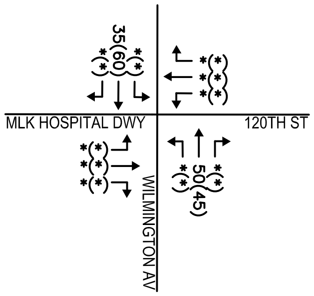
34. WILMINGTON AV/I-105 EB RAMPS



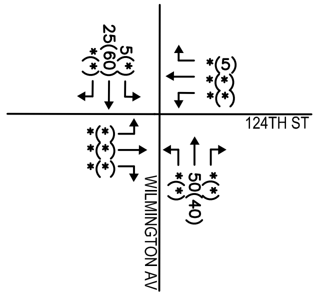
35. WILMINGTON AV/118TH ST



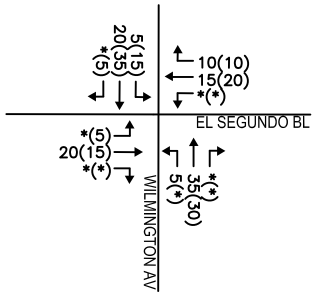
36. WILMINGTON AV/120TH ST - 119TH ST



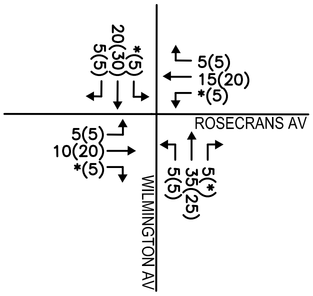
37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST



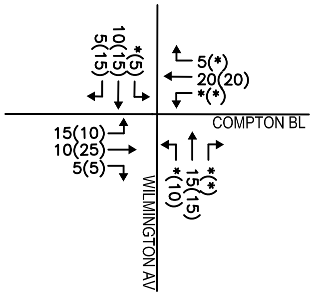
38. WILMINGTON AV/124TH ST



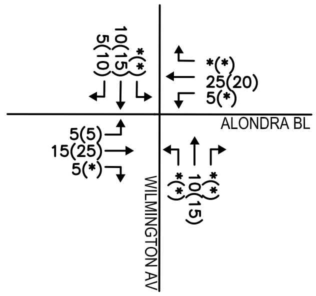
39. WILMINGTON AV/EL SEGUNDO BL



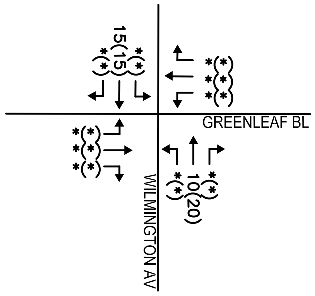
40. WILMINGTON AV/ROSECRANS AV



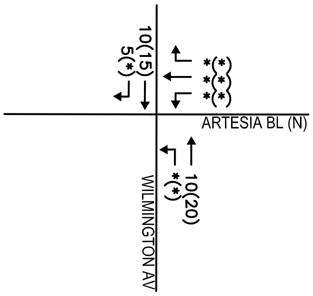
41. WILMINGTON AV/COMPTON BL



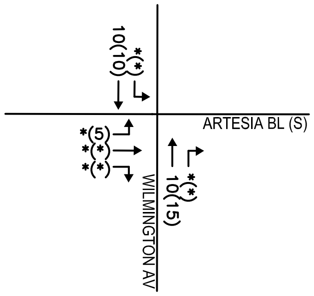
42. WILMINGTON AV/ALONDRA BL



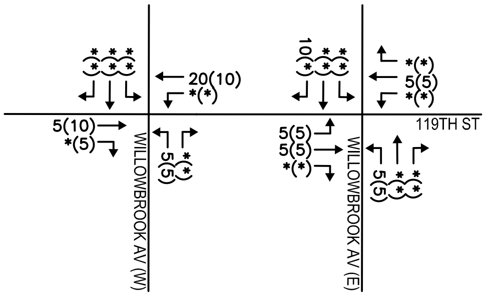
43. WILMINGTON AV/GREENLEAF BL



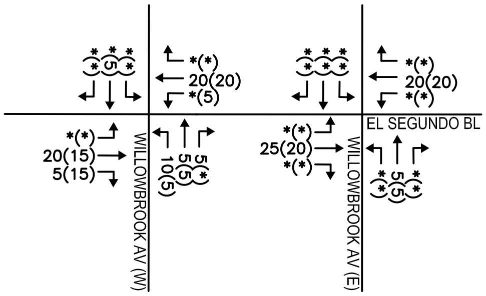
44. WILMINGTON AV/ARTESIA BL (N)



45. WILMINGTON AV/ARTESIA BL (S)



46. WILLOWBROOK AV/119TH ST



47. WILLOWBROOK AV/EL SEGUNDO BL

LEGEND:

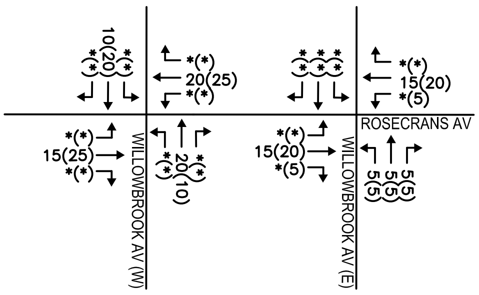
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

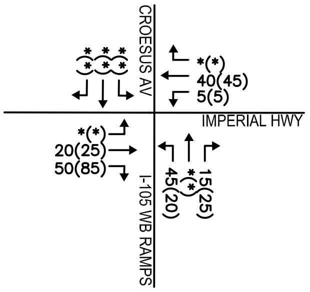
N
Not to scale

FIGURE 15C
RELATED PROJECTS (2020) PEAK HOUR TRAFFIC VOLUMES

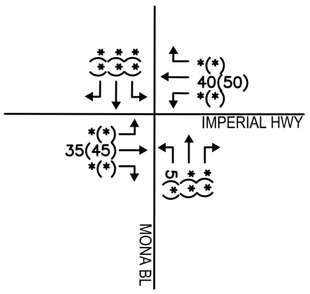
RAJU Associates, Inc.



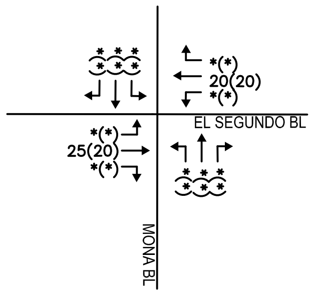
48. WILLOWBROOK AV/ROSECRANS AV



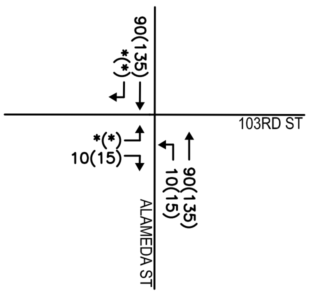
49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV



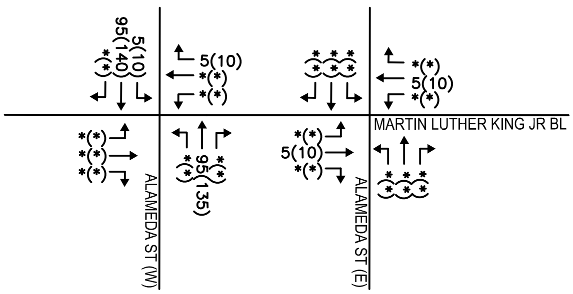
50. MONA BL/IMPERIAL HWY



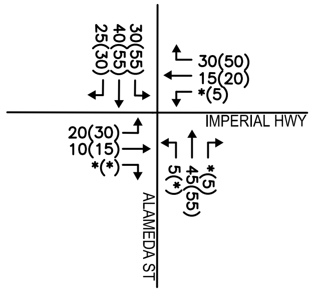
51. MONA BL/EL SEGUNDO BL



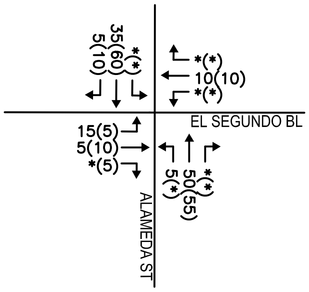
52. ALAMEDA ST/103RD ST



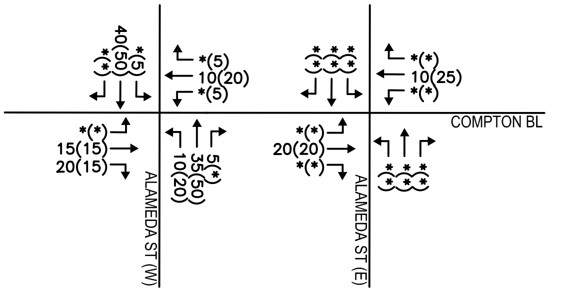
53. ALAMEDA ST/MARTIN LUTHER KING JR BL



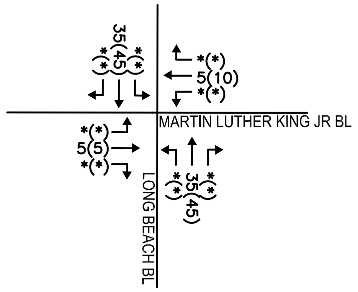
54. ALAMEDA ST/IMPERIAL HWY



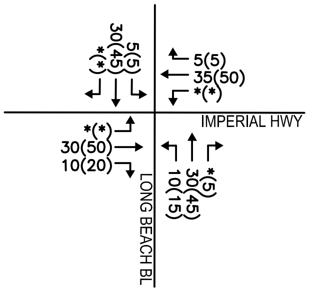
55. ALAMEDA ST/EL SEGUNDO BL



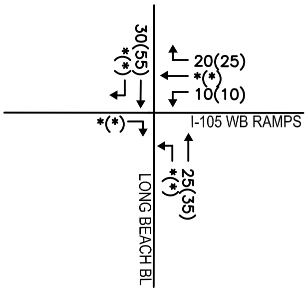
56. ALAMEDA ST/COMPTON BL



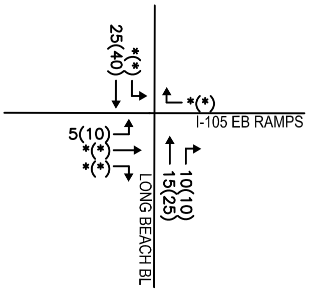
57. LONG BEACH BL/MARTIN LUTHER KING JR BL



58. LONG BEACH BL/IMPERIAL HWY



59. LONG BEACH BL/I-105 WB RAMPS



60. LONG BEACH BL/I-105 EB RAMPS

LEGEND:

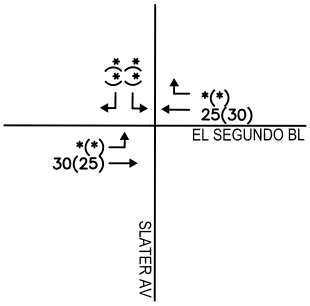
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

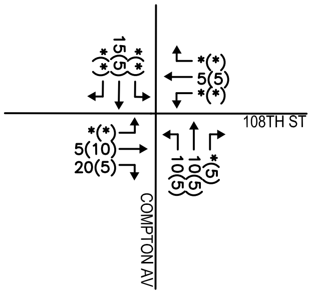
N
Not to scale

FIGURE 15D
RELATED PROJECTS (2020) PEAK HOUR TRAFFIC VOLUMES

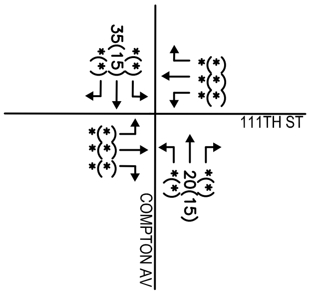
RAJU Associates, Inc.



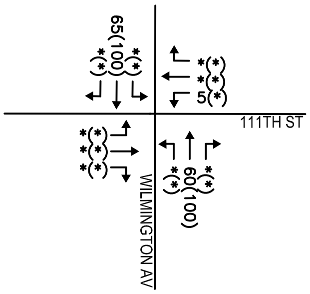
61. SLATER AV/EL SEGUNDO BL



62. COMPTON AV/108TH ST



63. COMPTON AV/111TH ST



64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 15E
RELATED PROJECTS (2020) PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

The related projects' traffic estimates, shown in Figures 15A-15E, were added to the Existing Baseline with Ambient Growth (2020) traffic, shown in Figure 13A-13E, to obtain the Cumulative (2020) Base traffic volumes. The traffic volumes presented in Figures 16A-16E represent the Future Cumulative (2020) Base (without project) conditions.

Cumulative (2020) Base Traffic Conditions

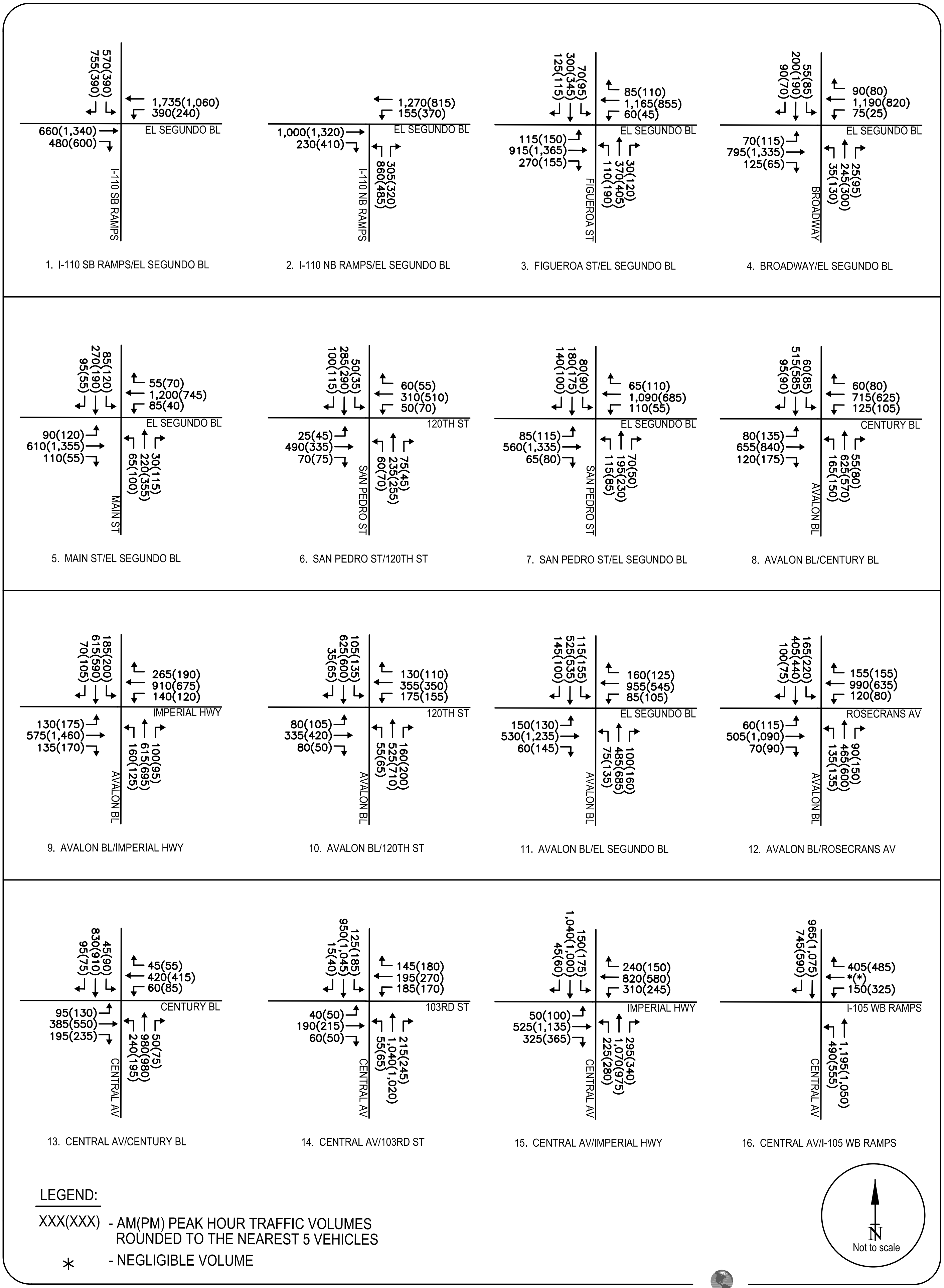
The Cumulative (2020) Base Conditions peak hour traffic volumes were analyzed at each of the Cities of Los Angeles, Compton and Lynwood study intersections to determine the V/C ratio and corresponding level of service. Table 17 presents the results of the Cumulative (2020) Base traffic analysis. As indicated in the table, 36 of the 37 analyzed intersections during the morning peak hour are projected to operate at LOS D or better. During the evening peak hour, 34 of the 37 analyzed intersections are projected to operate at LOS D or better. The remaining intersections are projected to operate at LOS E or LOS F and are listed below:

- Wilmington Avenue/Rosecrans Avenue: PM Peak Hour – LOS E
- I-110 Northbound Ramps/El Segundo Boulevard: PM Peak Hour – LOS E
- Long Beach Boulevard/Imperial Highway: AM and PM Peak Hours – LOS F

Capacity calculation worksheets for Cumulative (2020) Base conditions are attached in Appendix L of the report.

PROJECT TRAFFIC VOLUMES

The implementation of the Proposed Tier II Project involves the development of a campuswide master plan. Tier II would have the potential to build out approximately 1,814,695 square feet of development on the Proposed Project site. As proposed, Tier II would consist of 1,134,695 square feet of hospital use, 80,000 square feet of retail use, 300,000 square feet of medical office use, 150,000 square feet of general office use, and 100 single-family residential dwelling units (approximately 150,000 square feet). It is anticipated that the Tier II Project would be completed by Year 2020.



1. I-110 SB RAMPS/EL SEGUNDO BL

2. I-110 NB RAMPS/EL SEGUNDO BL

3. FIGUEROA ST/EL SEGUNDO BL

4. BROADWAY/EL SEGUNDO BL

5. MAIN ST/EL SEGUNDO BL

6. SAN PEDRO ST/120TH ST

7. SAN PEDRO ST/EL SEGUNDO BL

8. AVALON BL/CENTURY BL

9. AVALON BL/IMPERIAL HWY

10. AVALON BL/120TH ST

11. AVALON BL/EL SEGUNDO BL

12. AVALON BL/ROSECRANS AV

13. CENTRAL AV/CENTURY BL

14. CENTRAL AV/103RD ST

15. CENTRAL AV/IMPERIAL HWY

16. CENTRAL AV/I-105 WB RAMPS

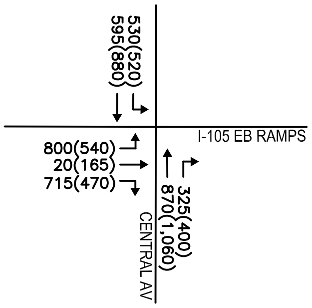
LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

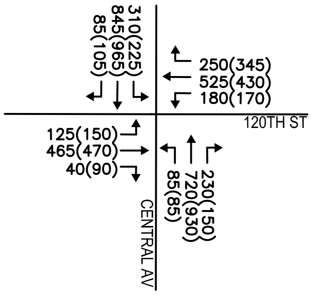
* - NEGLIGIBLE VOLUME

FIGURE 16A
CUMULATIVE (2020) BASE PEAK HOUR TRAFFIC VOLUMES

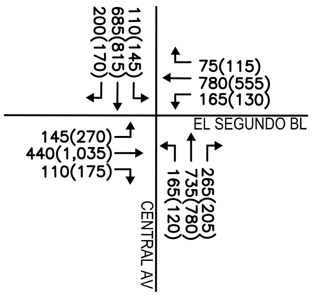
RAJU Associates, Inc.



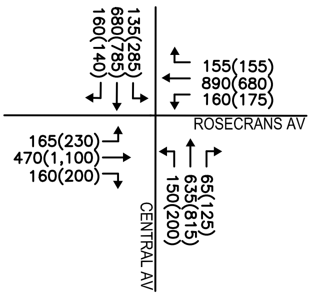
17. CENTRAL AV/I-105 EB RAMPS



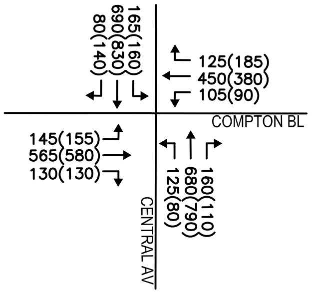
18. CENTRAL AV/120TH ST



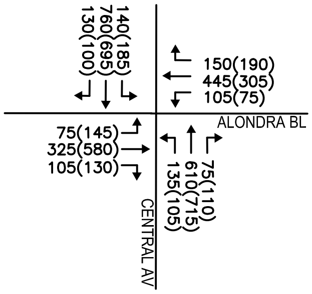
19. CENTRAL AV/EL SEGUNDO BL



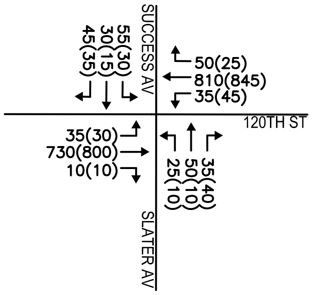
20. CENTRAL AV/ROSECRANS AV



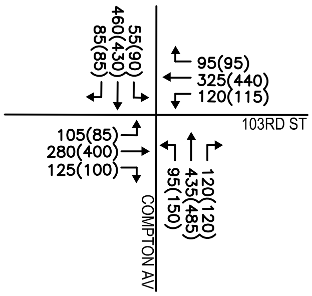
21. CENTRAL AV/COMPTON BL



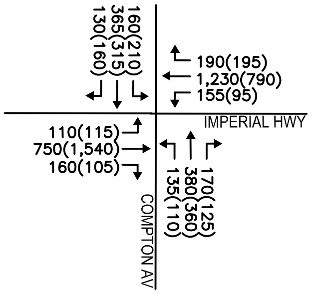
22. CENTRAL AV/ALONDRA BL



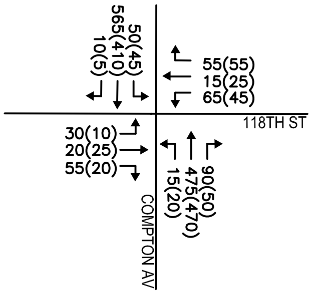
23. SUCCESS AV - SLATER AV/120TH ST



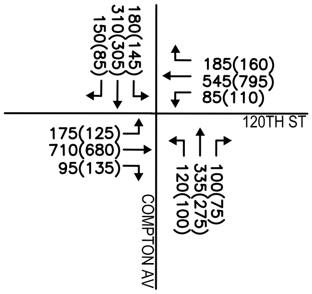
24. COMPTON AV/103RD ST



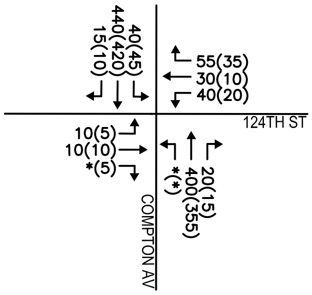
25. COMPTON AV/IMPERIAL HWY



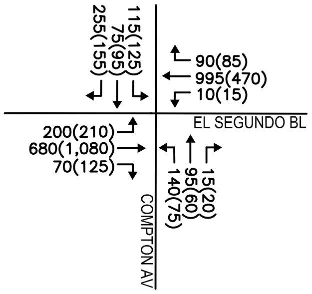
26. COMPTON AV/118TH ST



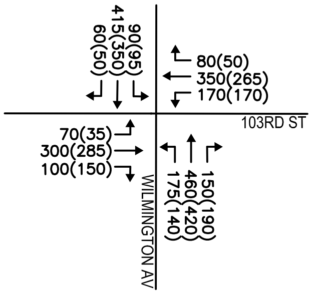
27. COMPTON AV/120TH ST



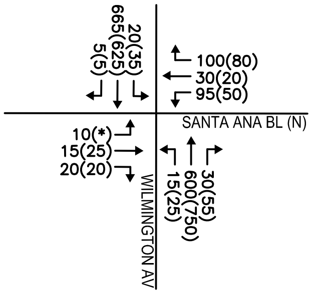
28. COMPTON AV/124TH ST



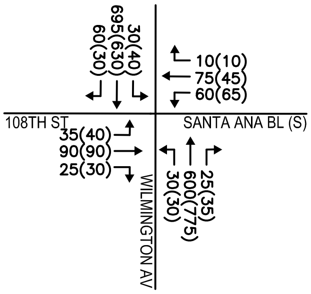
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

XXX(XXX)	- AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES
*	- NEGLIGIBLE VOLUME

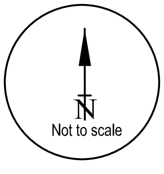
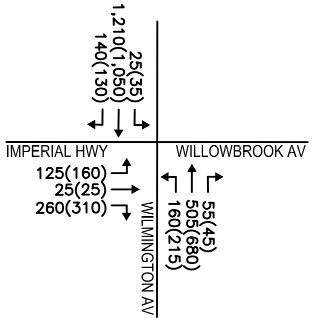
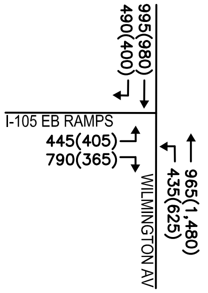


FIGURE 16B
CUMULATIVE (2020) BASE PEAK HOUR TRAFFIC VOLUMES

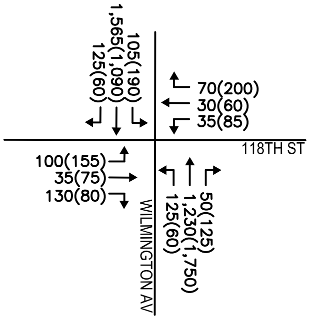
RAJU Associates, Inc.



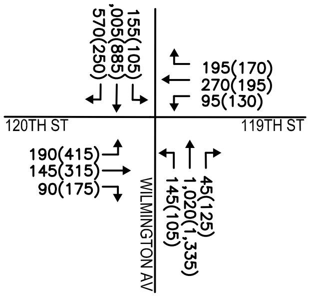
33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV



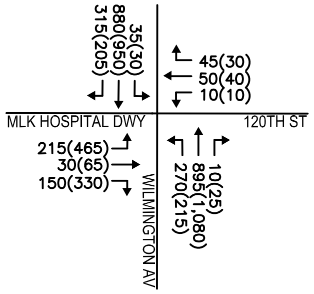
34. WILMINGTON AV/I-105 EB RAMPS



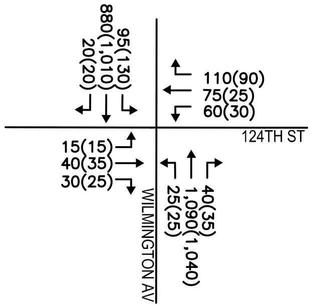
35. WILMINGTON AV/118TH ST



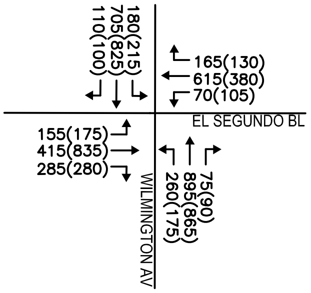
36. WILMINGTON AV/120TH ST - 119TH ST



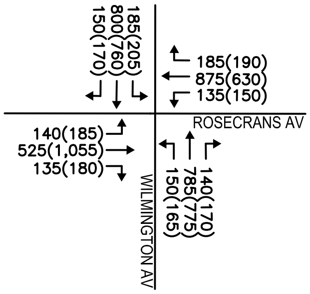
37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST



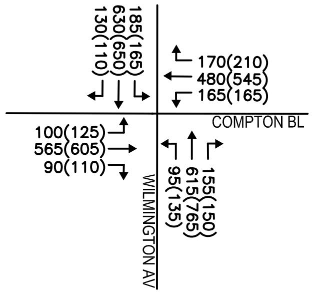
38. WILMINGTON AV/124TH ST



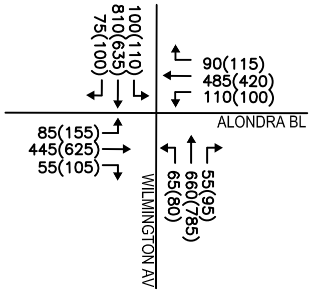
39. WILMINGTON AV/EL SEGUNDO BL



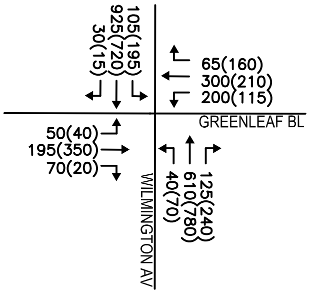
40. WILMINGTON AV/ROSECRANS AV



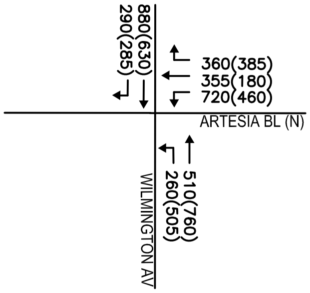
41. WILMINGTON AV/COMPTON BL



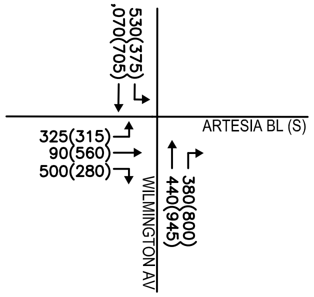
42. WILMINGTON AV/ALONDRA BL



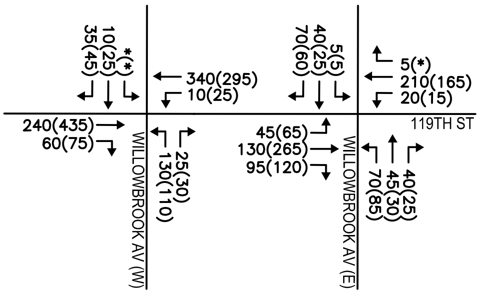
43. WILMINGTON AV/GREENLEAF BL



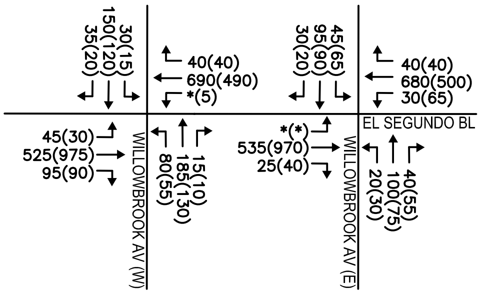
44. WILMINGTON AV/ARTESIA BL (N)



45. WILMINGTON AV/ARTESIA BL (S)



46. WILLOWBROOK AV/119TH ST



47. WILLOWBROOK AV/EL SEGUNDO BL

LEGEND:

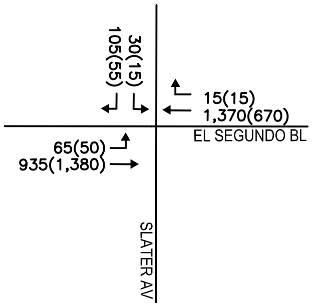
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

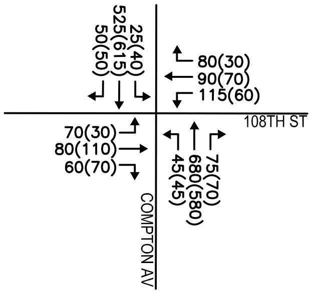
N
Not to scale

FIGURE 16C
CUMULATIVE (2020) BASE PEAK HOUR TRAFFIC VOLUMES

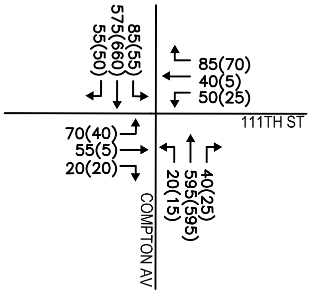
RAJU Associates, Inc.



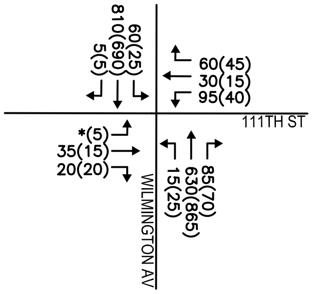
61. SLATER AV/EL SEGUNDO BL



62. COMPTON AV/108TH ST



63. COMPTON AV/111TH ST



64. WILMINGTON AV/111TH ST

LEGEND:

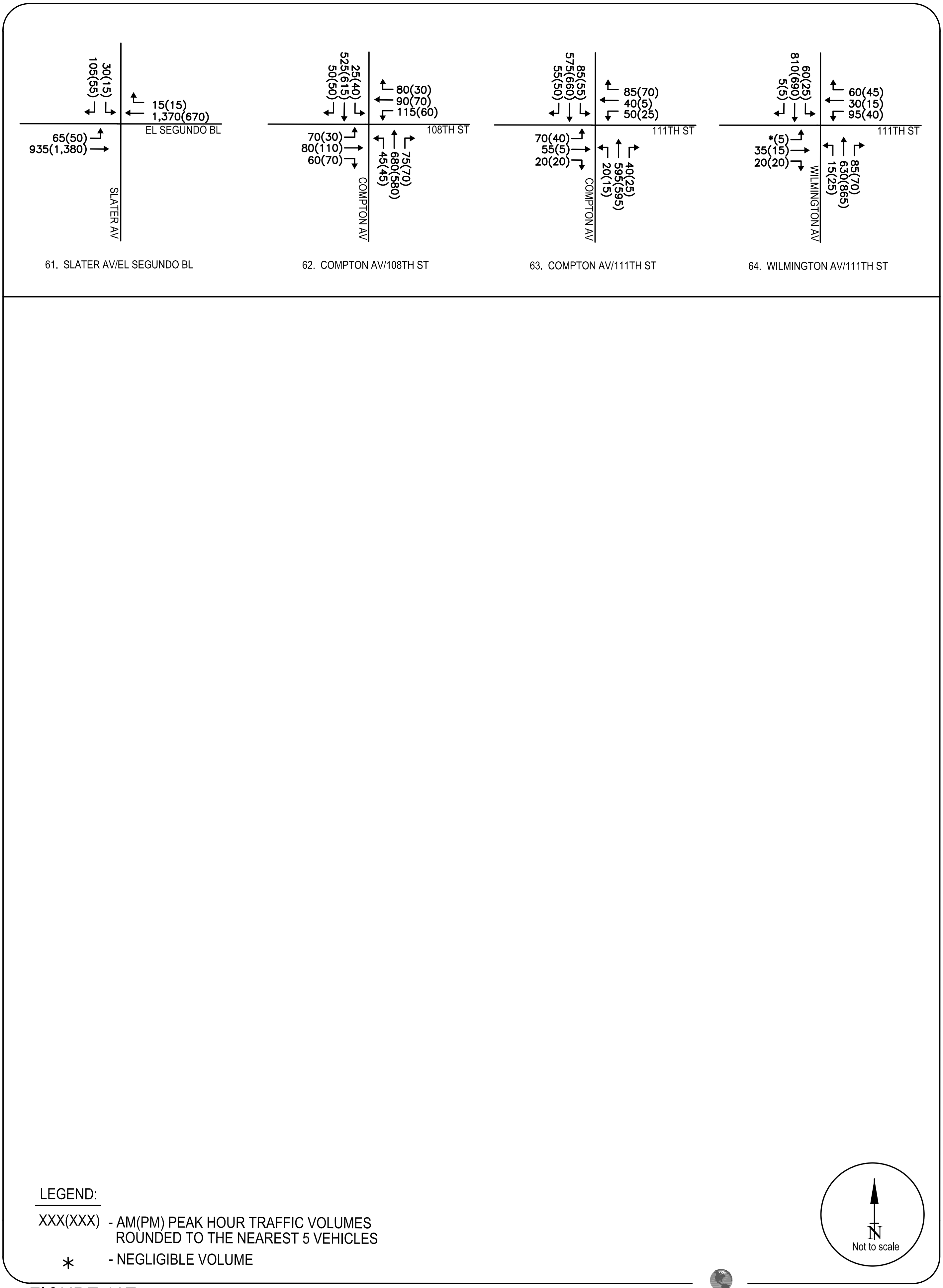
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 16D
CUMULATIVE (2020) BASE PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



61. SLATER AV/EL SEGUNDO BL

62. COMPTON AV/108TH ST

63. COMPTON AV/111TH ST

64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

FIGURE 16E
CUMULATIVE (2020) BASE PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

TABLE 17
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS
CUMULATIVE (2020) BASE CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
		V/C	LOS	V/C	LOS
	City of Compton				
56	Alameda Street/Compton Boulevard *	0.704	C	0.696	B
22	Central Avenue/Alondra Boulevard	0.693	B	0.744	C
21	Central Avenue/Compton Boulevard	0.730	C	0.754	C
29	Compton Avenue/El Segundo Boulevard	0.792	C	0.607	B
61	Slater Avenue/El Segundo Boulevard	0.596	A	0.538	A
48	Willowbrook Avenue/Rosecrans Avenue	0.793	C	0.834	D
42	Wilmington Avenue/Alondra Boulevard	0.641	B	0.724	C
41	Wilmington Avenue/Compton Boulevard	0.698	B	0.751	C
43	Wilmington Avenue/Greenleaf Boulevard	0.709	C	0.761	C
40	Wilmington Avenue/Rosecrans Avenue	0.884	D	0.913	E
44	Wilmington Avenue/Artesia Boulevard (N) [4]	0.834	D	0.830	D
45	Wilmington Avenue/Artesia Boulevard (S) [4]	0.746	C	0.781	C
	City of Los Angeles				
10	Avalon Boulevard/120th Street**	0.613	B	0.729	C
8	Avalon Boulevard/Century Boulevard**	0.612	B	0.686	B
9	Avalon Boulevard/Imperial Highway**	0.662	B	0.780	C
14	Central Avenue/103rd Street**	0.741	C	0.816	D
18	Central Avenue/120th Street**	0.714	C	0.698	B
13	Central Avenue/Century Boulevard**	0.787	C	0.826	D
15	Central Avenue/Imperial Highway**	0.715	C	0.817	D
17	Central Avenue/I-105 Eastbound Ramps [1]**	0.707	C	0.652	B
16	Central Avenue/I-105 Westbound Ramps [1]**	0.757	C	0.720	C
24	Compton Avenue/103rd Street**	0.495	A	0.574	A
62	Compton Avenue/108th Street**	0.731	C	0.620	B
63	Compton Avenue/111th Street**	0.608	B	0.566	A
3	Figueroa Street/El Segundo Boulevard	0.598	A	0.777	C
2	I-110 Northbound Ramps/El Segundo Boulevard [1]**	0.801	D	0.914	E
1	I-110 Southbound Ramps/El Segundo Boulevard [1]**	0.845	D	0.723	C
6	San Pedro Street/120th Street	0.646	B	0.642	B
30	Wilmington Avenue/103rd Street	0.666	B	0.624	B
64	Wilmington Avenue/111th Street	0.742	C	0.744	C
31	Wilmington Avenue/Santa Ana Boulevard (N)	0.659	B	0.706	C
32	Wilmington Avenue/Santa Ana Boulevard (S)	0.699	B	0.750	C
	City of Lynwood				
53	Alameda Street/Martin Luther King Jr. Boulevard	0.834	D	0.784	C
58	Long Beach Boulevard/Imperial Highway	1.014	F	1.132	F
57	Long Beach Boulevard/Martin Luther King Jr. Boulevard	0.849	D	0.894	D
60	Long Beach Boulevard/I-105 Eastbound Ramps [1]	0.713	C	0.639	B
59	Long Beach Boulevard/I-105 Westbound Ramps [1]	0.515	A	0.717	C

* Los Angeles County Congestion Management Program (CMP) monitoring location.
** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.
[1] Shares jurisdiction with Caltrans.

Project Trip Generation

Utilizing the rates and equations from the ITE Trip Generation 8th Edition Informational Report, the Proposed Tier II Project's trip generation was determined. Tables 18 presents details of the Proposed Tier II Project's trip generation including type of use, size, applicable rate and trip generation estimates. Other calculations within the table also provide for trip generation adjustments due to transit, internal capture and pass-by as approved by the County of Los Angeles.

From Table 18, it can be observed that the Proposed Tier II Project's trip generation would result in a net total of approximately 24,511 daily trips of which 1,572 trips (1,114 inbound, 458 outbound) would occur during the morning peak hour and 2,091 trips (713 inbound, 1,378 outbound) during the evening peak hour.

The overall Proposed Project (Tier I combined with Tier II) would have a total net trip generation of approximately 19,606 daily trips of which 1,240 trips (918 inbound, 322 outbound) would occur during the morning peak hour and 1,753 trips (571 inbound, 1,182 outbound) during the evening peak hour.

Project Trip Distribution

The trip distribution for the project trips was determined using the methodology described above in Chapter III. Appendix H of the report documents the trip distribution calculations including the breakdown of trips, work versus non-work trips, by land use type and the exhibits used from the 2004 CMP. The resulting individual intersection work and non-work trip distribution percentages for both the morning and evening peak hours are also included in Appendix H. Based on these distribution assumptions, location and points of access of the project driveways, and net trip generation from the Proposed Tier I and II Project, traffic estimates of net project-only trips were developed. These net Tier I and II Project-only peak hour trips are presented in Figures 17A-17E.

Due to the mixed-use nature of the project, some of the project trips remain internal to the MLK. The majority of the Martin Luther King Jr. Medical Center Campus traffic effects are felt close to the project, and the effects drop off quickly farther away from the project.

TABLE 18
ESTIMATED PROJECT TRIP GENERATION - TIER I AND II PROJECT

			AM Peak Hour			PM Peak Hour		
	Size	**Daily**	**IN**	**OUT**	**TOTAL**	**IN**	**OUT**	**TOTAL**
Baseline including Existing								
Hospital	1,243,692 s.f.	20,521	822	571	1,393	596	822	1,418
Baseline Trip Generation Total Less Transit Reduction (15%)		17,443	699	485	1,184	507	699	1,206
Proposed Tier I								
Hospital - Removal of Use [1]	(506,485) s.f.	(8,357)	(335)	(232)	(567)	(242)	(335)	(577)
Hospital - Addition	156,700 s.f.	2,586	104	72	176	75	104	179
Tier I Net Trip Generation Total		(5,771)	(231)	(160)	(391)	(167)	(231)	(398)
Tier I Net Trip Generation Less Transit Reduction (15%)		**(4,905)**	**(196)**	**(136)**	**(332)**	**(142)**	**(196)**	**(338)**
Baseline + Tier I Total On-Site Trips		**12,538**	**503**	**349**	**852**	**365**	**503**	**868**
Proposed Tier II								
Hospital (Additional Campus Support)	1,134,695 s.f.	18,722	750	521	1,271	543	751	1,294
Commercial/Retail	80,000 s.f.	5,874	82	53	135	269	279	548
Single Family Residential	100 d.u.	1,040	20	60	80	66	39	105
Medical Office	300,000 s.f.	10,839	545	145	690	280	758	1,038
General Office	150,000 s.f.	1,823	228	31	259	42	205	247
Tier II Trip Generation Total		38,298	1,625	810	2,435	1,200	2,032	3,232
Tier II Trip Generation Total Less Transit Reduction (15%)		32,553	1,381	689	2,070	1,020	1,727	2,747
*Internal Capture Trip Credit (15% - Existing + Tier I + II)		(6,764)	(219)	(220)	(439)	(271)	(271)	(542)
**Pass-By Trip Credit [2]		(1,207)	(45)	(15)	(60)	(39)	(75)	(114)
Tier II Net Trip Generation Total		**24,582**	**1,117**	**455**	**1,572**	**710**	**1,381**	**2,091**
Tier I + Tier II Net Trip Generation Total		**19,677**	**921**	**319**	**1,240**	**568**	**1,185**	**1,753**
Baseline + Tier I + Tier II Total On-Site Trips		**37,120**	**1,620**	**804**	**2,424**	**1,075**	**1,884**	**2,959**

* Internal capture credit taken after reduction of transit trips.
** Pass-by trip reduction taken after transit trip and internal capture credits.
[1] Demolition of this facility would occur in Tier II.
[2] Includes 10% pass-by credit for medical office use and retail use.

TABLE 18 (continued)
ESTIMATED PROJECT TRIP GENERATION - TIER I AND II PROJECT

			AM Peak Hour			**PM Peak Hour**		
	Size	**Daily**	**IN**	**OUT**	**TOTAL**	**IN**	**OUT**	**TOTAL**
Trip Rates [1] Hospital (ITE Land Use Code 610)	Trips per 1,000 s.f.	16.50	59%	41%	1.12	42%	58%	1.14
Medical Office (ITE Land Use Code 720)	Trips per 1,000 s.f.	36.13	79%	21%	2.30	27%	73%	3.46
Single Family (ITE Land Use Code 210)	Trips per d.u	[2]	25%	75%	[2]	63%	37%	[2]
Retail (ITE Land Use Code 820)	Trips per 1,000 s.f.	[3]	61%	39%	[3]	49%	51%	[3]
General Office (ITE Land Use Code 710)	Trips per 1,000 s.f.	[4]	88%	12%	[4]	17%	83%	[4]

[1] ITE Trip Generation, Informational Report, 8th Edition, 2008

[2] Daily, AM and PM peak hour trip generation for single-family residential was calculated using the following formulas:

Daily: $\ln(T) = 0.92 \ln(X) + 2.71$
AM Peak Hour: $\ln(T) = 0.70 \ln(X) + 9.74$
PM Peak Hour: $\ln(T) = 0.90 \ln(X) + 0.51$

Where:
Ln = Natural logarithm
T = Two-way volume of traffic (total trip-ends)
X = Number of dwelling units

[3] Daily, AM and PM peak hour trip generation for retail was calculated using the following formulas:

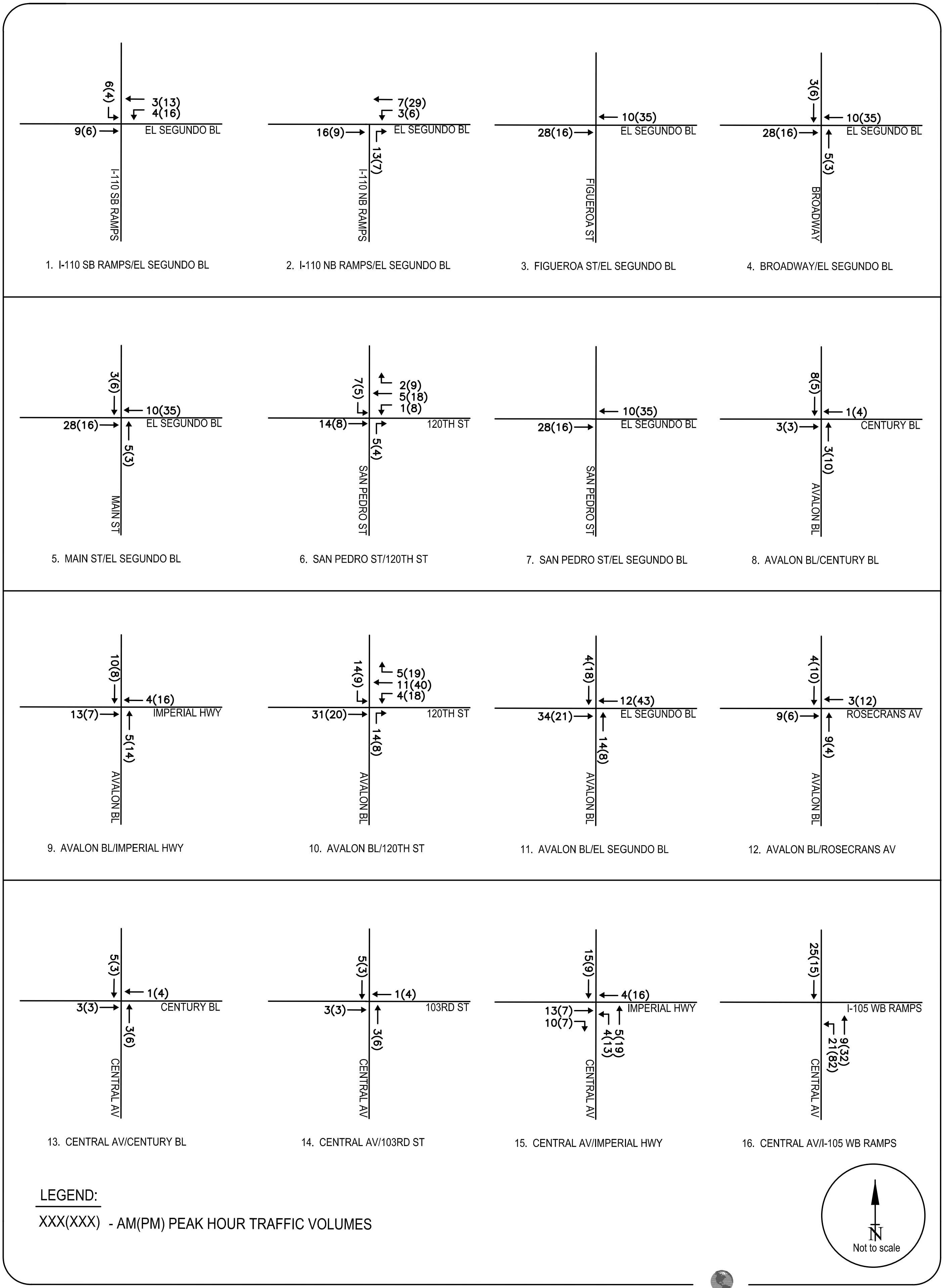
Daily: $\ln(T) = 0.65 \ln(X) + 5.83$
AM Peak Hour: $\ln(T) = 0.59 \ln(X) + 2.32$
PM Peak Hour: $\ln(T) = 0.67 \ln(X) + 3.37$

Where:
Ln = Natural logarithm
T = Two-way volume of traffic (total trip-ends)
X = Area in 1,000 gross square feet of leasable area

[4] Daily, AM and PM peak hour trip generation for office was calculated using the following formulas:

Daily: $\ln(T) = 0.77 \ln(X) + 3.65$
AM Peak Hour: $\ln(T) = 0.80 \ln(X) + 1.55$
PM Peak Hour: $T = 1.12 (X) + 78.81$

Where:
Ln = Natural logarithm
T = Two-way volume of traffic (total trip-ends)
X = Area in 1,000 gross square feet of floor area



1. I-110 SB RAMPS/EL SEGUNDO BL

2. I-110 NB RAMPS/EL SEGUNDO BL

3. FIGUEROA ST/EL SEGUNDO BL

4. BROADWAY/EL SEGUNDO BL

5. MAIN ST/EL SEGUNDO BL

6. SAN PEDRO ST/120TH ST

7. SAN PEDRO ST/EL SEGUNDO BL

8. AVALON BL/CENTURY BL

9. AVALON BL/IMPERIAL HWY

10. AVALON BL/120TH ST

11. AVALON BL/EL SEGUNDO BL

12. AVALON BL/ROSECRANS AV

13. CENTRAL AV/CENTURY BL

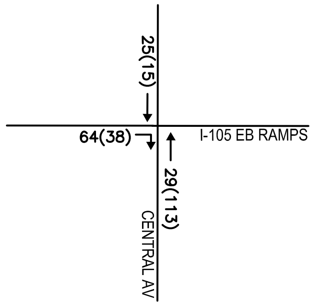
14. CENTRAL AV/103RD ST

15. CENTRAL AV/IMPERIAL HWY

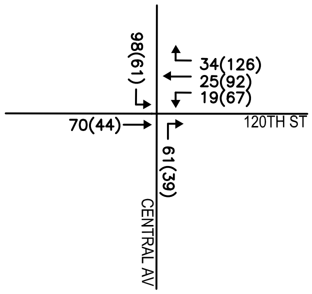
16. CENTRAL AV/I-105 WB RAMPS

FIGURE 17A
TIER 1 AND 2 PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES

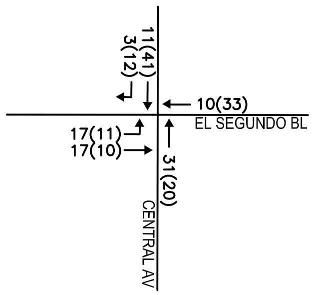
RAJU Associates, Inc.



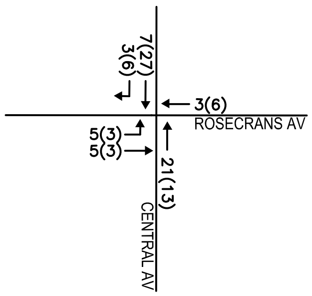
17. CENTRAL AV/I-105 EB RAMPS



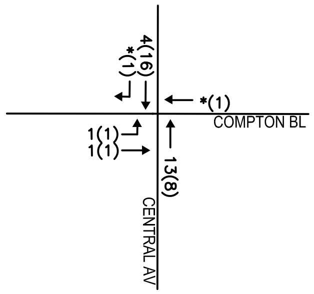
18. CENTRAL AV/120TH ST



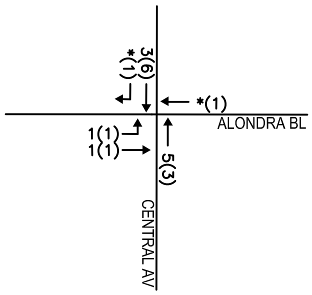
19. CENTRAL AV/EL SEGUNDO BL



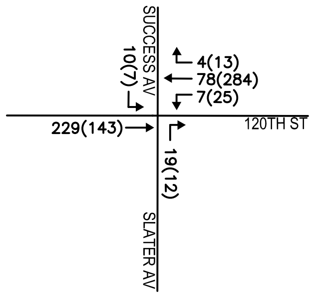
20. CENTRAL AV/ROSECRANS AV



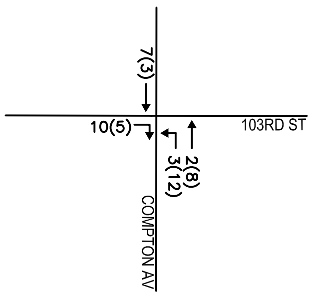
21. CENTRAL AV/COMPTON BL



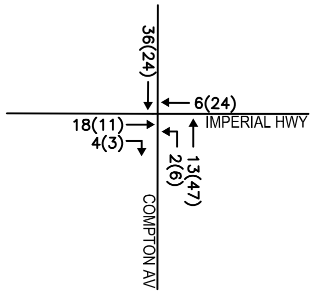
22. CENTRAL AV/ALONDRA BL



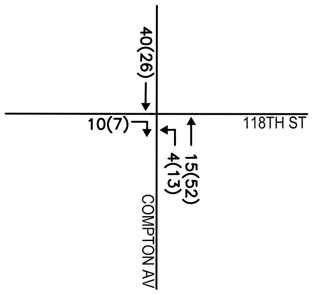
23. SUCCESS AV - SLATER AV/120TH ST



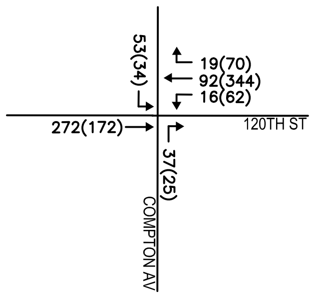
24. COMPTON AV/103RD ST



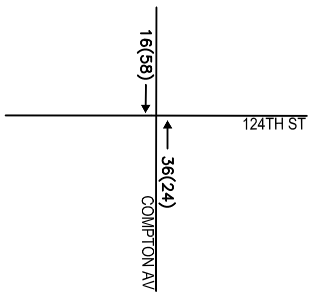
25. COMPTON AV/IMPERIAL HWY



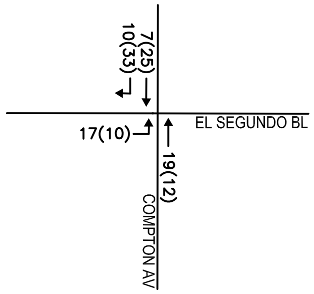
26. COMPTON AV/118TH ST



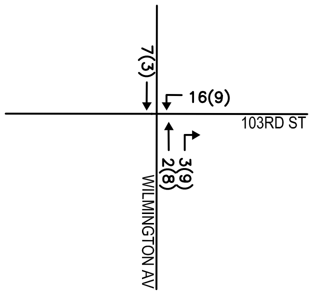
27. COMPTON AV/120TH ST [1]



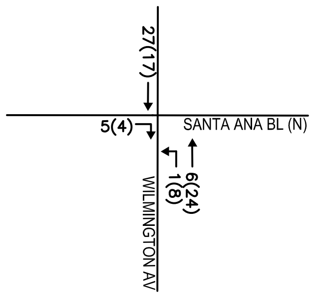
28. COMPTON AV/124TH ST



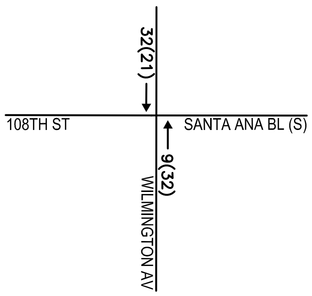
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

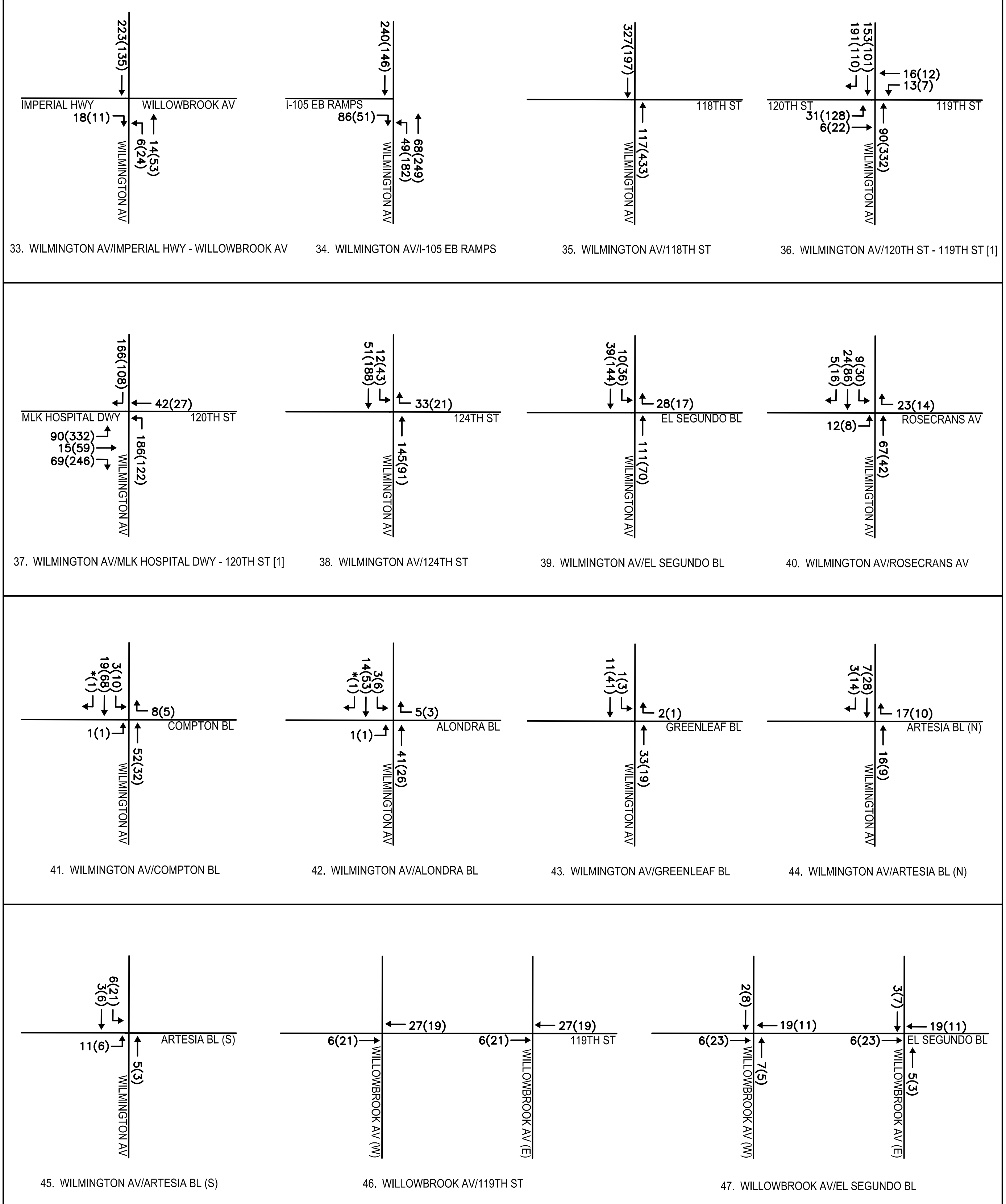
* - NEGLIGIBLE VOLUMES

[1] Pass-by credit not taken at this location.

N
Not to scale

FIGURE 17B
TIER 1 AND 2 PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV

34. WILMINGTON AV/I-105 EB RAMPS

35. WILMINGTON AV/118TH ST

36. WILMINGTON AV/120TH ST - 119TH ST [1]

37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST [1]

38. WILMINGTON AV/124TH ST

39. WILMINGTON AV/EL SEGUNDO BL

40. WILMINGTON AV/ROSECRANS AV

41. WILMINGTON AV/COMPTON BL

42. WILMINGTON AV/ALONDRA BL

43. WILMINGTON AV/GREENLEAF BL

44. WILMINGTON AV/ARTESIA BL (N)

45. WILMINGTON AV/ARTESIA BL (S)

46. WILLOWBROOK AV/119TH ST

47. WILLOWBROOK AV/EL SEGUNDO BL

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

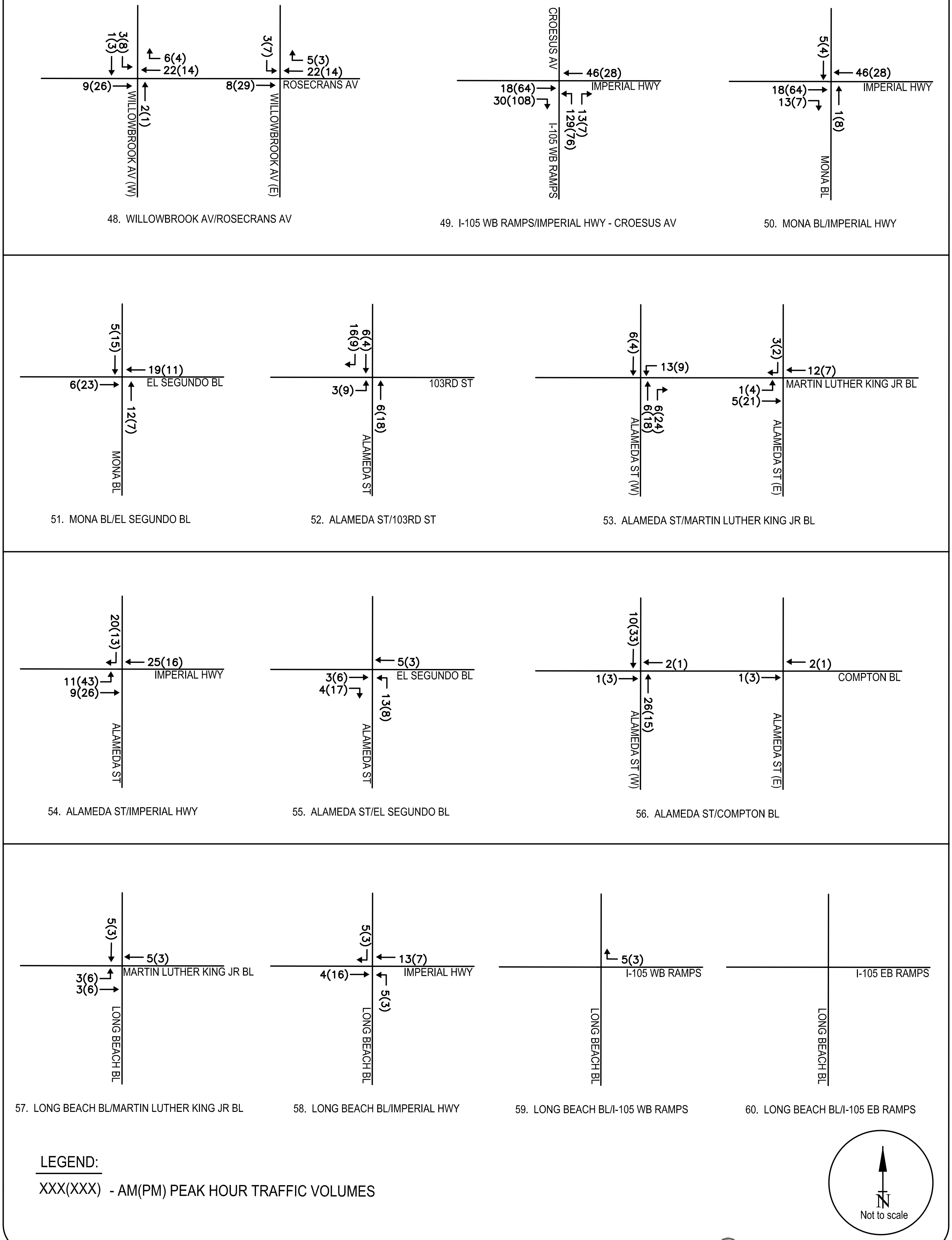
* - NEGLIGIBLE VOLUMES

[1] Pass-by credit not taken at this location.

N
Not to scale

FIGURE 17C
TIER 1 AND 2 PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



48. WILLOWBROOK AV/ROSECRANS AV

49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV

50. MONA BL/IMPERIAL HWY

51. MONA BL/EL SEGUNDO BL

52. ALAMEDA ST/103RD ST

53. ALAMEDA ST/MARTIN LUTHER KING JR BL

54. ALAMEDA ST/IMPERIAL HWY

55. ALAMEDA ST/EL SEGUNDO BL

56. ALAMEDA ST/COMPTON BL

57. LONG BEACH BL/MARTIN LUTHER KING JR BL

58. LONG BEACH BL/IMPERIAL HWY

59. LONG BEACH BL/I-105 WB RAMPS

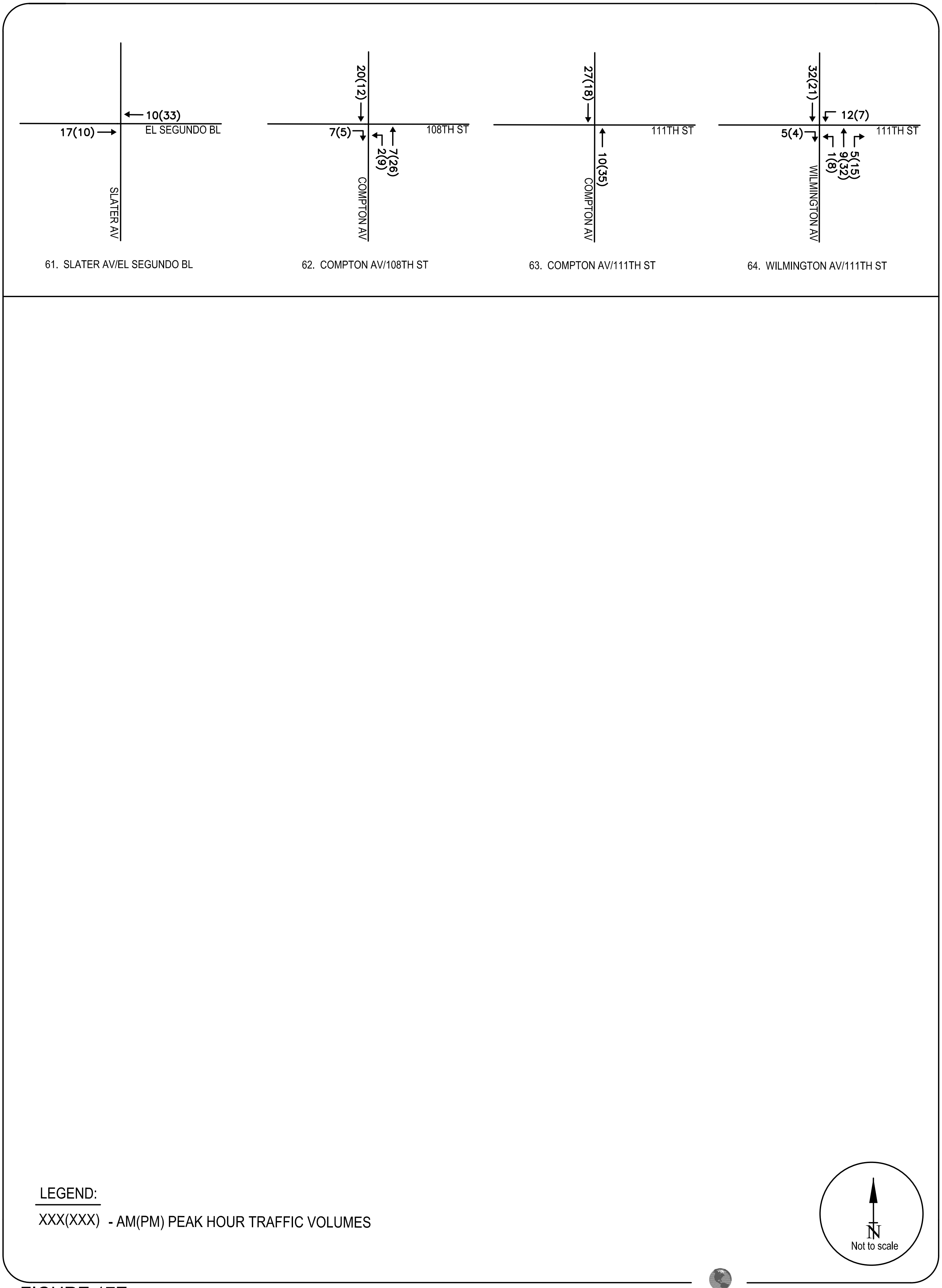
60. LONG BEACH BL/I-105 EB RAMPS

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

FIGURE 17D
TIER 1 AND 2 PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



61. SLATER AV/EL SEGUNDO BL

62. COMPTON AV/108TH ST

63. COMPTON AV/111TH ST

64. WILMINGTON AV/111TH ST

FIGURE 17E
TIER 1 AND 2 PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES

EXISTING BASELINE WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT TRAFFIC CONDITIONS

This section contains the evaluation of the Existing Baseline with Ambient Growth (2020) plus Tier I and II Project Traffic Conditions. The assessment of Existing Baseline with Ambient Growth (2020) plus Tier I and II Project Traffic Conditions involved the following tasks:

- Existing Baseline with Ambient Growth (2020) plus Tier I and II Project Traffic projections at all study intersections
- Analysis of Existing Baseline with Ambient Growth (2020) plus Tier I and II Project Traffic Conditions at study intersections located in the County of Los Angeles

A brief discussion of each of the tasks follows:

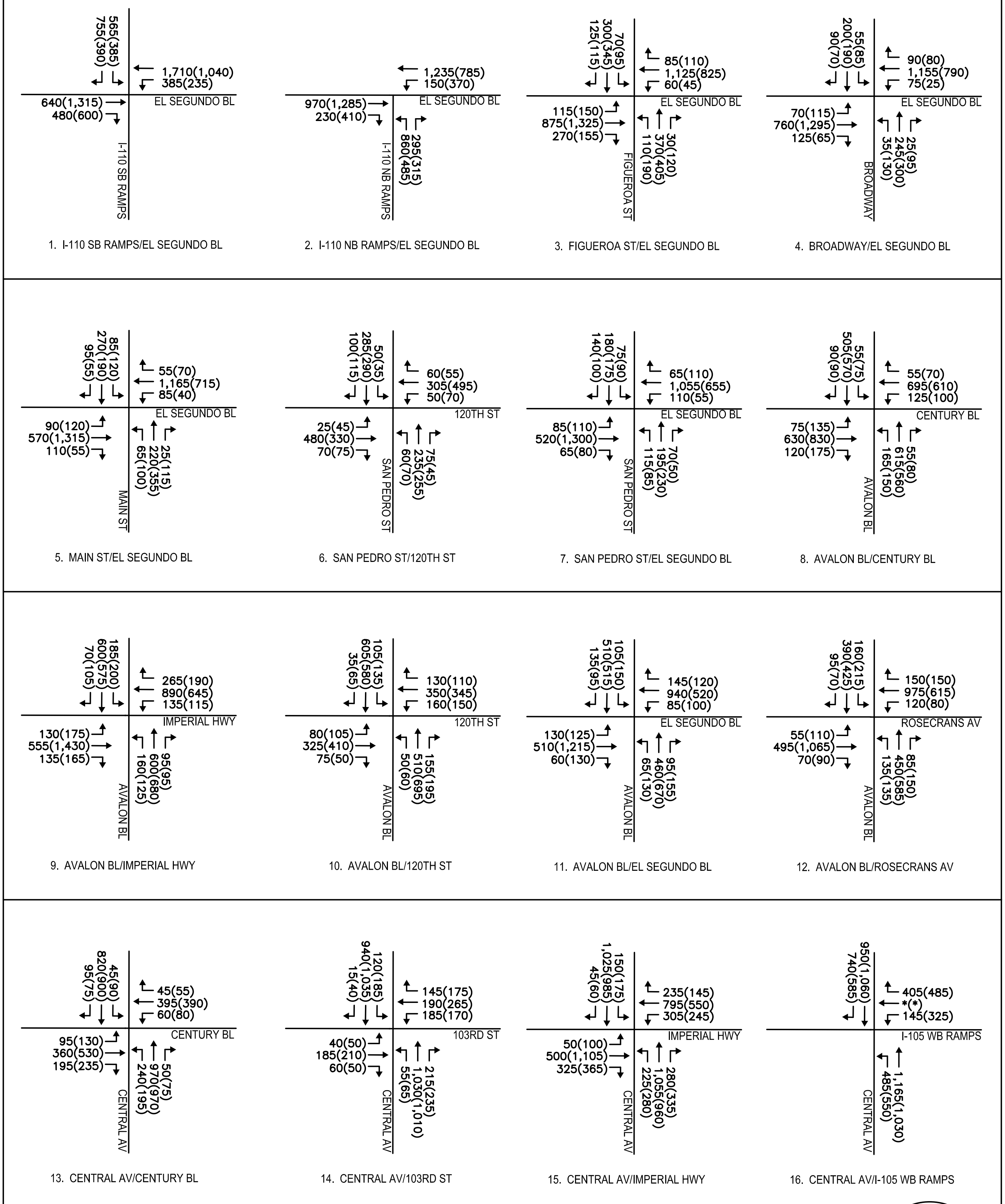
Existing Baseline with Ambient Growth (2020) plus Tier I and II Project Traffic Projections

Utilizing the project-only traffic estimates developed for both AM and PM peak hours, traffic forecasts for the Existing Baseline with Ambient Growth (2020) plus Tier I and II Project conditions were developed. The Existing Baseline with Ambient Growth (2020) Base traffic forecasts were combined with the Tier I and Tier II Project-only traffic volumes to obtain the Existing Baseline with Ambient Growth (2020) plus Project traffic volume forecasts. The Existing Baseline with Ambient Growth (2020) plus Tier I and II Project traffic volumes during both A.M. and P.M. peak hours are presented in Figures 18A-18E.

Existing Baseline with Ambient Growth (2020) plus Tier I and II Project Traffic Conditions

The Existing Baseline with Ambient Growth (2020) plus Tier I and II Project peak hour traffic volumes were analyzed at each of the 27 study intersections located with the County of Los Angeles to determine the V/C ratio and corresponding level of service. Table 19 presents the results of the Future Existing Baseline with Ambient Growth (2020) plus Tier I and II Project traffic analysis.

As indicated in the Table 19, 25 of the 27 analyzed intersections in the morning peak hour and 22 of the 27 analyzed intersections in the evening peak hour are projected to operate at LOS D or better.



1. I-110 SB RAMPS/EL SEGUNDO BL
2. I-110 NB RAMPS/EL SEGUNDO BL
3. FIGUEROA ST/EL SEGUNDO BL
4. BROADWAY/EL SEGUNDO BL
5. MAIN ST/EL SEGUNDO BL
6. SAN PEDRO ST/120TH ST
7. SAN PEDRO ST/EL SEGUNDO BL
8. AVALON BL/CENTURY BL
9. AVALON BL/IMPERIAL HWY
10. AVALON BL/120TH ST
11. AVALON BL/EL SEGUNDO BL
12. AVALON BL/ROSECRANS AV
13. CENTRAL AV/CENTURY BL
14. CENTRAL AV/103RD ST
15. CENTRAL AV/IMPERIAL HWY
16. CENTRAL AV/I-105 WB RAMPS

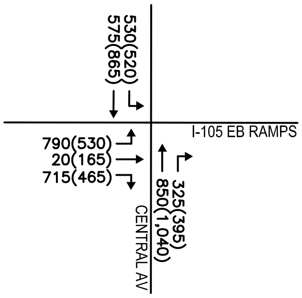
LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

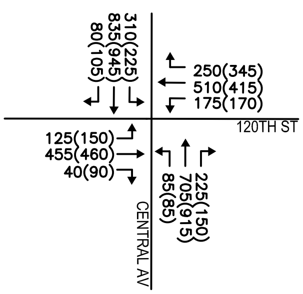
* - NEGLIGIBLE VOLUME

FIGURE 18A
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT PEAK HOUR TRAFFIC VOLUMES

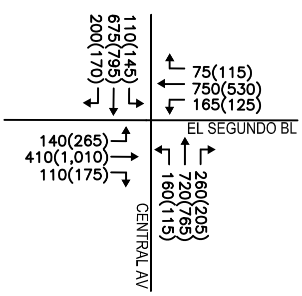
RAJU Associates, Inc.



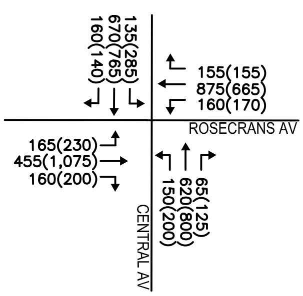
17. CENTRAL AV/I-105 EB RAMPS



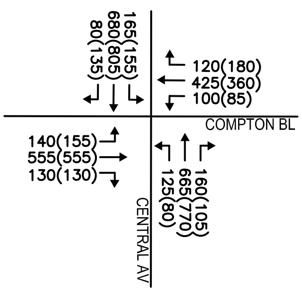
18. CENTRAL AV/120TH ST



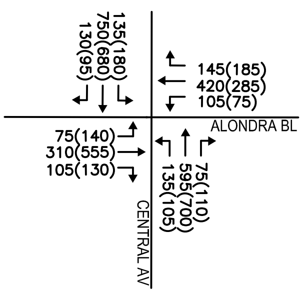
19. CENTRAL AV/EL SEGUNDO BL



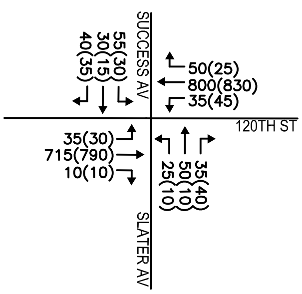
20. CENTRAL AV/ROSECRANS AV



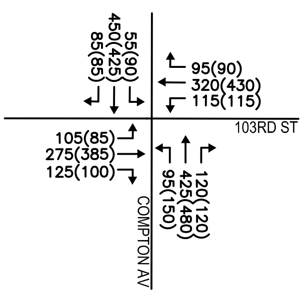
21. CENTRAL AV/COMPTON BL



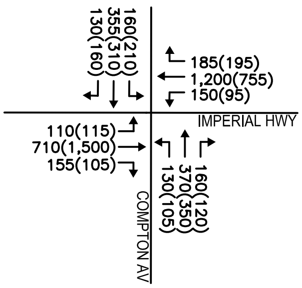
22. CENTRAL AV/ALONDRA BL



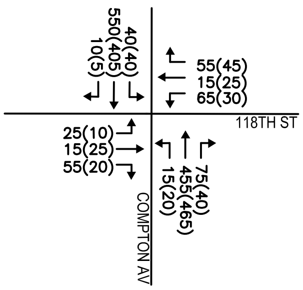
23. SUCCESS AV - SLATER AV/120TH ST



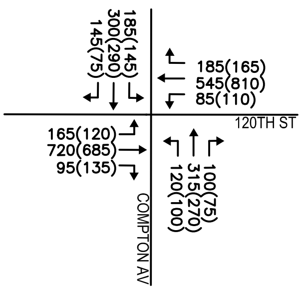
24. COMPTON AV/103RD ST



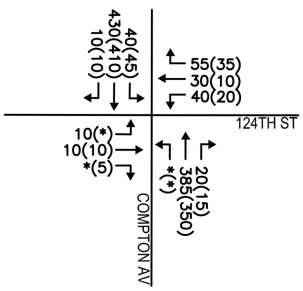
25. COMPTON AV/IMPERIAL HWY



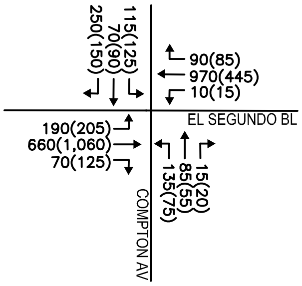
26. COMPTON AV/118TH ST



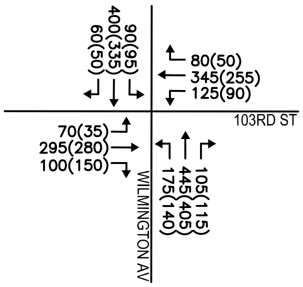
27. COMPTON AV/120TH ST



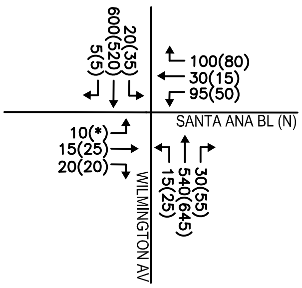
28. COMPTON AV/124TH ST



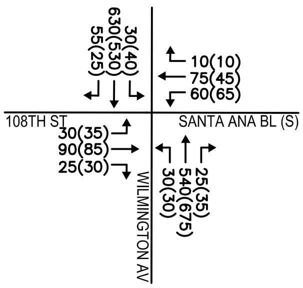
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

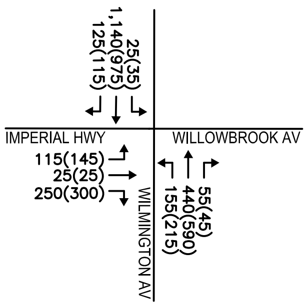
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

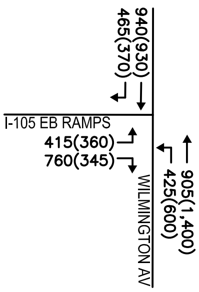
N
Not to scale

FIGURE 18B
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT PEAK HOUR TRAFFIC VOLUMES

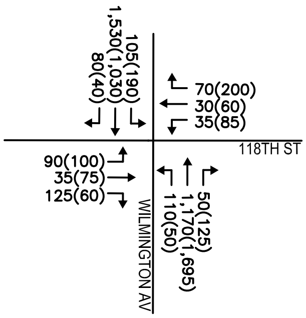
RAJU Associates, Inc.



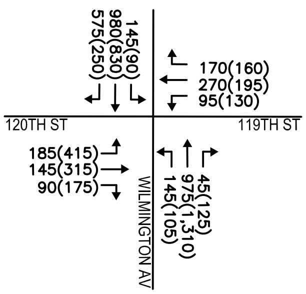
33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV



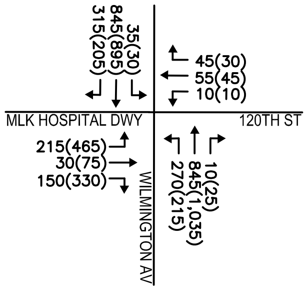
34. WILMINGTON AV/I-105 EB RAMPS



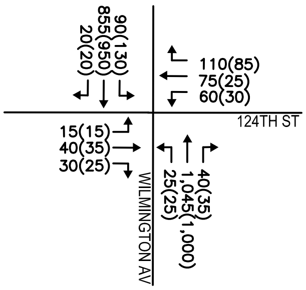
35. WILMINGTON AV/118TH ST



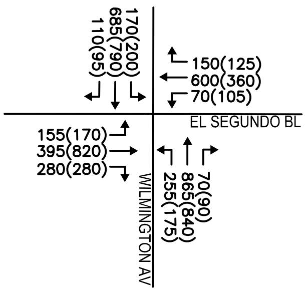
36. WILMINGTON AV/120TH ST - 119TH ST



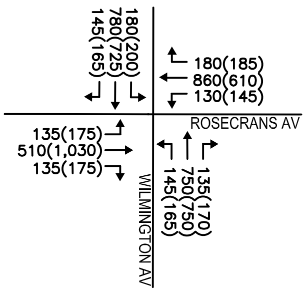
37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST



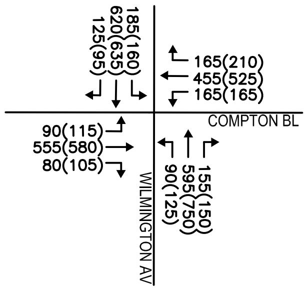
38. WILMINGTON AV/124TH ST



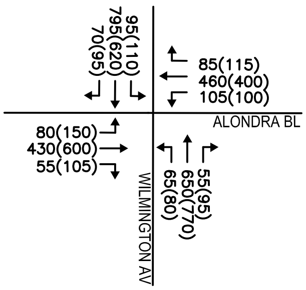
39. WILMINGTON AV/EL SEGUNDO BL



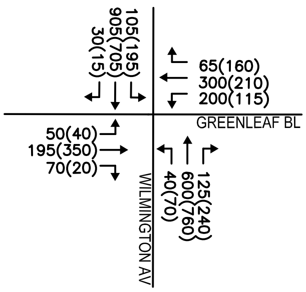
40. WILMINGTON AV/ROSECRANS AV



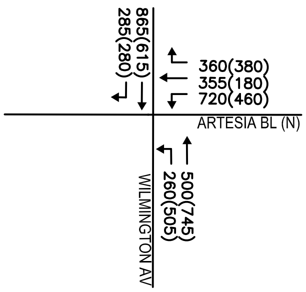
41. WILMINGTON AV/COMPTON BL



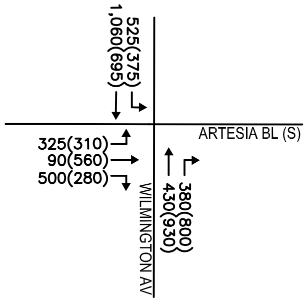
42. WILMINGTON AV/ALONDRA BL



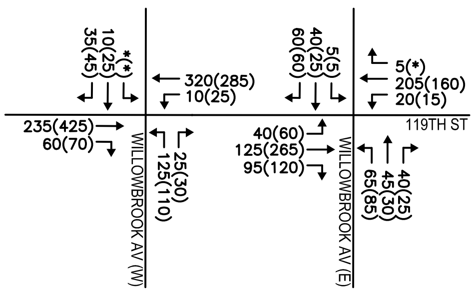
43. WILMINGTON AV/GREENLEAF BL



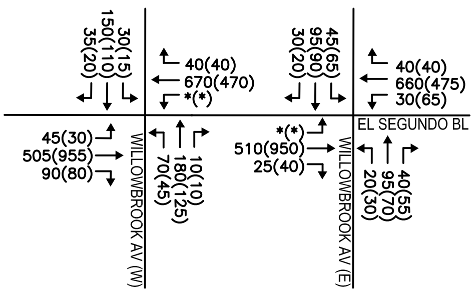
44. WILMINGTON AV/ARTESIA BL (N)



45. WILMINGTON AV/ARTESIA BL (S)



46. WILLOWBROOK AV/119TH ST



47. WILLOWBROOK AV/EL SEGUNDO BL

LEGEND:

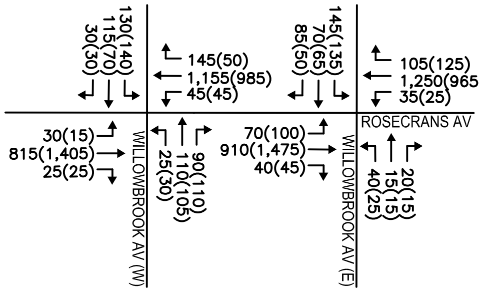
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

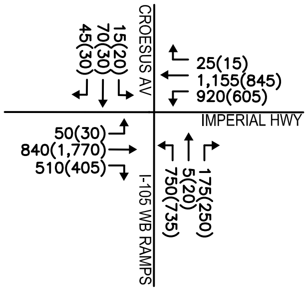
N
Not to scale

FIGURE 18C
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT PEAK HOUR TRAFFIC VOLUMES

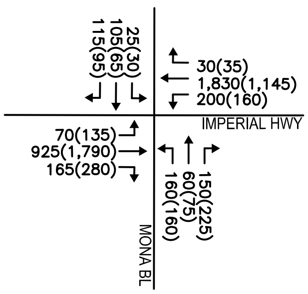
RAJU Associates, Inc.



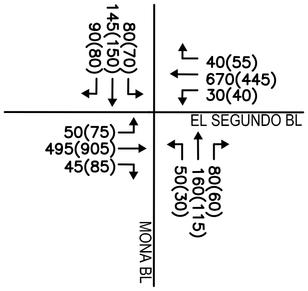
48. WILLOWBROOK AV/ROSECRANS AV



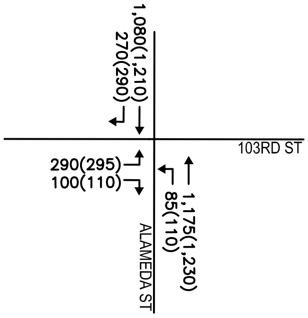
49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV



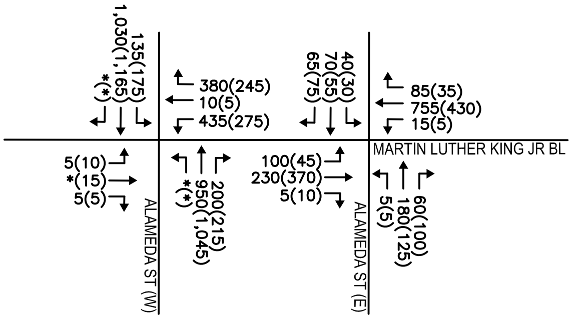
50. MONA BL/IMPERIAL HWY



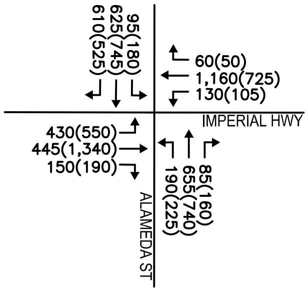
51. MONA BL/EL SEGUNDO BL



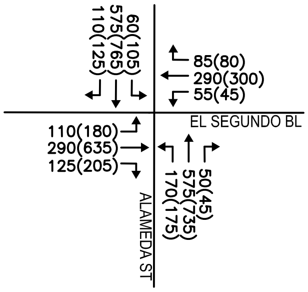
52. ALAMEDA ST/103RD ST



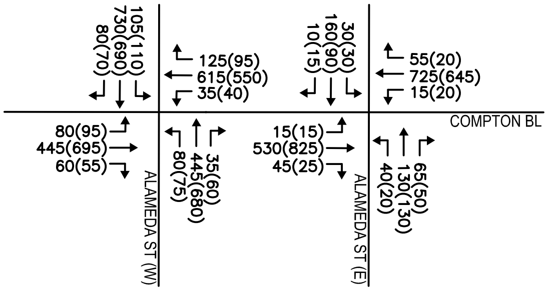
53. ALAMEDA ST/MARTIN LUTHER KING JR BL



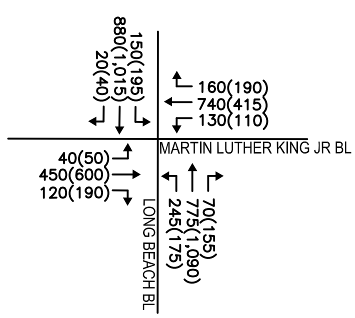
54. ALAMEDA ST/IMPERIAL HWY



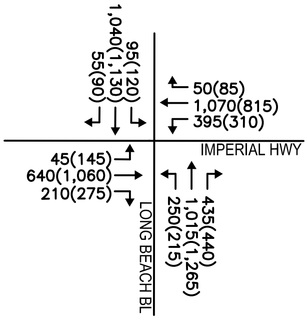
55. ALAMEDA ST/EL SEGUNDO BL



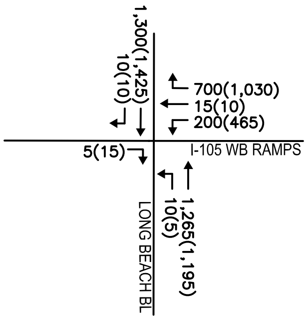
56. ALAMEDA ST/COMPTON BL



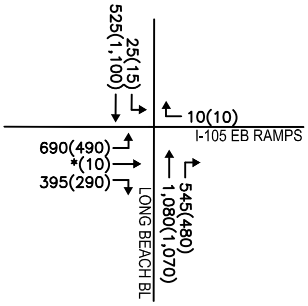
57. LONG BEACH BL/MARTIN LUTHER KING JR BL



58. LONG BEACH BL/IMPERIAL HWY



59. LONG BEACH BL/I-105 WB RAMPS



60. LONG BEACH BL/I-105 EB RAMPS

LEGEND:

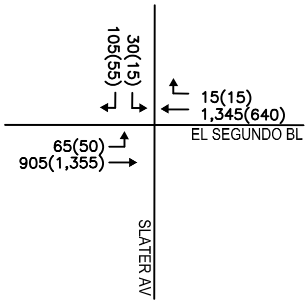
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

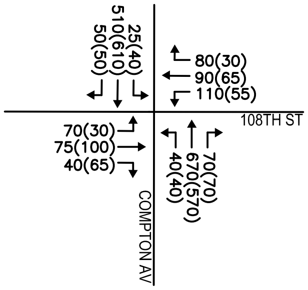
N
Not to scale

FIGURE 18D
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT PEAK HOUR TRAFFIC VOLUMES

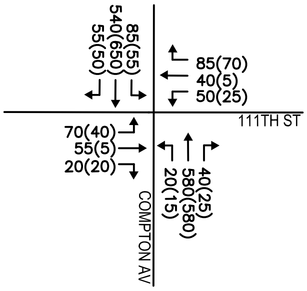
RAJU Associates, Inc.



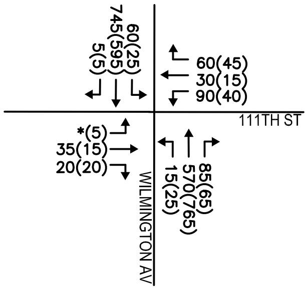
61. SLATER AV/EL SEGUNDO BL



62. COMPTON AV/108TH ST



63. COMPTON AV/111TH ST



64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 18E
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

TABLE 19
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
		V/C	LOS	V/C	LOS
	Los Angeles County				
52	Alameda Street/103rd Street [1]	0.820	D	0.890	D
55	Alameda Street/El Segundo Boulevard [2]	0.672	B	0.788	C
54	Alameda Street/Imperial Highway [1]*	0.803	D	0.877	D
11	Avalon Boulevard/El Segundo Boulevard	0.647	B	0.795	C
12	Avalon Boulevard/Rosecrans Avenue	0.638	B	0.755	C
4	Broadway/El Segundo Boulevard	0.523	A	0.573	A
19	Central Avenue/El Segundo Boulevard [2]	0.822	D	0.888	D
20	Central Avenue/Rosecrans Avenue [2]	0.830	D	0.964	E
26	Compton Avenue/118th Street	0.400	A	0.356	A
27	Compton Avenue/120th Street	0.677	B	0.679	B
28	Compton Avenue/124th Street	0.335	A	0.285	A
25	Compton Avenue/Imperial Highway [3]**	0.887	D	0.752	C
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	0.830	D	0.795	C
5	Main Street/El Segundo Boulevard	0.564	A	0.632	B
51	Mona Boulevard/El Segundo Boulevard	0.588	A	0.611	B
50	Mona Boulevard/Imperial Highway [1,3]**	0.686	B	0.751	C
7	San Pedro Street/El Segundo Boulevard	0.556	A	0.566	A
23	Success Avenue - Slater Avenue/120th Street	0.491	A	0.442	A
46	Willowbrook Avenue/119th Street	0.543	A	0.718	C
47	Willowbrook Avenue/El Segundo Boulevard	0.580	A	0.654	B
35	Wilmington Avenue/118th Street	0.848	D	0.826	D
36	Wilmington Avenue/120th Street-119th Street	0.933	E	0.978	E
38	Wilmington Avenue/124th Street	0.653	B	0.601	B
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.917	E	0.990	E
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	0.835	D	0.918	E
39	Wilmington Avenue/El Segundo Boulevard [2]	0.840	D	0.923	E
33	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.564	A	0.563	A

* Los Angeles County Congestion Management Program (CMP) monitoring location.
** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.
[1] Shares jurisdiction with City of Lynwood.
[2] Shares jurisdiction with City of Compton.
[3] Shares jurisdiction with City of Los Angeles.
[4] Shares jurisdiction with Caltrans.

The remaining five intersections are projected to operate at LOS E and include the following:

- Central Avenue/Rosecrans Avenue: PM Peak Hour – LOS E
- Wilmington Avenue/120th Street-119th Street: AM and PM Peak Hours – LOS E
- Wilmington Avenue/I-105 Eastbound Ramps: AM and PM Peak Hours – LOS E
- Wilmington Avenue/MLK Hospital Driveway-120th Street: PM Peak Hour – LOS E
- Wilmington Avenue/El Segundo Boulevard: PM Peak Hour – LOS E

Capacity calculation worksheets for Existing Baseline with Ambient Growth (2020) plus Tier I and II Project conditions are attached in Appendix M of the report.

EXISTING BASELINE WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT AND RELATED PROJECTS/CUMULATIVE (2020) PLUS TIER I AND II PROJECT TRAFFIC CONDITIONS

This section contains the evaluation of the Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects or Cumulative (2020) plus Tier I and II Project Traffic Conditions. The assessment of Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects Traffic Conditions involved the following tasks:

- Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects (same as Cumulative (2020) plus Tier I and II Project) Traffic projections at all study intersections.

- Analysis of Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects (same as Cumulative (2020) plus Tier I and II Project) Traffic Conditions at all study intersections.

A brief discussion of each of the tasks follows:

Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects (Cumulative (2020) plus Tier I and II Project) Traffic Projections

The Existing Baseline with Ambient Growth (2020) traffic forecasts were combined with the Tier I and II Project-only traffic volumes and related projects traffic volumes to obtain the Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects (or Cumulative (2020) plus Tier I and I Project) traffic volume forecasts. The Existing Baseline with

Ambient Growth (2020) plus Tier I and II Project and Related Projects traffic volumes during both A.M. and P.M. peak hours are presented in Figures 19A-19E.

Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects (Cumulative (2020) plus Tier I and II Project) Traffic Conditions

The Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects (or Cumulative (2020) plus Tier I and II Project) peak hour traffic volumes were analyzed at each of the study intersections to determine the V/C ratio and corresponding level of service. Table 20 presents the results of the Future Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects traffic analysis.

As indicated in the Table 20, 59 of the 64 analyzed intersections during the morning peak hour and 53 of the 64 analyzed intersections during the PM peak hour are projected to operate at LOS D or better. The remaining intersections are projected to operate at LOS E or LOS F and are listed below:

- Alameda Street/103rd Street: PM Peak Hour – LOS E
- Alameda Street/Imperial Highway: PM Peak Hour – LOS E
- Central Avenue/El Segundo Boulevard: PM Peak Hour – LOS E
- Central Avenue/Rosecrans Avenue: PM Peak Hour – LOS E
- Compton Avenue/Imperial Highway: AM Peak Hour – LOS E
- Wilmington Avenue/120th Street-119th Street: AM Peak Hour – LOS E, PM Peak Hour – LOS F
- Wilmington Avenue/I-105 Eastbound Ramps: AM Peak Hour – LOS E, PM Peak Hour – LOS F
- Wilmington Avenue/MLK Driveway-120th Street: PM Peak Hour – LOS E
- Wilmington Avenue/El Segundo Boulevard: PM Peak Hour – LOS E
- Wilmington Avenue/Rosecrans Avenue: AM and PM Peak Hours – LOS E
- I-110 Northbound Ramps/El Segundo Boulevard: PM Peak Hour – LOS E
- Long Beach Boulevard/Imperial Highway: AM and PM Peak Hours – LOS F

Capacity calculation worksheets for Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects (or Cumulative (2020) plus Tier I and II Project) conditions are attached in Appendix N of the report.

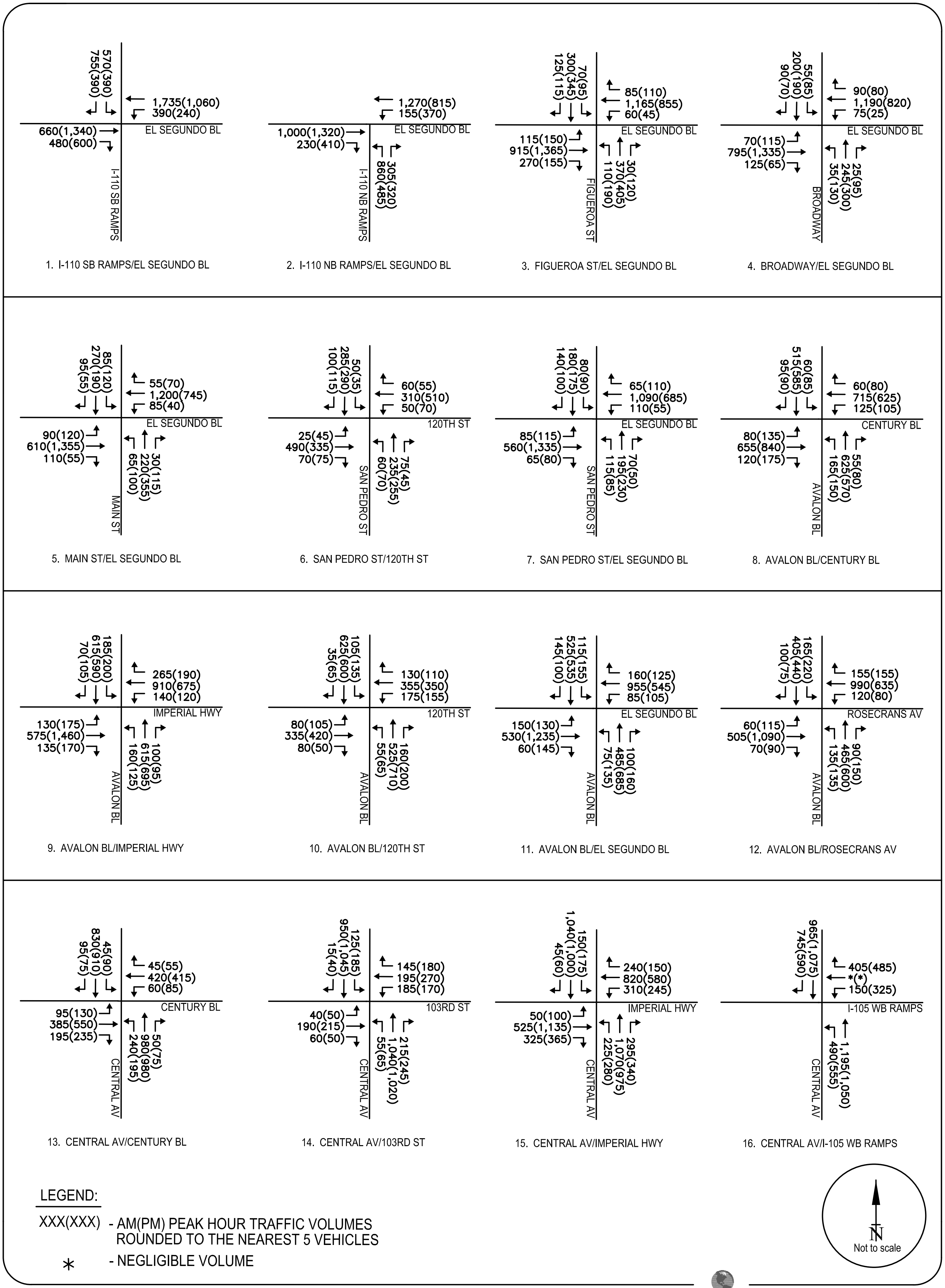
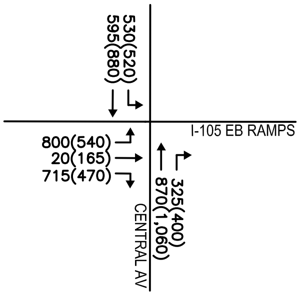
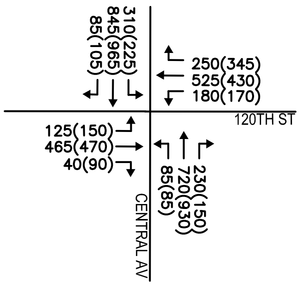


FIGURE 19A
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS
TIER 1 AND 2 PROJECT AND RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT)
PEAK HOUR TRAFFIC VOLUMES

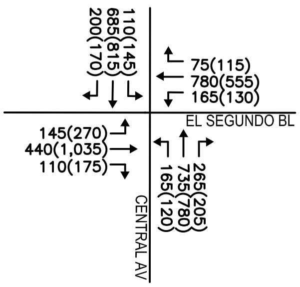
RAJU Associates, Inc.



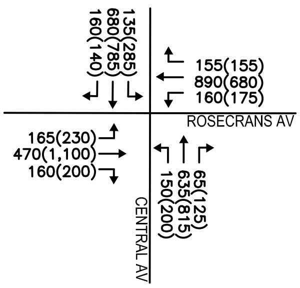
17. CENTRAL AV/I-105 EB RAMPS



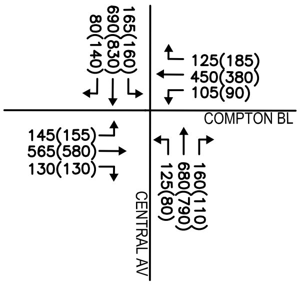
18. CENTRAL AV/120TH ST



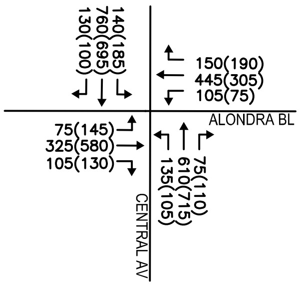
19. CENTRAL AV/EL SEGUNDO BL



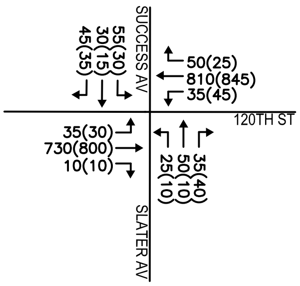
20. CENTRAL AV/ROSECRANS AV



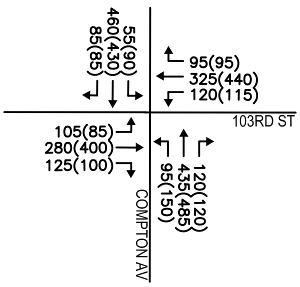
21. CENTRAL AV/COMPTON BL



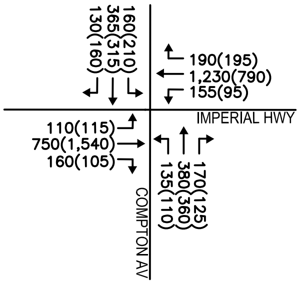
22. CENTRAL AV/ALONDRA BL



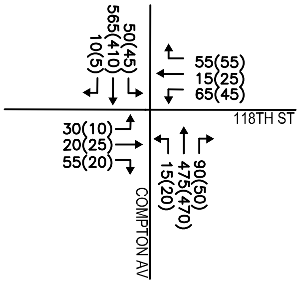
23. SUCCESS AV - SLATER AV/120TH ST



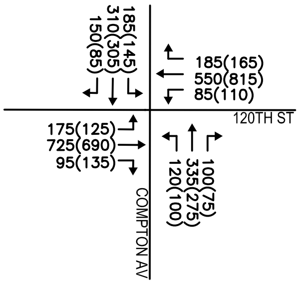
24. COMPTON AV/103RD ST



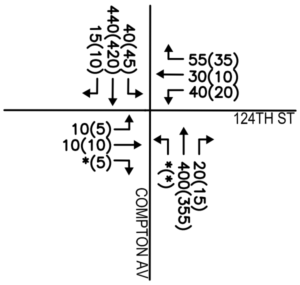
25. COMPTON AV/IMPERIAL HWY



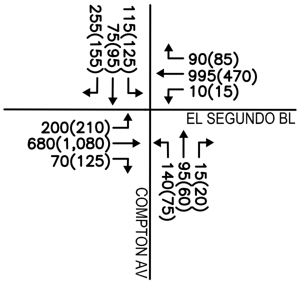
26. COMPTON AV/118TH ST



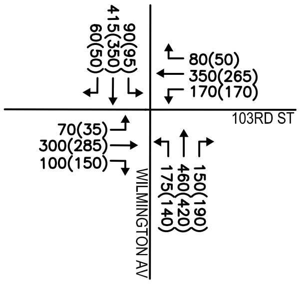
27. COMPTON AV/120TH ST



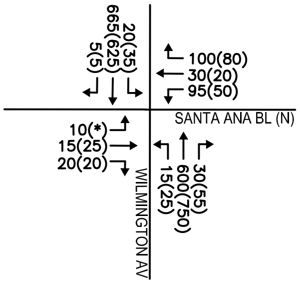
28. COMPTON AV/124TH ST



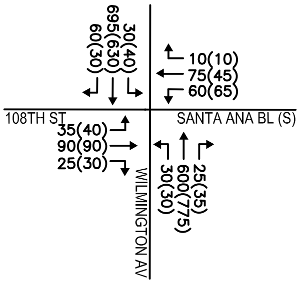
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

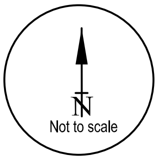
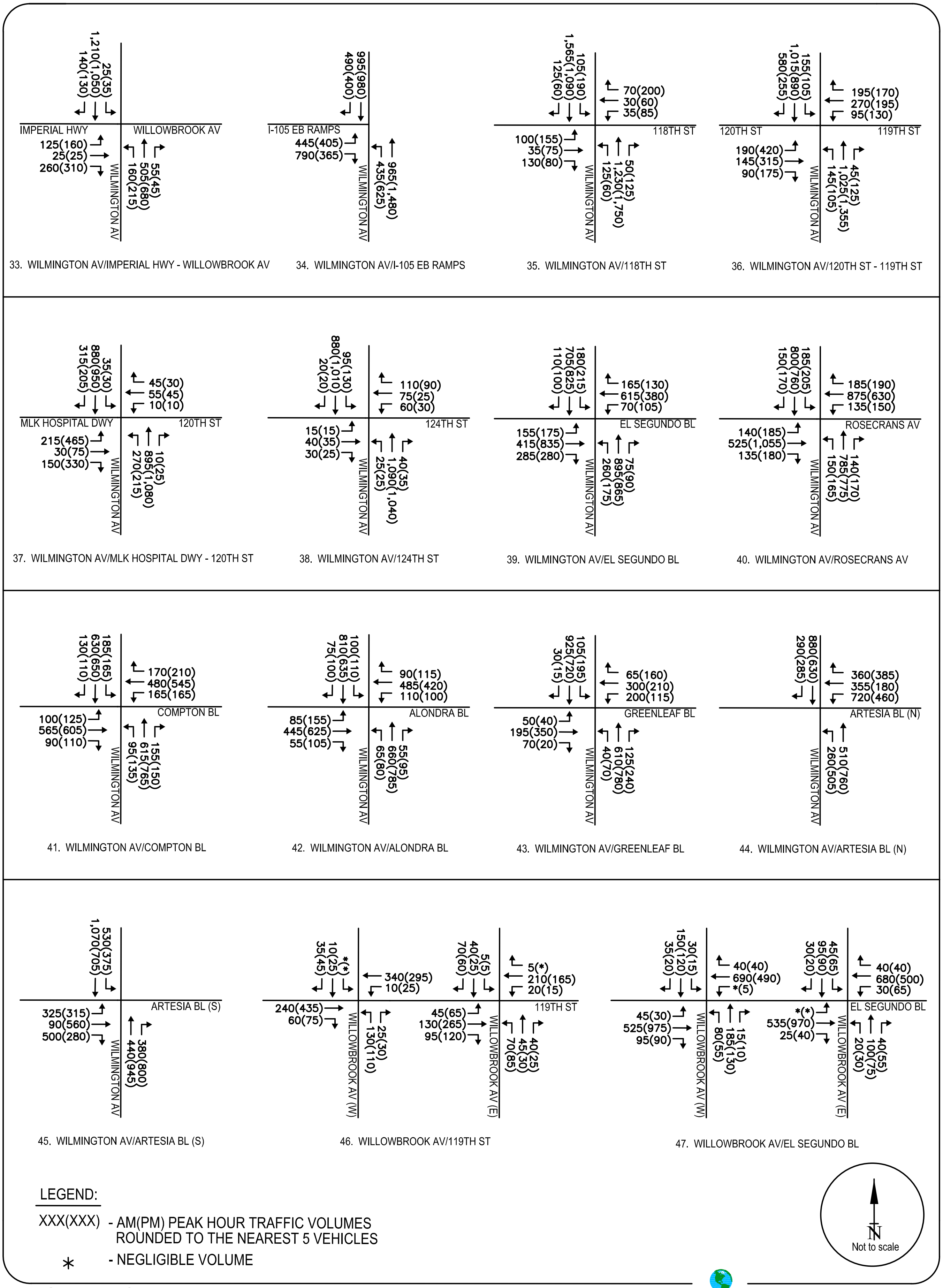


FIGURE 19B
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS
TIER 1 AND 2 PROJECT AND RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT)
PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV

34. WILMINGTON AV/I-105 EB RAMPS

35. WILMINGTON AV/118TH ST

36. WILMINGTON AV/120TH ST - 119TH ST

37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST

38. WILMINGTON AV/124TH ST

39. WILMINGTON AV/EL SEGUNDO BL

40. WILMINGTON AV/ROSECRANS AV

41. WILMINGTON AV/COMPTON BL

42. WILMINGTON AV/ALONDRA BL

43. WILMINGTON AV/GREENLEAF BL

44. WILMINGTON AV/ARTESIA BL (N)

45. WILMINGTON AV/ARTESIA BL (S)

46. WILLOWBROOK AV/119TH ST

47. WILLOWBROOK AV/EL SEGUNDO BL

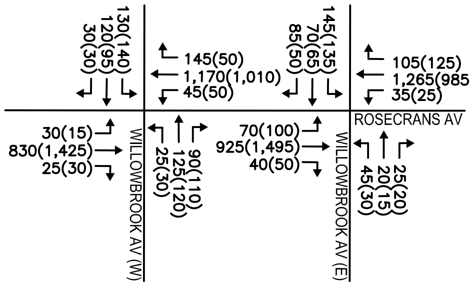
LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES ROUNDED TO THE NEAREST 5 VEHICLES

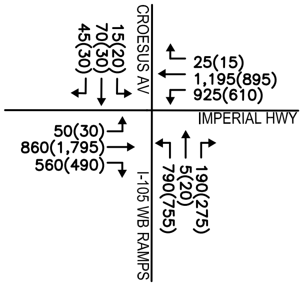
* - NEGLIGIBLE VOLUME

FIGURE 19C
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS
TIER 1 AND 2 PROJECT AND RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT)
PEAK HOUR TRAFFIC VOLUMES

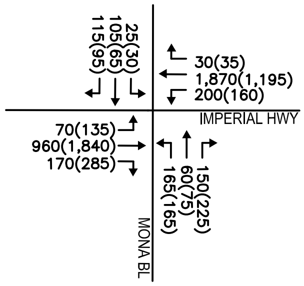
RAJU Associates, Inc.



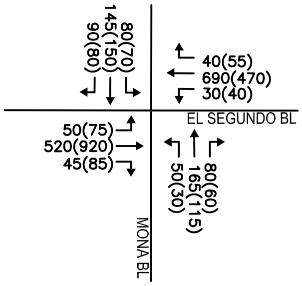
48. WILLOWBROOK AV/ROSECRANS AV



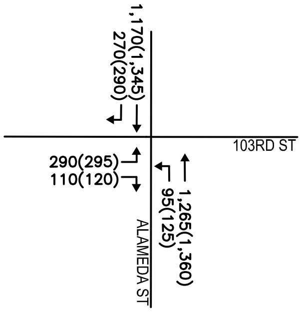
49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV



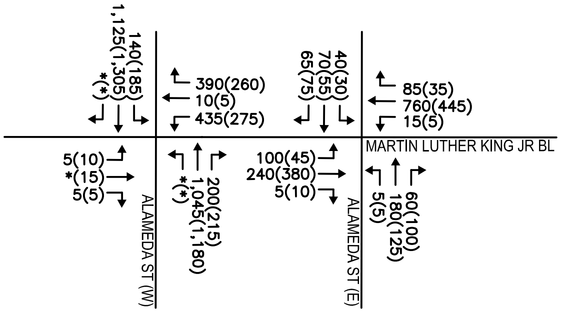
50. MONA BL/IMPERIAL HWY



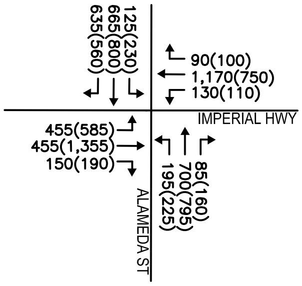
51. MONA BL/EL SEGUNDO BL



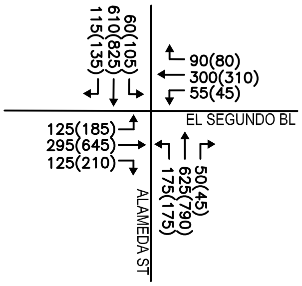
52. ALAMEDA ST/103RD ST



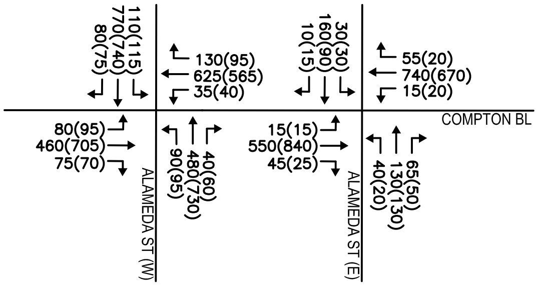
53. ALAMEDA ST/MARTIN LUTHER KING JR BL



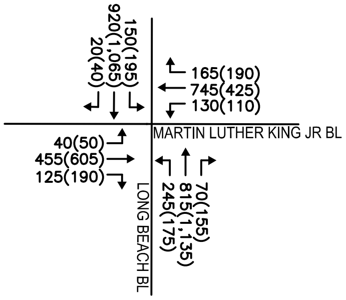
54. ALAMEDA ST/IMPERIAL HWY



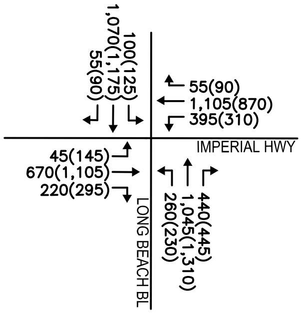
55. ALAMEDA ST/EL SEGUNDO BL



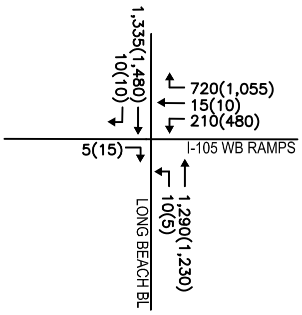
56. ALAMEDA ST/COMPTON BL



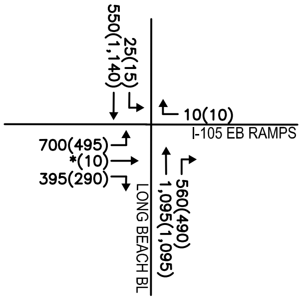
57. LONG BEACH BL/MARTIN LUTHER KING JR BL



58. LONG BEACH BL/IMPERIAL HWY



59. LONG BEACH BL/I-105 WB RAMPS



60. LONG BEACH BL/I-105 EB RAMPS

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

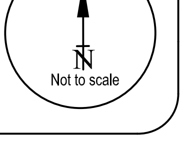
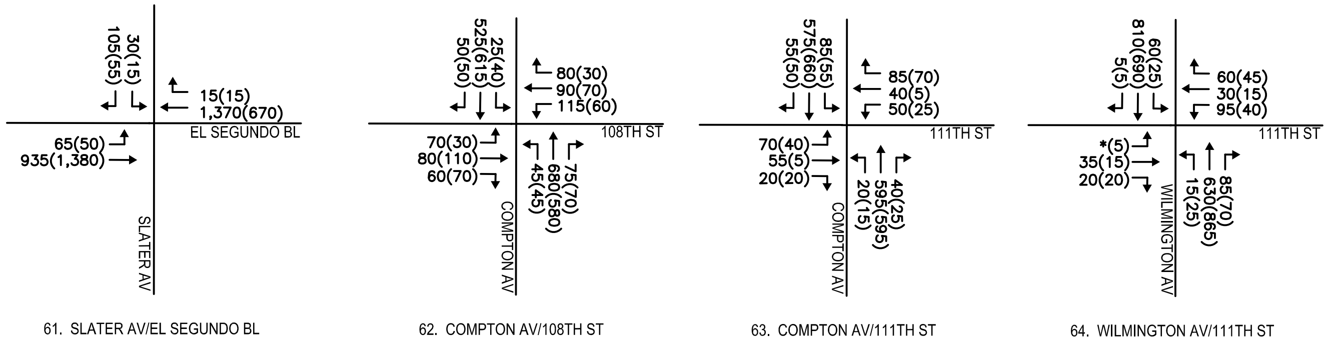


FIGURE 19D
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS
TIER 1 AND 2 PROJECT AND RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT)
PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.



61. SLATER AV/EL SEGUNDO BL

62. COMPTON AV/108TH ST

63. COMPTON AV/111TH ST

64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES
ROUNDED TO THE NEAREST 5 VEHICLES

* - NEGLIGIBLE VOLUME

N
Not to scale

FIGURE 19E
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS
TIER 1 AND 2 PROJECT AND RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT)
PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

TABLE 20
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT AND RELATED PROJECT/ CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
		V/C	LOS	V/C	LOS
Los Angeles County					
52	Alameda Street/103rd Street [1]	0.864	D	0.950	E
55	Alameda Street/El Segundo Boulevard [2]	0.703	C	0.820	D
54	Alameda Street/Imperial Highway [1]*	0.825	D	0.935	E
11	Avalon Boulevard/El Segundo Boulevard	0.682	B	0.814	D
12	Avalon Boulevard/Rosecrans Avenue	0.649	B	0.771	C
4	Broadway/El Segundo Boulevard	0.530	A	0.581	A
19	Central Avenue/El Segundo Boulevard [2]	0.837	D	0.902	E
20	Central Avenue/Rosecrans Avenue [2]	0.838	D	0.975	E
26	Compton Avenue/118th Street	0.419	A	0.382	A
27	Compton Avenue/120th Street	0.693	B	0.685	B
28	Compton Avenue/124th Street	0.343	A	0.290	A
25	Compton Avenue/Imperial Highway [3]**	0.905	E	0.769	C
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	0.857	D	0.815	D
5	Main Street/El Segundo Boulevard	0.571	A	0.640	B
51	Mona Boulevard/El Segundo Boulevard	0.593	A	0.616	B
50	Mona Boulevard/Imperial Highway [1,3]**	0.697	B	0.763	C
7	San Pedro Street/El Segundo Boulevard	0.566	A	0.575	A
23	Success Avenue - Slater Avenue/120th Street	0.495	A	0.447	A
46	Willowbrook Avenue/119th Street	0.575	A	0.739	C
47	Willowbrook Avenue/El Segundo Boulevard	0.595	A	0.664	B
35	Wilmington Avenue/118th Street	0.895	D	0.870	D
36	Wilmington Avenue/120th Street-119th Street	0.954	E	1.008	F
38	Wilmington Avenue/124th Street	0.674	B	0.619	B
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	0.962	E	1.052	F
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	0.845	D	0.937	E
39	Wilmington Avenue/El Segundo Boulevard [2]	0.858	D	0.949	E
33	Wilmington Avenue/Imperial Highway-Willowbrook Avenue [3]**	0.599	A	0.606	B
City of Compton					
56	Alameda Street/Compton Boulevard *	0.708	C	0.702	C
22	Central Avenue/Alondra Boulevard	0.693	B	0.745	C
21	Central Avenue/Compton Boulevard	0.734	C	0.757	C
29	Compton Avenue/El Segundo Boulevard	0.809	D	0.628	B
61	Slater Avenue/El Segundo Boulevard	0.599	A	0.541	A
48	Willowbrook Avenue/Rosecrans Avenue	0.805	D	0.849	D
42	Wilmington Avenue/Alondra Boulevard	0.647	B	0.736	C
41	Wilmington Avenue/Compton Boulevard	0.716	C	0.767	C
43	Wilmington Avenue/Greenleaf Boulevard	0.712	C	0.769	C
40	Wilmington Avenue/Rosecrans Avenue	0.922	E	0.945	E
44	Wilmington Avenue/Artesia Boulevard (N) [4]	0.840	D	0.845	D
45	Wilmington Avenue/Artesia Boulevard (S) [4]	0.747	C	0.790	C
City of Los Angeles					
10	Avalon Boulevard/120th Street**	0.648	B	0.761	C
8	Avalon Boulevard/Century Boulevard**	0.615	B	0.688	B
9	Avalon Boulevard/Imperial Highway**	0.664	B	0.785	C
14	Central Avenue/103rd Street**	0.743	C	0.820	D
18	Central Avenue/120th Street**	0.812	D	0.816	D
13	Central Avenue/Century Boulevard**	0.789	C	0.828	D
15	Central Avenue/Imperial Highway**	0.726	C	0.828	D
17	Central Avenue/I-105 Eastbound Ramps [4]**	0.726	C	0.679	B
16	Central Avenue/I-105 Westbound Ramps [4]**	0.764	C	0.748	C
24	Compton Avenue/103rd Street**	0.499	A	0.581	A

TABLE 20 (continued)
SUMMARY OF INTERSECTION LEVEL OF SERVICE ANALYSIS
EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT AND RELATED PROJECT/ CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS

Map #	INTERSECTION	AM PEAK HOUR V/C	AM PEAK HOUR LOS	PM PEAK HOUR V/C	PM PEAK HOUR LOS
62	Compton Avenue/108th Street**	0.736	C	0.636	B
63	Compton Avenue/111th Street**	0.614	B	0.577	A
3	Figueroa Street/El Segundo Boulevard	0.600	A	0.782	C
2	I-110 Northbound Ramps/El Segundo Boulevard [4]**	0.813	D	0.923	E
1	I-110 Southbound Ramps/El Segundo Boulevard [4]**	0.850	D	0.735	C
6	San Pedro Street/120th Street	0.658	B	0.660	B
30	Wilmington Avenue/103rd Street	0.668	B	0.635	B
64	Wilmington Avenue/111th Street	0.770	C	0.782	C
31	Wilmington Avenue/Santa Ana Boulevard (N)	0.675	B	0.721	C
32	Wilmington Avenue/Santa Ana Boulevard (S)	0.719	C	0.770	C
City of Lynwood					
53	Alameda Street/Martin Luther King Jr. Boulevard	0.841	D	0.800	C
58	Long Beach Boulevard/Imperial Highway	1.019	F	1.139	F
57	Long Beach Boulevard/Martin Luther King Jr. Boulevard	0.854	D	0.895	D
60	Long Beach Boulevard/I-105 Eastbound Ramps [4]	0.713	C	0.639	B
59	Long Beach Boulevard/I-105 Westbound Ramps [4]	0.515	A	0.717	C

* Los Angeles County Congestion Management Program (CMP) monitoring location.

** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.

[1] Shares jurisdiction with City of Lynwood.

[2] Shares jurisdiction with City of Compton.

[3] Shares jurisdiction with City of Los Angeles.

[4] Shares jurisdiction with Caltrans.

TRAFFIC IMPACT ANALYSIS – TIER II PROJECT

The Future Year 2020 conditions were analyzed utilizing the methodologies and assumptions per the County of Los Angeles, City of Los Angeles and Los Angeles County CMP traffic study guidelines. The results were then used to assess the potential impact of the Proposed Tier II Project as well as the cumulative impacts including Tier II Project on the local street system.

County of Los Angeles Traffic Impact Analysis

This section includes the traffic impact analysis for the study intersection in the County of Los Angeles determined using the specified significant impact criteria included in County's traffic study guidelines. The traffic impact analysis compares the volume to capacity (V/C) ratios at each study location under the future base and future plus project conditions to determine the incremental difference in V/C ratios caused by the Proposed Tier II Project. An additional analysis compares the future base and future plus project with related projects to determine the cumulative impacts. This provides the information needed to assess the potential Tier II Project impacts (and cumulative impacts) using significance criteria established by the County of Los Angeles.

Significant Traffic Impact Criteria. The County of Los Angeles Department of Public Works has established threshold criteria that determine if a project has a significant traffic impact at a specific intersection. According to the criteria provided by the County of Los Angeles, a project impact is considered significant if the following conditions are met:

Pre-Project Conditions		Project-Related Increase in V/C Ratio
LOS	V/C Ratio	
C	0.71 – 0.80	equal to or greater than 0.040
D	0.81 – 0.90	equal to or greater than 0.020
E, F	> 0.91	equal to or greater than 0.010

Using these criteria, for example, a project would not have a significant impact at an intersection if it is operating at LOS D after the addition of project traffic and the incremental change in the V/C ratio is less than 0.020. However, if the intersection is operating at a LOS F after the addition of project traffic and the incremental change in the V/C ratio is 0.010 or greater, the project would be considered to have a significant impact.

Tier II Project Impacts. Using the specified significant impact criteria, the traffic impacts at the 27 analysis locations in the County of Los Angeles were determined for Existing Baseline with Ambient Growth (2020) plus Tier I and II Project conditions. Table 21 summarizes the V/C ratio and corresponding level of service and identifies the individual impacts during both A.M. and P.M. peak hours at each of the analysis locations. It can be observed that 7 of the 27 analyzed intersections (7 in the AM peak hour and 5 in the PM peak hour) would be significantly impacted by the Proposed Tier II Project and includes the following intersections:

- Compton Avenue/Imperial Highway – AM Peak Hour
- I-105 Westbound Ramps/Imperial Highway – AM Peak Hour
- Wilmington Avenue/118th Street – AM and PM Peak Hours
- Wilmington Avenue/120th Street-119th Street – AM and PM Peak Hours
- Wilmington Avenue/I-105 Eastbound Ramps – AM and PM Peak Hours
- Wilmington Avenue/MLK Jr. Hospital Driveway-120th Street – AM and PM Peak Hours
- Wilmington Avenue/El Segundo Boulevard – AM and PM Peak Hours

Therefore, mitigation measures would be required for the Proposed Tier II Project.

Cumulative Projects Impacts. Using the specified significant impact criteria, the traffic impacts at the 27 analysis locations in the County of Los Angeles were determined for cumulative conditions. Table 22 summarizes the V/C ratio and corresponding level of service and identifies the individual impacts during both A.M. and P.M. peak hours at each of the analysis locations. It can be observed that 13 of the 27 analyzed intersections (10 in the AM peak hour and 12 in the PM peak hour) would be significantly impacted by the cumulative effects of Proposed Tier II Project and related projects and includes the following intersections:

- Alameda Street/103rd Street – AM and PM Peak Hours
- Alameda Street/El Segundo Boulevard – PM Peak Hour
- Alameda Street/Imperial Highway – AM and PM Peak Hours
- Avalon Boulevard/El Segundo Boulevard – PM Peak Hour
- Central Avenue/El Segundo Boulevard – AM and PM Peak Hours
- Central Avenue/Rosecrans Avenue – PM Peak Hour
- Compton Avenue/Imperial Highway – AM Peak Hour
- I-105 Westbound Ramps/Imperial Highway – AM and PM Peak Hours

TABLE 21
TRAFFIC IMPACT ANALYSIS - FUTURE 2020 WITH PROJECT CONDITIONS
LOS ANGELES COUNTY LOCATIONS

Map #	INTERSECTION	Peak Hour	Existing (Baseline) + Ambient (2020) V/C	Existing (Baseline) + Ambient (2020) LOS	Existing (Baseline) + Ambient (2020) with Tier I & II Project V/C	Existing (Baseline) + Ambient (2020) with Tier I & II Project LOS	Project Increase in V/C	Significant Impact	Existing (Baseline) + Ambient (2020) with Tier I & II Project and Mitigation V/C	Existing (Baseline) + Ambient (2020) with Tier I & II Project and Mitigation LOS	Project Increase in V/C	Significant Impact
Los Angeles County												
52	Alameda Street/103rd Street [1]	AM	0.812	D	0.820	D	0.008	No				
		PM	0.880	D	0.890	D	0.010	No				
55	Alameda Street/El Segundo Boulevard [2]	AM	0.661	B	0.672	B	0.011	No				
		PM	0.781	C	0.788	C	0.007	No				
54	Alameda Street/Imperial Highway [1]*	AM	0.785	C	0.803	D	0.018	No				
		PM	0.872	D	0.877	D	0.005	No				
11	Avalon Boulevard/El Segundo Boulevard	AM	0.642	B	0.647	B	0.005	No				
		PM	0.788	C	0.795	C	0.007	No				
12	Avalon Boulevard/Rosecrans Avenue	AM	0.634	B	0.638	B	0.004	No				
		PM	0.753	C	0.755	C	0.002	No				
4	Broadway/El Segundo Boulevard	AM	0.520	A	0.523	A	0.003	No				
		PM	0.569	A	0.573	A	0.004	No				
19	Central Avenue/El Segundo Boulevard [2]	AM	0.803	D	0.822	D	0.019	No				
		PM	0.879	D	0.888	D	0.009	No				
20	Central Avenue/Rosecrans Avenue [2]	AM	0.824	D	0.830	D	0.006	No				
		PM	0.956	E	0.964	E	0.008	No				
26	Compton Avenue/118th Street	AM	0.391	A	0.400	A	0.009	No				
		PM	0.336	A	0.356	A	0.020	No				
27	Compton Avenue/120th Street	AM	0.610	B	0.677	B	0.067	No				
		PM	0.527	A	0.679	B	0.152	No				
28	Compton Avenue/124th Street	AM	0.330	A	0.335	A	0.005	No				
		PM	0.274	A	0.285	A	0.011	No				
25	Compton Avenue/Imperial Highway [3]**	AM	0.860	D	0.887	D	0.027	**Yes**	0.828	D	-0.032	No
		PM	0.731	C	0.752	C	0.021	No	0.752	C	0.021	No

TABLE 21 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2020 WITH PROJECT CONDITIONS
LOS ANGELES COUNTY LOCATIONS

Map #	INTERSECTION	Peak Hour	Existing (Baseline) + Ambient (2020) V/C	Existing (Baseline) + Ambient (2020) LOS	Existing (Baseline) + Ambient (2020) with Tier I & II Project V/C	Existing (Baseline) + Ambient (2020) with Tier I & II Project LOS	Project Increase in V/C	Significant Impact	Existing (Baseline) + Ambient (2020) with Tier I & II Project and Mitigation V/C	Existing (Baseline) + Ambient (2020) with Tier I & II Project and Mitigation LOS	Project Increase in V/C	Significant Impact
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	AM	0.779	C	0.830	D	0.051	**Yes**	0.743	C	-0.036	No
		PM	0.759	C	0.795	C	0.036	No	0.708	C	-0.051	No
5	Main Street/El Segundo Boulevard	AM	0.561	A	0.564	A	0.003	No				
		PM	0.628	B	0.632	B	0.004	No				
51	Mona Boulevard/El Segundo Boulevard	AM	0.574	A	0.588	A	0.014	No				
		PM	0.599	A	0.611	B	0.012	No				
50	Mona Boulevard/Imperial Highway [1,3]**	AM	0.673	B	0.686	B	0.013	No				
		PM	0.734	C	0.751	C	0.017	No				
7	San Pedro Street/El Segundo Boulevard	AM	0.554	A	0.556	A	0.002	No				
		PM	0.563	A	0.566	A	0.003	No				
23	Success Avenue - Slater Avenue/120th Street	AM	0.452	A	0.491	A	0.039	No				
		PM	0.367	A	0.442	A	0.075	No				
46	Willowbrook Avenue/119th Street	AM	0.519	A	0.543	A	0.024	No				
		PM	0.699	B	0.718	C	0.019	No				
47	Willowbrook Avenue/El Segundo Boulevard	AM	0.567	A	0.580	A	0.013	No				
		PM	0.641	B	0.654	B	0.013	No				
35	Wilmington Avenue/118th Street	AM	0.746	C	0.848	D	0.102	**Yes**	0.681	B	-0.065	No
		PM	0.735	C	0.826	D	0.091	**Yes**	0.746	C	0.011	No
36	Wilmington Avenue/120th Street-119th Street	AM	0.800	C	0.933	E	0.133	**Yes**	0.696	B	-0.104	No
		PM	0.792	C	0.978	E	0.186	**Yes**	0.735	C	-0.057	No
38	Wilmington Avenue/124th Street	AM	0.581	A	0.653	B	0.072	No				
		PM	0.533	A	0.601	B	0.068	No				
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	AM	0.812	D	0.917	E	0.105	**Yes**	0.764	C	-0.048	No
		PM	0.830	D	0.990	E	0.160	**Yes**	0.723	C	-0.107	No
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	AM	0.585	A	0.835	D	0.250	**Yes**	0.677	B	0.092	No
		PM	0.583	A	0.918	E	0.335	**Yes**	0.725	C	0.015	No [5]

TABLE 21 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2020 WITH PROJECT CONDITIONS
LOS ANGELES COUNTY LOCATIONS

			Existing (Baseline) + Ambient (2020)		Existing (Baseline) + Ambient (2020) with Tier I & II Project				Existing (Baseline) + Ambient (2020) with Tier I & II Project and Mitigation			
Map #	**INTERSECTION**	**Peak Hour**	**V/C**	**LOS**	**V/C**	**LOS**	**Project Increase in V/C**	**Significant Impact**	**V/C**	**LOS**	**Project Increase in V/C**	**Significant Impact**
39	Wilmington Avenue/El Segundo Boulevard [2]	AM	0.819	D	0.840	D	0.021	**Yes**	0.792	C	-0.027	No
		PM	0.879	D	0.923	E	0.044	**Yes**	0.836	D	-0.043	No
33	Wilmington Avenue/Imperial Highway-Willowbrook Ave [3]**	AM	0.492	A	0.564	A	0.072	No				
		PM	0.506	A	0.563	A	0.057	No				

* Los Angeles County Congestion Management Program (CMP) monitoring location.

** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10.

[1] Shares jurisdiction with City of Lynwood.

[2] Shares jurisdiction with City of Compton.

[3] Shares jurisdiction with City of Los Angeles.

[4] Shares jurisdiction with Caltrans.

[5] Per County of Los Angeles *Traffic Impact Analysis Report Guidelines, January 1997* , the project-related increase in V/C ratio is determined from the pre-project V/C ratio value of 0.71 (LOS C) to compare with the significance thresholds to identify significant impacts.

TABLE 22
TRAFFIC IMPACT ANALYSIS - FUTURE 2020 CUMULATIVE CONDITIONS
LOS ANGELES COUNTY LOCATIONS

			Existing (Baseline) + Ambient (2020)		Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects				Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects and Mitigation			
Map #	INTERSECTION	Peak Hour	V/C	LOS	V/C	LOS	Project Increase in V/C	Significant Impact	V/C	LOS	Project Increase in V/C	Significant Impact
	Los Angeles County											
52	Alameda Street/103rd Street [1]	AM	0.812	D	0.864	D	0.052	**Yes**	0.752	C	-0.060	No
		PM	0.880	D	0.950	E	0.070	**Yes**	0.834	D	-0.046	No
55	Alameda Street/El Segundo Boulevard [2]	AM	0.661	B	0.703	C	0.042	No	0.666	B	0.005	No
		PM	0.781	C	0.820	D	0.039	**Yes**	0.778	C	-0.003	No
54	Alameda Street/Imperial Highway [1]*	AM	0.785	C	0.825	D	0.040	**Yes**	0.792	C	0.007	No
		PM	0.872	D	0.935	E	0.063	**Yes**	0.871	D	-0.001	No
11	Avalon Boulevard/El Segundo Boulevard	AM	0.642	B	0.682	B	0.040	No	0.682	B	0.040	No
		PM	0.788	C	0.814	D	0.026	**Yes**	0.765	C	-0.023	No
12	Avalon Boulevard/Rosecrans Avenue	AM	0.634	B	0.649	B	0.015	No				
		PM	0.753	C	0.771	C	0.018	No				
4	Broadway/El Segundo Boulevard	AM	0.520	A	0.530	A	0.010	No				
		PM	0.569	A	0.581	A	0.012	No				
19	Central Avenue/El Segundo Boulevard [2]	AM	0.803	D	0.837	D	0.034	**Yes**	0.772	C	-0.031	No
		PM	0.879	D	0.902	E	0.023	**Yes**	0.838	D	-0.041	No
20	Central Avenue/Rosecrans Avenue [2]	AM	0.824	D	0.838	D	0.014	No	0.790	C	-0.034	No
		PM	0.956	E	0.975	E	0.019	**Yes**	0.953	E	-0.003	No
26	Compton Avenue/118th Street	AM	0.391	A	0.419	A	0.028	No				
		PM	0.336	A	0.382	A	0.046	No				
27	Compton Avenue/120th Street	AM	0.610	B	0.693	B	0.083	No				
		PM	0.527	A	0.685	B	0.158	No				
28	Compton Avenue/124th Street	AM	0.330	A	0.343	A	0.013	No				
		PM	0.274	A	0.290	A	0.016	No				
25	Compton Avenue/Imperial Highway [3]**	AM	0.860	D	0.905	E	0.045	**Yes**	0.846	D	-0.014	No
		PM	0.731	C	0.769	C	0.038	No	0.769	C	0.038	No

TABLE 22 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2020 CUMULATIVE CONDITIONS
LOS ANGELES COUNTY LOCATIONS

			Existing (Baseline) + Ambient (2020)		Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects				Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects and Mitigation			
Map #	**INTERSECTION**	**Peak Hour**	**V/C**	**LOS**	**V/C**	**LOS**	**Project Increase in V/C**	**Significant Impact**	**V/C**	**LOS**	**Project Increase in V/C**	**Significant Impact**
49	I-105 Westbound Ramps/Imperial Highway [3,4]**	AM	0.779	C	0.857	D	0.078	**Yes**	0.765	C	-0.014	No
		PM	0.759	C	0.815	D	0.056	**Yes**	0.725	C	-0.034	No
5	Main Street/El Segundo Boulevard	AM	0.561	A	0.571	A	0.010	No				
		PM	0.628	B	0.640	B	0.012	No				
51	Mona Boulevard/El Segundo Boulevard	AM	0.574	A	0.593	A	0.019	No				
		PM	0.599	A	0.616	B	0.017	No				
50	Mona Boulevard/Imperial Highway [1,3]**	AM	0.673	B	0.697	B	0.024	No				
		PM	0.734	C	0.763	C	0.029	No				
7	San Pedro Street/El Segundo Boulevard	AM	0.554	A	0.566	A	0.012	No				
		PM	0.563	A	0.575	A	0.012	No				
23	Success Avenue - Slater Avenue/120th Street	AM	0.452	A	0.495	A	0.043	No				
		PM	0.367	A	0.447	A	0.080	No				
46	Willowbrook Avenue/119th Street	AM	0.519	A	0.575	A	0.056	No				
		PM	0.699	B	0.739	C	0.029	No [5]				
47	Willowbrook Avenue/El Segundo Boulevard	AM	0.567	A	0.595	A	0.028	No				
		PM	0.641	B	0.664	B	0.023	No				
35	Wilmington Avenue/118th Street	AM	0.746	C	0.895	D	0.149	**Yes**	0.637	B	-0.109	No
		PM	0.735	C	0.870	D	0.135	**Yes**	0.754	C	0.019	No
36	Wilmington Avenue/120th Street-119th Street	AM	0.800	C	0.954	E	0.154	**Yes**	0.706	C	-0.094	No
		PM	0.792	C	1.008	F	0.216	**Yes**	0.753	C	-0.039	No
38	Wilmington Avenue/124th Street	AM	0.581	A	0.674	B	0.093	No				
		PM	0.533	A	0.619	B	0.086	No				
34	Wilmington Avenue/I-105 Eastbound Ramps [4]	AM	0.812	D	0.962	E	0.150	**Yes**	0.797	C	-0.015	No
		PM	0.830	D	1.052	F	0.222	**Yes**	0.765	C	-0.065	No
37	Wilmington Avenue/MLK Hospital Driveway – 120th Street	AM	0.585	A	0.845	D	0.260	**Yes**	0.688	B	0.103	No
		PM	0.583	A	0.937	E	0.354	**Yes**	0.744	C	0.034	No [5]

TABLE 22 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2020 CUMULATIVE CONDITIONS
LOS ANGELES COUNTY LOCATIONS

Map #	INTERSECTION	Peak Hour	Existing (Baseline) + Ambient (2020) V/C	Existing (Baseline) + Ambient (2020) LOS	Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects V/C	Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects LOS	Project Increase in V/C	Significant Impact	Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects and Mitigation V/C	Existing (Baseline) + Ambient (2020) with Tier I & II Project and Related Projects and Mitigation LOS	Project Increase in V/C	Significant Impact
39	Wilmington Avenue/El Segundo Boulevard [2]	AM	0.819	D	0.858	D	0.039	**Yes**	0.808	D	-0.011	No
		PM	0.879	D	0.949	E	0.070	**Yes**	0.862	D	-0.017	No
33	Wilmington Avenue/Imperial Highway-Willowbrook Ave [3]**	AM	0.492	A	0.599	A	0.107	No				
		PM	0.506	A	0.606	B	0.100	No				

* Los Angeles County Congestion Management Program (CMP) monitoring location

** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10

[1] Shares jurisdiction with City of Lynwood

[2] Shares jurisdiction with City of Compton.

[3] Shares jurisdiction with City of Los Angeles

[4] Shares jurisdiction with Caltrans.

[5] Per County of Los Angeles *Traffic Impact Analysis Report Guidelines, January 1997*, the project-related increase in V/C ratio is determined from the pre-project V/C ratio value of 0.71 (LOS C) to compare with the significance thresholds to identify significant impacts.

- Wilmington Avenue/118th Street – AM and PM Peak Hours
- Wilmington Avenue/120th Street-119th Street – AM and PM Peak Hours
- Wilmington Avenue/I-105 Eastbound Ramps – AM and PM Peak Hours
- Wilmington Avenue/MLK Jr. Hospital Driveway-120th Street – AM and PM Peak Hours
- Wilmington Avenue/El Segundo Boulevard – AM and PM Peak Hours

Therefore, mitigation measures would be required under cumulative (2020) conditions.

Other Jurisdictions Traffic Impact Analysis

This section includes the traffic impact analysis for the study intersections in the Cities of Compton and Lynwood determined by using the specified significant impact criteria included in the Los Angeles County Congestion Management Program (CMP) traffic study guidelines. Also included in this section is the traffic impact analysis for study intersections within the City of Los Angeles. City of Los Angeles significant impact criteria were utilized to assess significant impacts for these City of Los Angeles locations.

The traffic impact analysis compares the volume to capacity (V/C) ratios at each study location under the future base and future plus project conditions to determine the incremental difference in V/C ratios caused by the Proposed Tier II Project. This provides the information needed to assess the potential Tier II Project impacts at various locations in each of these jurisdictions using significance criteria acceptable in these jurisdictions.

City of Los Angeles Significant Traffic Impact Criteria. The City of Los Angeles Department of Transportation (LADOT) has established threshold criteria that determine if a project has a significant traffic impact at a specific intersection. According to the criteria provided by the City of Los Angeles, a project impact is considered significant if the following conditions are met:

Intersection Condition With Project Traffic		Project-Related Increase in V/C Ratio
LOS	V/C Ratio	
C	0.701 – 0.800	equal to or greater than 0.040
D	0.801 – 0.900	equal to or greater than 0.020
E, F	> 0.901	equal to or greater than 0.010

Using these criteria, for example, a project would not have a significant impact at an intersection if it is operating at LOS C after the addition of project traffic and the incremental change in the V/C ratio is less than 0.040. However, if the intersection is operating at a LOS F after the addition of project traffic and the incremental change in the V/C ratio is 0.010 or greater, the project would be considered to have a significant impact.

Los Angeles County Congestion Management Program Significant Traffic Impact Criteria. The Cities of Compton and Lynwood locations have been evaluated based on the criteria from the Los Angeles County Congestion Management Program (CMP) to determine if a project has a significant traffic impact at a specific intersection. A project impact is considered significant if the following conditions are met:

Intersection Condition With Project Traffic		Project-Related Increase in V/C Ratio
LOS	V/C Ratio	
F	> 1.000	equal to or greater than 0.020

Using these criteria, for example, a project would not have a significant impact at an intersection if it is operating at LOS C after the addition of project traffic and the incremental change in the V/C ratio is less than 0.040. However, if the intersection is operating at a LOS F after the addition of project traffic and the incremental change in the V/C ratio is 0.020 or greater, the project would be considered to have a significant impact.

Tier II Project Impacts. Using the specified significant impact criteria, the traffic impacts at the 37 analysis locations in the Cities of Los Angeles, Compton and Lynwood were determined for Cumulative (2020) plus Tier I and II Project conditions. Table 23 summarizes the V/C ratio and corresponding level of service and identifies the individual impacts during both A.M. and P.M. peak hours at each of the analysis locations. It can be observed that 1 of the 37 analyzed intersections, the intersection of Central Avenue/120th Street, would be significantly impacted by the Proposed Tier II Project in the AM and PM peak hours. Therefore, mitigation measures would be required for the Proposed Tier II Project. It is worth noting that several impacted intersections have joint jurisdictions with the County of Los Angeles. The impacts at these joint jurisdiction locations are discussed under County of Los Angeles Tier II Project and cumulative impacts section.

TABLE 23
TRAFFIC IMPACT ANALYSIS - FUTURE 2020 WITH PROJECT CONDITIONS
OTHER JURISDICTIONS

Map #	INTERSECTION	Peak Hour	Cumulative (2020) Base Conditions		Cumulative (2020) plus Tier I & II Project		Project Increase in V/C	Significant Impact	Cumulative (2020) plus Tier I & II Project and Mitigation		Project Increase in V/C	Significant Impact
			V/C	LOS	V/C	LOS			V/C	LOS		
	City of Compton [1]											
56	Alameda Street/Compton Boulevard *	AM	0.704	C	0.708	C	0.004	No				
		PM	0.696	B	0.702	C	0.006	No				
22	Central Avenue/Alondra Boulevard	AM	0.693	B	0.693	B	0.000	No				
		PM	0.744	C	0.745	C	0.001	No				
21	Central Avenue/Compton Boulevard	AM	0.730	C	0.734	C	0.004	No				
		PM	0.754	C	0.757	C	0.003	No				
29	Compton Avenue/El Segundo Boulevard	AM	0.792	C	0.809	D	0.017	No				
		PM	0.607	B	0.628	B	0.021	No				
61	Slater Avenue/El Segundo Boulevard	AM	0.596	A	0.599	A	0.003	No				
		PM	0.538	A	0.541	A	0.003	No				
48	Willowbrook Avenue/Rosecrans Avenue	AM	0.793	C	0.805	D	0.012	No				
		PM	0.834	D	0.849	D	0.015	No				
42	Wilmington Avenue/Alondra Boulevard	AM	0.641	B	0.647	B	0.006	No				
		PM	0.724	C	0.736	C	0.012	No				
41	Wilmington Avenue/Compton Boulevard	AM	0.698	B	0.716	C	0.018	No				
		PM	0.751	C	0.767	C	0.016	No				
43	Wilmington Avenue/Greenleaf Boulevard	AM	0.709	C	0.712	C	0.003	No				
		PM	0.761	C	0.769	C	0.008	No				
40	Wilmington Avenue/Rosecrans Avenue	AM	0.884	D	0.922	E	0.038	No				
		PM	0.913	E	0.945	E	0.032	No				
44	Wilmington Avenue/Artesia Boulevard (N) [2]	AM	0.834	D	0.840	D	0.006	No				
		PM	0.830	D	0.845	D	0.015	No				
45	Wilmington Avenue/Artesia Boulevard (S) [2]	AM	0.746	C	0.747	C	0.001	No				
		PM	0.781	C	0.790	C	0.009	No				
	City of Los Angeles [3]											
10	Avalon Boulevard/120th Street**	AM	0.613	B	0.648	B	0.035	No				
		PM	0.729	C	0.761	C	0.032	No				
8	Avalon Boulevard/Century Boulevard**	AM	0.612	B	0.615	B	0.003	No				
		PM	0.686	B	0.688	B	0.002	No				
9	Avalon Boulevard/Imperial Highway**	AM	0.662	B	0.664	B	0.002	No				

TABLE 23 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2020 WITH PROJECT CONDITIONS
OTHER JURISDICTIONS

Map #	INTERSECTION	Peak Hour	Cumulative (2020) Base Conditions V/C	Cumulative (2020) Base Conditions LOS	Cumulative (2020) plus Tier I & II Project V/C	Cumulative (2020) plus Tier I & II Project LOS	Project Increase in V/C	Significant Impact	Cumulative (2020) plus Tier I & II Project and Mitigation V/C	Cumulative (2020) plus Tier I & II Project and Mitigation LOS	Project Increase in V/C	Significant Impact
		PM	0.780	C	0.785	C	0.005	No				
14	Central Avenue/103rd Street**	AM	0.741	C	0.743	C	0.002	No				
		PM	0.816	D	0.820	D	0.004	No				
18	Central Avenue/120th Street**	AM	0.714	C	0.812	D	0.098	**Yes**	0.690	B	-0.024	No
		PM	0.698	B	0.816	D	0.118	**Yes**	0.715	C	0.017	No
13	Central Avenue/Century Boulevard**	AM	0.787	C	0.789	C	0.002	No				
		PM	0.826	D	0.828	D	0.002	No				
15	Central Avenue/Imperial Highway**	AM	0.715	C	0.726	C	0.011	No				
		PM	0.817	D	0.828	D	0.011	No				
17	Central Avenue/I-105 Eastbound Ramps [2]**	AM	0.707	C	0.726	C	0.019	No				
		PM	0.652	B	0.679	B	0.027	No				
16	Central Avenue/I-105 Westbound Ramps [2]**	AM	0.757	C	0.764	C	0.007	No				
		PM	0.720	C	0.748	C	0.028	No				
24	Compton Avenue/103rd Street**	AM	0.495	A	0.499	A	0.004	No				
		PM	0.574	A	0.581	A	0.007	No				
62	Compton Avenue/108th Street**	AM	0.731	C	0.736	C	0.005	No				
		PM	0.620	B	0.636	B	0.016	No				
63	Compton Avenue/111th Street**	AM	0.608	B	0.614	B	0.006	No				
		PM	0.566	A	0.577	A	0.011	No				
3	Figueroa Street/El Segundo Boulevard	AM	0.598	A	0.600	A	0.002	No				
		PM	0.777	C	0.782	C	0.005	No				
2	I-110 Northbound Ramps/El Segundo Boulevard [2]**	AM	0.801	D	0.813	D	0.012	No				
		PM	0.914	E	0.923	E	0.009	No				
1	I-110 Southbound Ramps/El Segundo Boulevard [2]**	AM	0.845	D	0.850	D	0.005	No				
		PM	0.723	C	0.735	C	0.012	No				
6	San Pedro Street/120th Street	AM	0.646	B	0.658	B	0.012	No				
		PM	0.642	B	0.660	B	0.018	No				

TABLE 23 (continued)
TRAFFIC IMPACT ANALYSIS - FUTURE 2020 WITH PROJECT CONDITIONS
OTHER JURISDICTIONS

Map #	INTERSECTION	Peak Hour	Cumulative (2020) Base Conditions V/C	Cumulative (2020) Base Conditions LOS	Cumulative (2020) plus Tier I & II Project V/C	Cumulative (2020) plus Tier I & II Project LOS	Project Increase in V/C	Significant Impact	Cumulative (2020) plus Tier I & II Project and Mitigation V/C	Cumulative (2020) plus Tier I & II Project and Mitigation LOS	Project Increase in V/C	Significant Impact
30	Wilmington Avenue/103rd Street	AM	0.666	B	0.668	B	0.002	No				
		PM	0.624	B	0.635	B	0.011	No				
64	Wilmington Avenue/111th Street	AM	0.742	C	0.770	C	0.028	No				
		PM	0.744	C	0.782	C	0.038	No				
31	Wilmington Avenue/Santa Ana Boulevard (N)	AM	0.659	B	0.675	B	0.016	No				
		PM	0.706	C	0.721	C	0.015	No				
32	Wilmington Avenue/Santa Ana Boulevard (S)	AM	0.699	B	0.719	C	0.020	No				
		PM	0.750	C	0.770	C	0.020	No				
City of Lynwood [1]												
53	Alameda Street/Martin Luther King Jr. Boulevard	AM	0.834	D	0.841	D	0.007	No				
		PM	0.784	C	0.800	C	0.016	No				
58	Long Beach Boulevard/Imperial Highway	AM	1.014	F	1.019	F	0.005	No				
		PM	1.132	F	1.139	F	0.007	No				
57	Long Beach Boulevard/Martin Luther King Jr. Boulevard	AM	0.849	D	0.854	D	0.005	No				
		PM	0.894	D	0.895	D	0.001	No				
60	Long Beach Boulevard/I-105 Eastbound Ramps [2]	AM	0.713	C	0.713	C	0.000	No				
		PM	0.639	B	0.639	B	0.000	No				
59	Long Beach Boulevard/I-105 Westbound Ramps [2]	AM	0.515	A	0.515	A	0.000	No				
		PM	0.717	C	0.717	C	0.000	No				

* Los Angeles County Congestion Management Program (CMP) monitoring location
** City of Los Angeles ATSAC/ATCS location. V/C ratio includes ATSAC/ATCS reduction of 0.10
[1] Determination of significant impacts based on Los Angeles County Congestion Management Program (CMP) significant impact criteria.
[2] Shares jurisdiction with Caltrans.
[3] Determination of significant impacts based on City of Los Angeles significant impact criteria.

SPECIFIC ROADWAY INTERSECTION IMPROVEMENTS

The various intersection improvements proposed to alleviate the significant impacts of the Proposed Tier II Project as well as the cumulative projects impacts are described in this section. The improvements have been organized in the following section by project-level intersection mitigation measures and cumulative projects intersection mitigation measures. The conceptual schematic drawings for these intersection improvements are included in Appendix Q.

Project-Level Intersection Mitigation Measures

In order to address the Tier II Project's impacts, the following mitigation measures described in the section below are recommended for implementation by the Tier II Project:

- Compton Avenue/Imperial Highway – County of Los Angeles/City of Los Angeles: Restripe westbound approach to provide a separate right-turn lane.

- I-105 Westbound Ramps-Croesus Avenue/Imperial Highway – County of Los Angeles/City of Los Angeles/Caltrans: Provide a third northbound left-turn lane by widening off-ramp by 10' for approximately 150' to 200'.

- Wilmington Avenue/El Segundo Boulevard – County of Los Angeles/Compton: Restripe eastbound and westbound approaches to have separate right-turn lanes. Allow buses to go through the intersection from the right-turn lanes.

- Central Avenue/120th Street – City of Los Angeles: Restripe northbound approach to provide a separate right-turn lane. Also, widen the east leg by 3' on each curbside (i.e. reduce sidewalk along 120th street east of Central Avenue by 3' for approximately 120' and restripe westbound 120th Street approach to provide a left-turn, two through lanes and a separate right turn lane.

- Wilmington Avenue Corridor Improvements: Provide an additional southbound travel lane by widening 2' on either side of Wilmington Avenue (reducing the sidewalk to 8' from 10') and restriping the travel lanes between 120th Street-119th Street and the I-105 Eastbound Off-Ramp and by just restriping the lanes (after reducing the central median) between MLK Jr. Hospital Driveway-120th Street and 120th Street-119th Street. The following intersection improvements would also be implemented as part of this corridor improvement:

- Wilmington Avenue/I-105 Eastbound Ramps – County of Los Angeles/Caltrans: Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach would have a left-turn lane, shared left-right turn lane and a separate right-turn lane. The sidewalks on either side of Wilmington Avenue (as noted above) would be reduced by 2’ and the Wilmington Avenue roadway would be widened by 2’ on either side (a total of 4’) from the south leg of this intersection.

Provide an additional northbound left-turn lane by widening (reducing the medians). The northbound approach would have dual left-turn lanes and three through lanes.

- Wilmington Avenue/118th Street – County of Los Angeles: Widen Wilmington Avenue roadway by 2’ on either side and restripe to provide two through lanes, a shared through-right turn lane and dual left-turn lanes along the southbound approach. Restripe the westbound approach to provide a separate right-turn land and a share left-through lane. Northbound approach would have the same lane geometry as existing conditions. Under cumulative conditions, widen 118th Street roadway by 4’ and restripe to provide a separate right-turn lane and shared left-through lane along the eastbound approach.

- Wilmington Avenue/120th Street-119th Street – County of Los Angeles: Widen Wilmington Avenue roadway by 2’ on either side and restripe the southbound approach to provide a separate right-turn lane, three through lanes and a left-turn lane.

  Restripe northbound approach to provide a shared through-right turn lane, two through lanes and a left-turn lane. Remove median adjacent to northbound approach to facilitate three southbound receiving lanes. Restrict parking along Wilmington Avenue roadway during AM and PM peak periods along the eastside of Wilmington between 120th Street & MLK Jr. Hospital Driveway Entrance.

  Widen 120th Street west of Wilmington Avenue for 250’, on the south side by 2’ and restripe the eastbound approach to provide a separate right-turn lane, dual left-turn lanes, and a through lane. The westbound approach of 119th Street would have the same lane geometry as existing conditions.

- Wilmington Avenue/MLK Jr. Hospital Entrance-120th Street – County of Los Angeles: Restripe southbound approach to provide a separate right-turn lane, two through lanes and a left turn lane. Provide three northbound receiving lanes and restrict on-street curb parking along the eastside of Wilmington Avenue between MLK Jr. Hospital Driveway-120th Street and 120th Street-119th Street during morning and evening peak hours.

  Remove median within the hospital entrance and restripe the driveway to provide dual left turn lanes, a through lane and a separate right-turn lane along the eastbound approach. Restripe to provide one receiving lane. The east-west signal phasing would operate as a split phase due to the lane configurations.

Effectiveness of Mitigation Measures. The results of the implementation of the recommended project-level improvements are summarized in Table 21 for County of Los Angeles analyzed locations and in Table 23 for the other jurisdictions. As indicated in the tables, the recommended improvements would fully mitigate the Tier II Project-related impacts at the 8 impacted intersections.

Capacity calculation worksheets for Existing Baseline with Ambient Growth (2020) plus Tier I and II Project with Mitigation conditions are attached in Appendix O and Cumulative (2020) plus Tier I and II Project conditions are attached in Appendix P of the report.

Cumulative Projects-Level Intersection Mitigation Measures

In order to address the cumulative projects impacts determine using County of Los Angeles traffic study guidelines, the following mitigation measures described in the section below are recommended for implementation to alleviate the cumulative significant impacts. These improvements are needed in addition to the improvements identified above for the project-level mitigation measures.

- Avalon Boulevard/El Segundo Boulevard – County of Los Angeles: Widen NB approach by 2 feet and restripe the approach to provide a left turn lane, two through lanes and a separate right turn lane (10’, 10’, 10’, 12’). The approach could be widened by narrowing the 5’ median to a 3’ median, or by reducing the 12’ sidewalk to a 10’ sidewalk. This widening would need to occur all the way to an alley located approximately 100’ south of the intersection. The bus stop at this approach would continue to be located at the same location; however, buses would be allowed to go straight through the intersection.

- Alameda Street/El Segundo Boulevard – County of Los Angeles/Compton: Restripe northbound/southbound approaches and provide a SBR turn lane. The lanes along the north leg would be restriped to provide 13’ and 11’ receiving lanes; 10’, 11’, 10’, 12’ approach lanes for SBL, SBT, SBT, and SBR lanes, respectively. The lanes along the south leg would have 13’ shared thru-right, 11’ thru lane, 10’ left turn lane, 12’ receiving lane and a 20’ receiving lane. Remove 2 on-street parking spaces along SB approach during peak hours.

- Alameda Street/103rd Street – County of Los Angeles/Lynwood: Restripe eastbound approach to provide a 10’ left turn lane and a 12’ left-right shared lane. The receiving lane would be restriped for 18.5’.

- Central Avenue/Rosecrans Avenue – County of Los Angeles/Compton: Restripe westbound approach to provide a separate right-turn lane. Allow buses to go through the intersection from the right-turn lane.

- Central Avenue/El Segundo Boulevard – County of Los Angeles/Compton: Restripe SB approach to provide a separate right-turn lane. Widen NB approach by reducing median by 1’ to 2’. Provide restriping to show a separate NB right-turn lane. Allow buses to go through the intersection from the right-turn lane.

- Alameda Street/Imperial Highway – County of Los Angeles/City of Lynwood: Restripe southbound approach to provide the following roadway geometry: dual left-turn lanes, a through lane, a shared through-right turn lane, and a separate right turn lane.

Effectiveness of Mitigation Measures. The results of the implementation of the recommended project-level improvements are summarized in Table 22 for County of Los Angeles analyzed locations. As indicated in the tables, the recommended improvements would fully mitigate the cumulative projects-related impacts at the 13 impacted intersections. Many of these intersections lie partly or fully within non-county jurisdictions. Any improvements at these locations would need to be coordinated with and approved by these jurisdictions. If for any reason, these improvements are not approved by these non-county jurisdictions, then significant impacts will remain at these locations.

Capacity calculation worksheets for Existing Baseline with Ambient Growth (2020) plus Tier I and II Project and Related Projects with Mitigation conditions are attached in Appendix P of the report.

V. REGIONAL CONGESTION MANAGEMENT PROGRAM (CMP) ANALYSIS

This section presents the Congestion Management Program (CMP) transportation impact analysis. This analysis was conducted in accordance with the procedures outlined in the *Congestion Management Program for Los Angeles County* (Los Angeles County Metropolitan Transportation Authority, July 2004). The CMP requires that when a traffic impact report is prepared for a project, traffic impact analyses be conducted for select regional facilities based on the quantity of project traffic expected to use these facilities.

The CMP guidelines for determining the study area of the analysis for CMP arterial monitoring intersections and for freeway monitoring locations are as follows:

- All CMP arterial monitoring intersections where the Proposed Project will add 50 or more trips during either the AM or PM weekday peak hours of adjacent street traffic.
- All CMP mainline freeway monitoring locations where the Proposed Project will add 150 or more trips, in either direction, during either the AM or PM weekday peak hours.

Evaluation of the freeway operations and ramp intersections using Caltrans' guidelines has also been performed at Caltrans' request for informational and long-range planning purposes and is included in Appendix R.

CMP ARTERIAL MONITORING LOCATIONS ANALYSIS

The following two intersections within the Martin Luther King Jr. Medical Center Campus Project study area are classified as arterial monitoring stations.

- Alameda Street at Imperial Highway
- Alameda Street at Compton Boulevard

As indicated in the analyses in Chapters III and IV, one of the CMP arterial monitoring locations, Alameda Street/Imperial Highway, would be significantly impacted under Existing (Baseline) with Ambient Growth (2020) plus Tier I and II Project and Related Project conditions. The recommended improvement identified in Chapter IV at this location would fully mitigate the cumulative projects-related impact.

CMP FREEWAY MONITORING STATIONS ANALYSIS

Operating conditions on the freeways are also classified by Level of Service. Level of Service for freeways is based on the measured flow past a point compared to the estimated capacity of that section of roadway. Capacity is calculated by multiplying the lane capacity, 2,000 vehicles per hour (1,000 vehicles per hour for high occupancy vehicle (HOV) lanes), by the number of lanes in each segment. The level of service definitions for freeway segments are contained in Table 24.

The freeway operating conditions within the study area was analyzed as per the CMP guidelines. This assessment includes the Harbor Freeway (I-110), Century Freeway (I-105), Artesia Freeway (SR-91), and Long Beach Freeway (I-710). The freeway analysis locations include the following:

- I-110 Freeway at Manchester Boulevard (CMP monitoring location)
- I-110 Freeway north of Rosecrans Avenue
- I-105 Freeway east of Crenshaw Boulevard (CMP monitoring location)
- I-105 Freeway west of Central Avenue
- I-105 Freeway west of Wilmington Avenue
- I-105 Freeway west of Long Beach Boulevard
- I-105 Freeway west of I-710 Freeway, east of Harris Avenue (CMP monitoring location)
- I-105 Freeway east of Bellflower Boulevard (CMP monitoring location)
- I-710 Freeway north of Firestone Boulevard (CMP monitoring location)
- I-710 Freeway north SR-91 Freeway
- SR-91 Freeway west of Wilmington Avenue
- SR-91 Freeway east of Alameda Street (CMP monitoring location)

Existing Conditions

Traffic volumes for the freeway facilities were obtained from 2008 Caltrans Traffic Volumes (ADT and peak hour volume data). These traffic volumes were adjusted using a growth rate of 0.72% per year to reflect Year 2010 conditions. This growth rate was obtained from the 2004 Congestion Management Program (CMP) for Los Angeles County. The resulting traffic volumes are illustrated in Table 25.

Demand/Capacity (D/C) ratios were calculated for each freeway segment identified above, using a capacity value of 2,000 vehicles per hour per freeway mainline lane (in accordance with CMP guidelines). A capacity value of 1,000 vehicles per hour is applied to high occupancy vehicle (HOV) and auxiliary lanes. Table 25 also summarizes the existing demand-to-capacity (D/C) ratios and Levels of Service during the peak hours at the analyzed locations.

TABLE 24
FREEWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

Level of Service	Demand/Capacity Ratio	Flow Conditions
A	0.00 - 0.35	Highest quality of service. Free traffic flow, low volumes and densities. Little or no restriction on maneuverability or speed.
B	0.36 - 0.54	Stable traffic flow, speed becoming slightly restricted. Low restriction on maneuverability.
C	0.55 - 0.77	Stable traffic flow, but less freedom to select speed, change lanes, or pass. Density increasing.
D	0.78 - 0.93	Approaching unstable flow. Speeds tolerable but subject to sudden and considerable variation. Less maneuverability and driver comfort.
E	0.94 - 1.00	Unstable traffic flow with rapidly fluctuating speeds and flow rates. Short headways, low maneuverability and low driver comfort.
F(0)	1.01 - 1.25	Forced traffic flow. Speed and flow may be greatly reduced with high densities.
F(1)	1.26 - 1.35	Forced traffic flow. Severe congested conditions prevail for more than one hour. Speed and flow may drop to zero with high densities.
F(2)	1.36 - 1.45	Forced traffic flow. Severe congested conditions prevail for more than one hour. Speed and flow may drop to zero with high densities.
F(3)	>1.45	Forced traffic flow. Severe congested conditions prevail for more than one hour. Speed and flow may drop to zero with high densities.

Source: Adapted from Los Angeles County Metropolitan Transportation Authority, *2002 Congestion Management Program for Los Angeles County*, June 2002.

TABLE 25
FREEWAY OPERATING CONDITIONS - EXISTING (2010) CONDITIONS

Freeway Route	Segment	Direction	Capacity	AM Peak Hour			PM Peak Hour		
				Demand [1]	D/C [2]	LOS [3]	Demand [1]	D/C [2]	LOS [3]
I-110	at Manchester Boulevard [4]	NB	10,000	10,497	1.05	F(0)	10,382	1.04	F(0)
		SB	10,000	10,899	1.09	F(0)	11,674	1.17	F(0)
I-110	n/o Rosecrans Avenue	NB	9,000	9,836	1.09	F(0)	8,578	0.95	E
		SB	9,000	10,592	1.18	F(0)	10,106	1.12	F(0)
I-710	n/o Firestone Boulevard [4]	NB	8,000	7,794	0.97	E	7,322	0.92	D
		SB	8,000	6,718	0.84	D	8,025	1.00	F(0)
I-710	n/o SR-91 Freeway	NB	10,000	7,071	0.71	C	8,800	0.88	D
		SB	10,000	9,736	0.97	E	7,940	0.79	D
I-105	e/o Crenshaw Boulevard [4]	WB	9,000	7,925	0.88	D	6,533	0.73	C
		EB	9,000	8,222	0.91	D	8,668	0.96	E
I-105	w/o Central Avenue	WB	8,000	12,014	1.50	F(3)	7,116	0.89	D
		EB	8,000	7,511	0.94	E	6,791	0.85	D
I-105	w/o Wilmington Avenue	WB	7,000	11,420	1.63	F(3)	6,905	0.99	E
		EB	8,000	6,971	0.87	D	6,775	0.85	D
I-105	w/o Long Beach Boulevard	WB	7,000	10,780	1.54	F(3)	6,869	0.98	E
		EB	7,000	6,707	0.96	E	7,060	1.01	F(0)
I-105	w/o I-710 Freeway [4]	WB	8,000	10,465	1.31	F(1)	7,281	0.91	D
		EB	8,000	7,086	0.89	D	7,453	0.93	E
I-105	e/o Bellflower Boulevard [4]	WB	9,000	7,361	0.82	D	6,665	0.74	C
		EB	9,000	6,076	0.68	C	6,310	0.70	C
SR-91	w/o Wilmington Avenue	WB	9,000	11,236	1.25	F(0)	6,421	0.71	C
		EB	9,000	6,293	0.70	C	15,198	1.69	F(3)
SR-91	e/o Alameda Street [4]	WB	9,000	12,002	1.33	F(1)	6,819	0.76	C
		EB	11,000	6,715	0.61	C	16,161	1.47	F(3)

[1] Traffic volumes obtained from 2008 Caltrans Traffic Volumes and were adjusted using growth rate factors from the 2004 Congestion Management Program (CMP) for Los Angeles County to obtain "existing" conditions.

[2] Demand-to-Capacity ratio (D/C) calculated based on a capacity of 2,000 vehicles per lane per hour applied to through lanes. A capacity of 1,000 vehicles per lane per hour in each direction is added for high-occupancy vehicles (HOV) and auxiliary lanes.

[3] Freeway mainline Levels of Service is based on the following D/C scale:

D/C Ratio	LOS
> 0.00 - 0.35	A
> 0.35 - 0.54	B
> 0.54 - 0.77	C
> 0.77 - 0.93	D
> 0.93 - 1.00	E
> 1.00 - 1.25	F(0)
> 1.25 - 1.35	F(1)
> 1.35 - 1.45	F(2)
> 1.45	F(3)

It can be seen from Table 25 that many segments of the I-110, I-105, I-710 and SR-91 are currently operating at or near capacity (LOS E or LOS F) during the AM and PM peak hours. As indicated in the table, approximately 42% of the analyzed freeway segments located within the study area would operate at acceptable levels of service (LOS D or better) during the AM peak hour. Approximately 17% and 42% would operate at LOS E and LOS F, respectively. During the PM peak hour, approximately 50% of the analyzed freeway segments within the study area would operate at LOS D or better and 21% and 29% would operate at LOS E and LOS F, respectively.

Future 2014 without Project Conditions

As with the intersection operations, traffic volumes on freeways would increase as a result of regional growth anticipated by the year 2014 and growth due to related projects within and in the vicinity of the Project study area. It was estimated that the growth in traffic on the freeways in the study area amounted to an increase of approximately 0.72% per year in the AM and PM peak hours, respectively.

Table 26 summarizes the overall freeway system performance within the Martin Luther King Jr. Medical Center Campus Project study area during the AM and PM peak hours. Under the Cumulative (2014) Base (without Project) conditions, as shown in Table 27, approximately 38% of the analyzed freeway segments located within the study area would operate at acceptable levels of service (LOS D or better) during the AM peak hour. Approximately 13% and 50% would operate at LOS E and LOS F, respectively. During the PM peak hour, approximately 42% of the analyzed freeway segments within the study area would operate at LOS D or better and 21% and 38% would operate at LOS E and LOS F, respectively.

It can be seen that the regional growth would bring certain segments of the I-105, I-70 and I-605 to LOS E or LOS F conditions during the AM and PM peak hours. It would also add to the congestion along some of the freeway segments that are currently operating at LOS E and LOS F during the peak hours.

TABLE 26
FREEWAY OPERATING CONDITIONS - FUTURE 2014 CONDITIONS AM PEAK HOUR

				AM Peak Hour							
				Cumulative (2014) Base			Cumulative (2014) Plus Project Tier I			Project Increase in D/C	Significant Project Impact
Freeway Route	Segment	Direction	Capacity	Demand	D/C [1]	LOS [2]	Demand	D/C [1]	LOS [2]		
I-110	at Manchester Boulevard [3]	NB	10,000	10,917	1.09	F(0)	10,906	1.09	F(0)	-0.001	No
		SB	10,000	11,328	1.13	F(0)	11,312	1.13	F(0)	-0.002	No
I-110	n/o Rosecrans Avenue	NB	9,000	10,141	1.13	F(0)	10,137	1.13	F(0)	0.000	No
		SB	9,000	10,916	1.21	F(0)	10,914	1.21	F(0)	0.000	No
I-710	n/o Firestone Boulevard [3]	NB	8,000	8,155	1.02	F(0)	8,148	1.02	F(0)	-0.001	No
		SB	8,000	7,040	0.88	D	7,030	0.88	D	-0.001	No
I-710	n/o SR-91 Freeway	NB	10,000	7,298	0.73	C	7,293	0.73	C	-0.001	No
		SB	10,000	10,037	1.00	F(0)	10,034	1.00	F(0)	0.000	No
I-105	e/o Crenshaw Boulevard [3]	WB	9,000	8,189	0.91	D	8,178	0.91	D	-0.001	No
		EB	9,000	8,492	0.94	E	8,476	0.94	E	-0.002	No
I-105	w/o Central Avenue	WB	8,000	12,441	1.56	F(3)	12,419	1.55	F(3)	-0.003	No
		EB	8,000	7,803	0.98	E	7,771	0.97	E	-0.004	No
I-105	w/o Wilmington Avenue	WB	7,000	11,806	1.69	F(3)	11,794	1.68	F(3)	-0.002	No
		EB	8,000	7,227	0.90	D	7,208	0.90	D	-0.002	No
I-105	w/o Long Beach Boulevard	WB	7,000	11,170	1.60	F(3)	11,142	1.59	F(3)	-0.004	No
		EB	7,000	6,982	1.00	E	6,961	0.99	E	-0.003	No
I-105	w/o I-710 Freeway [3]	WB	8,000	10,860	1.36	F(2)	10,831	1.35	F(2)	-0.004	No
		EB	8,000	7,385	0.92	D	7,364	0.92	D	-0.003	No
I-105	e/o Bellflower Boulevard [3]	WB	9,000	7,616	0.85	D	7,604	0.84	D	-0.001	No
		EB	9,000	6,297	0.70	C	6,289	0.70	C	-0.001	No
SR-91	w/o Wilmington Avenue	WB	9,000	11,568	1.29	F(1)	11,566	1.29	F(1)	0.000	No
		EB	9,000	6,477	0.72	C	6,475	0.72	C	0.000	No
SR-91	e/o Alameda Street [3]	WB	9,000	12,351	1.37	F(2)	12,347	1.37	F(2)	0.000	No
		EB	11,000	6,915	0.63	C	6,913	0.63	C	0.000	No

[1] Demand-to-Capacity ratio (D/C) calculated based on a capacity of 2,000 vehicles per lane per hour applied to through lanes. A capacity of 1,000 vehicles per lane per hour in each direction is added for high-occupancy vehicles (HOV) and auxiliary lanes.

[2] Freeway mainline Levels of Service is based on the following D/C scale

D/C Ratio	LOS
> 0.00 - 0.35	A
> 0.35 - 0.54	B
> 0.54 - 0.77	C
> 0.77 - 0.93	D
> 0.93 - 1.00	E
> 1.00 - 1.25	F(0)
> 1.25 - 1.35	F(1)
> 1.35 - 1.45	F(2)
> 1.45	F(3)

[3] CMP monitoring location.

TABLE 26 (continued)
FREEWAY OPERATING CONDITIONS - FUTURE 2014 CONDITIONS PM PEAK HOUR

				PM Peak Hour							
				Cumulative (2014) Base			Cumulative (2014) Plus Project Tier I			Project Increase in D/C	Significant Project Impact
Freeway Route	Segment	Direction	Capacity	Demand	D/C [1]	LOS [2]	Demand	D/C [1]	LOS [2]		
I-110	at Manchester Boulevard [3]	NB	10,000	10,804	1.08	F(0)	10,788	1.08	F(0)	-0.002	No
		SB	10,000	12,157	1.22	F(0)	12,147	1.21	F(0)	-0.001	No
I-110	n/o Rosecrans Avenue	NB	9,000	8,850	0.98	E	8,846	0.98	E	0.000	No
		SB	9,000	10,416	1.16	F(0)	10,412	1.16	F(0)	0.000	No
I-710	n/o Firestone Boulevard [3]	NB	8,000	7,674	0.96	E	7,664	0.96	E	-0.001	No
		SB	8,000	8,412	1.05	F(0)	8,405	1.05	F(0)	-0.001	No
I-710	n/o SR-91 Freeway	NB	10,000	9,077	0.91	D	9,074	0.91	D	0.000	No
		SB	10,000	8,193	0.82	D	8,188	0.82	D	-0.001	No
I-105	e/o Crenshaw Boulevard [3]	WB	9,000	6,763	0.75	C	6,747	0.75	C	-0.002	No
		EB	9,000	8,964	1.00	E	8,952	0.99	E	-0.001	No
I-105	w/o Central Avenue	WB	8,000	7,414	0.93	D	7,382	0.92	D	-0.004	No
		EB	8,000	7,092	0.89	D	7,069	0.88	D	-0.003	No
I-105	w/o Wilmington Avenue	WB	7,000	7,175	1.03	F(0)	7,156	1.02	F(0)	-0.003	No
		EB	8,000	7,041	0.88	D	7,028	0.88	D	-0.002	No
I-105	w/o Long Beach Boulevard	WB	7,000	7,155	1.02	F(0)	7,134	1.02	F(0)	-0.003	No
		EB	7,000	7,352	1.05	F(0)	7,321	1.05	F(0)	-0.004	No
I-105	w/o I-710 Freeway [3]	WB	8,000	7,597	0.95	E	7,575	0.95	E	-0.003	No
		EB	8,000	7,768	0.97	E	7,737	0.97	E	-0.004	No
I-105	e/o Bellflower Boulevard [3]	WB	9,000	6,908	0.77	C	6,900	0.77	C	-0.001	No
		EB	9,000	6,538	0.73	C	6,526	0.73	C	-0.001	No
SR-91	w/o Wilmington Avenue	WB	9,000	6,611	0.73	C	6,609	0.73	C	0.000	No
		EB	9,000	15,645	1.74	F(3)	15,643	1.74	F(3)	0.000	No
SR-91	e/o Alameda Street [3]	WB	9,000	7,024	0.78	D	7,021	0.78	D	0.000	No
		EB	11,000	16,632	1.51	F(3)	16,628	1.51	F(3)	0.000	No

[1] Demand-to-Capacity ratio (D/C) calculated based on a capacity of 2,000 vehicles per lane per hour applied to through lanes. A capacity of 1,000 vehicles per lane per hour in each direction is added for high-occupancy vehicles (HOV) and auxiliary lanes.

[2] Freeway mainline Levels of Service is based on the following D/C scale

D/C Ratio	LOS
> 0.00 - 0.35	A
> 0.35 - 0.54	B
> 0.54 - 0.77	C
> 0.77 - 0.93	D
> 0.93 - 1.00	E
> 1.00 - 1.25	F(0)
> 1.25 - 1.35	F(1)
> 1.35 - 1.45	F(2)
> 1.45	F(3)

[3] CMP monitoring location.

Future 2014 with Project Conditions

The Cumulative (2014) plus Tier I Project freeway operating conditions for the AM and PM peak hours are shown in Table 26. It can be seen that the Tier I Project traffic would improve operating conditions along the segments of the I-105, I-710 and I-110. However, some of these freeway segments continue to operate at LOS E and LOS F during the peak hours.

Table 26 indicates, under the Cumulative (2014) plus Tier I Project conditions, approximately 38% of the analyzed freeway segments located within the study area would operate at LOS D or better during the AM peak hour. Approximately 13% and 50% would operate at LOS E and LOS F, respectively. During the PM peak hour, approximately 42% of the analyzed freeway segment within the study area would operate at LOS D or better and 21% and 38% would operate at LOS E and LOS F, respectively.

Tier I Project Freeway Impacts. According to the 2004 CMP impact criteria, a project impact is considered to be significant if the Proposed Project increases traffic demand on a CMP facility by 2% of capacity (V/C >= 0.02), causing or worsening LOS F (V/C > 1.00). Under this criterion, a project would not be considered to have a significant impact if the analyzed facility is operating at LOS E or better after the addition of project traffic. However, if the facility is operating at LOS F with project traffic and the incremental change in the V/C ratio caused by the project is 0.02 or greater, the project would be considered to have a significant impact.

Table 26 summarizes the incremental increase in the D/C ratio which can be attributed to the Proposed Tier I Project during the AM and PM peak hours. Using the CMP significant impact criteria, the Proposed Tier I Project will not have any significant impacts during the AM and PM peak hours.

Future 2020 without Project Conditions

As with the intersection operations, traffic volumes on freeways would increase as a result of regional growth anticipated by the year 2020 and growth due to related projects within and in the vicinity of the Project study area. It was estimated that the growth in traffic on the freeways in the study area amounted to an increase of approximately 0.72% per year in the AM and PM peak hours, respectively.

Table 27 summarizes the overall freeway system performance within the Martin Luther King Jr. Medical Center Campus Project study area during the AM and PM peak hours. Under Cumulative (2020) Base conditions, as shown in Table 27, approximately 21% of the analyzed freeway segments located within the study area would operate at acceptable levels of service (LOS D or better) during the AM peak hour. Approximately 21% and 58% would operate at LOS E and LOS F, respectively. During the PM peak hour, approximately 33% of the analyzed freeway segments within the study area would operate at LOS D or better and 13% and 54% would operate at LOS E and LOS F, respectively.

It can be seen that the regional growth would bring certain segments of the I-105, I-70 and I-605 to LOS E or LOS F conditions during the AM and PM peak hours. It would also add to the congestion along some of the freeway segments that are currently operating at LOS E and LOS F during the peak hours.

Future 2020 with Project Conditions

The Cumulative (2020) plus Tier I and II Project freeway operating conditions for the AM and PM peak hours are shown in Table 27. It can be seen that the Tier I and II Project traffic would bring certain segments of the I-105, I-710 and I-110 to LOS E or LOS F conditions during the AM and PM peak hours. However, some of these freeway segments are currently operating at LOS E and LOS F during the peak hours.

Table 27 indicates, under the Cumulative (2020) plus Tier I and II Project conditions, approximately 21% of the analyzed freeway segments located within the study area would operate at LOS D or better during the AM peak hour. Approximately 21% and 58% would operate at LOS E and LOS F, respectively. During the PM peak hour, approximately 29% of the analyzed freeway segment within the study area would operate at LOS D or better and 13% and 58% would operate at LOS E and LOS F, respectively.

Tier II Project Freeway Impacts. Table 27 summarizes the incremental increase in the D/C ratio which can be attributed to the Proposed Tier II Project during the AM and PM peak hours. Using the CMP significant impact criteria, the Proposed Tier II Project will have significant impacts at two of the analyzed freeway segments during the AM and/or PM peak hours.

TABLE 27
FREEWAY OPERATING CONDITIONS - FUTURE 2020 CONDITIONS AM PEAK HOUR

				AM Peak Hour							
				Cumulative (2020) Base			Cumulative (2020) + Project Tier 1 & 2			Project Increase in D/C	Significant Project Impact
Freeway Route	Segment	Direction	Capacity	Demand	D/C [1]	LOS [2]	Demand	D/C [1]	LOS [2]		
I-110	at Manchester Boulevard [3]	NB	10,000	11,517	1.15	F(0)	11,542	1.15	F(0)	0.002	No
		SB	10,000	11,943	1.19	F(0)	12,017	1.20	F(0)	0.007	No
I-110	n/o Rosecrans Avenue	NB	9,000	10,575	1.18	F(0)	10,596	1.18	F(0)	0.002	No
		SB	9,000	11,383	1.26	F(1)	11,391	1.27	F(1)	0.001	No
I-710	n/o Firestone Boulevard [3]	NB	8,000	8,695	1.09	F(0)	8,711	1.09	F(0)	0.002	No
		SB	8,000	7,532	0.94	E	7,578	0.95	E	0.006	No
I-710	n/o SR-91 Freeway	NB	10,000	7,614	0.76	C	7,636	0.76	C	0.002	No
		SB	10,000	10,468	1.05	F(0)	10,475	1.05	F(0)	0.001	No
I-105	e/o Crenshaw Boulevard [3]	WB	9,000	8,551	0.95	E	8,576	0.95	E	0.003	No
		EB	9,000	8,866	0.99	E	8,940	0.99	E	0.008	No
I-105	w/o Central Avenue	WB	8,000	12,989	1.62	F(3)	13,040	1.63	F(3)	0.006	No
		EB	8,000	8,156	1.02	F(0)	8,306	1.04	F(0)	0.019	No
I-105	w/o Wilmington Avenue	WB	7,000	12,328	1.76	F(3)	12,358	1.77	F(3)	0.004	No
		EB	8,000	7,556	0.94	E	7,642	0.96	E	0.011	No
I-105	w/o Long Beach Boulevard	WB	7,000	11,650	1.66	F(3)	11,792	1.68	F(3)	0.020	**Yes**
		EB	7,000	7,287	1.04	F(0)	7,336	1.05	F(0)	0.007	No
I-105	w/o I-710 Freeway [3]	WB	8,000	11,336	1.42	F(2)	11,483	1.44	F(2)	0.018	No
		EB	8,000	7,716	0.96	E	7,765	0.97	E	0.006	No
I-105	e/o Bellflower Boulevard [3]	WB	9,000	7,948	0.88	D	7,998	0.89	D	0.006	No
		EB	9,000	6,575	0.73	C	6,592	0.73	C	0.002	No
SR-91	w/o Wilmington Avenue	WB	9,000	12,053	1.34	F(1)	12,056	1.34	F(1)	0.000	No
		EB	9,000	6,749	0.75	C	6,760	0.75	C	0.001	No
SR-91	e/o Alameda Street [3]	WB	9,000	12,869	1.43	F(2)	12,886	1.43	F(2)	0.002	No
		EB	11,000	7,205	0.66	C	7,209	0.66	C	0.000	No

[1] Demand-to-Capacity ratio (D/C) calculated based on a capacity of 2,000 vehicles per lane per hour applied to through lanes. A capacity of 1,000 vehicles per lane per hour in each direction is added for high-occupancy vehicles (HOV) and auxiliary lanes.

[2] Freeway mainline Levels of Service is based on the following D/C scale

D/C Ratio	LOS
> 0.00 - 0.35	A
> 0.35 - 0.54	B
> 0.54 - 0.77	C
> 0.77 - 0.93	D
> 0.93 - 1.00	E
> 1.00 - 1.25	F(0)
> 1.25 - 1.35	F(1)
> 1.35 - 1.45	F(2)
> 1.45	F(3)

[3] CMP monitoring location.

TABLE 27 (continued)
FREEWAY OPERATING CONDITIONS - FUTURE 2020 CONDITIONS PM PEAK HOUR

Freeway Route	Segment	Direction	Capacity	PM Peak Hour							
				Cumulative (2020) Base			Cumulative (2020) + Project Tier 1 & 2			Project Increase in D/C	Significant Project Impact
				Demand	D/C [1]	LOS [2]	Demand	D/C [1]	LOS [2]		
I-110	at Manchester Boulevard [3]	NB	10,000	11,512	1.15	F(0)	11,604	1.16	F(0)	0.009	No
		SB	10,000	12,910	1.29	F(1)	12,956	1.30	F(1)	0.005	No
I-110	n/o Rosecrans Avenue	NB	9,000	9,234	1.03	F(0)	9,245	1.03	F(0)	0.001	No
		SB	9,000	10,870	1.21	F(0)	10,896	1.21	F(0)	0.003	No
I-710	n/o Firestone Boulevard [3]	NB	8,000	8,354	1.04	F(0)	8,413	1.05	F(0)	0.007	No
		SB	8,000	9,105	1.14	F(0)	9,133	1.14	F(0)	0.003	No
I-710	n/o SR-91 Freeway	NB	10,000	9,473	0.95	E	9,486	0.95	E	0.001	No
		SB	10,000	8,554	0.86	D	8,582	0.86	D	0.003	No
I-105	e/o Crenshaw Boulevard [3]	WB	9,000	7,079	0.79	D	7,173	0.80	D	0.010	No
		EB	9,000	9,372	1.04	F(0)	9,415	1.05	F(0)	0.005	No
I-105	w/o Central Avenue	WB	8,000	7,771	0.97	E	7,961	1.00	E	0.024	No
		EB	8,000	7,433	0.93	D	7,522	0.94	E	0.011	No
I-105	w/o Wilmington Avenue	WB	7,000	7,523	1.07	F(0)	7,631	1.09	F(0)	0.015	No
		EB	8,000	7,382	0.92	D	7,433	0.93	D	0.006	No
I-105	w/o Long Beach Boulevard	WB	7,000	7,476	1.07	F(0)	7,559	1.08	F(0)	0.012	No
		EB	7,000	7,682	1.10	F(0)	7,864	1.12	F(0)	0.026	**Yes**
I-105	w/o I-710 Freeway [3]	WB	8,000	7,951	0.99	E	8,037	1.00	F(0)	0.011	No
		EB	8,000	8,133	1.02	F(0)	8,315	1.04	F(0)	0.023	**Yes**
I-105	e/o Bellflower Boulevard [3]	WB	9,000	7,220	0.80	D	7,250	0.81	D	0.003	No
		EB	9,000	6,836	0.76	C	6,899	0.77	C	0.007	No
SR-91	w/o Wilmington Avenue	WB	9,000	6,888	0.77	C	6,902	0.77	C	0.002	No
		EB	9,000	16,301	1.81	F(3)	16,307	1.81	F(3)	0.001	No
SR-91	e/o Alameda Street [3]	WB	9,000	7,319	0.81	D	7,329	0.81	D	0.001	No
		EB	11,000	17,331	1.58	F(3)	17,352	1.58	F(3)	0.002	No

[1] Demand-to-Capacity ratio (D/C) calculated based on a capacity of 2,000 vehicles per lane per hour applied to through lanes. A capacity of 1,000 vehicles per lane per hour in each direction is added for high-occupancy vehicles (HOV) and auxiliary lanes.

[2] Freeway mainline Levels of Service is based on the following D/C scale

D/C Ratio	LOS
> 0.00 - 0.35	A
> 0.35 - 0.54	B
> 0.54 - 0.77	C
> 0.77 - 0.93	D
> 0.93 - 1.00	E
> 1.00 - 1.25	F(0)
> 1.25 - 1.35	F(1)
> 1.35 - 1.45	F(2)
> 1.45	F(3)

[3] CMP monitoring location.

The impacted freeway segments include the following:

- I-105 Freeway west of Long Beach Boulevard – westbound direction (AM Peak Hour)
- I-105 Freeway west of Long Beach Boulevard – eastbound direction (PM Peak Hour)
- I-105 Freeway west of I-710 Freeway – eastbound direction (PM Peak Hour)

Per Caltrans traffic study guidelines, the Project's proportional share at these locations has been determined and is included in Appendix R.

CMP TRANSIT ANALYSIS

This subsection provides a description of the transit analysis performed in accordance with the Los Angeles County Congestion Management Program guidelines. The following components are involved in the CMP transit analysis:

- Evidence that affected transit operations received the Notice of Preparation (NOP);
- Summary of existing transit service in the study area;
- Project trip generation estimates;
- Project transit trip estimates;
- Project components including facilities and programs to encourage public transit use;
- Analysis of transit impacts and mitigations, if any.

Evidence that affected transit operators received the NOP

The NOP was sent out to Metro and as well as the several other transit operators serving the study area. The list of recipients of the NOP is included in the DEIR.

Summary of Existing Transit Services in the Project Area

It is required that all local fixed route services within a ¼ mile radius of the project, express bus routes within a 2 miles radius of the project, and rail service within a 2 mile radius of the project be included as part of this CMP transit analysis. Chapter 2, Existing Transit Conditions section includes a description of all key transit routes within the Project Area as defined above. Figure 5 in Chapter 2 includes all transit lines within the study area.

Table 28 includes all transit lines serving the vicinity of the Project site. Information on the service provider line number, service area, service type, hours of operations and AM, Mid-day, and PM frequencies have been compiled in Table 28. Within the vicinity of the Project site, it can be observed that 33 buses per direction and 20 trains per direction serve the vicinity of the Project site in the morning peak hour while 41 buses per direction and 20 trains per direction serve the community in the evening peak hour.

Project Trip Generation Estimates

Table 18 in Chapter 4 summarizes the Tier I and II Project Trip Generation Estimates. It can be observed from Table 18 that the Proposed Tier I Project generates a net total reduction of approximately -5,771 daily trips of which -391 trip ends occur during the morning peak hour and -398 trip ends occur during the evening peak hour, prior to any transit and internal trip adjustments. The Proposed Tier I and II Project (combined) generates a net total of approximately 32,527 daily trips of which 2,044 trip ends occur during the morning peak hour and 2,834 trip ends occur during the evening peak hour, prior to any reductions due to transit and internal trips.

Project Transit Trip Estimates

The transit trips expected to be generated by the Project was estimated based on the number of vehicle trips, per the guidelines outlines in the CMP document, Section B.8.4. The transit trip estimates are summarized in Table 29. These estimates assume an Average Vehicle Occupancy (AVO) of 1.40 and a maximum of 15% reduction in auto trips resulting in 15% of the total person trips using transit. This analysis assumes a conservative worst-case usage of 15% transit. From Table 29, it can be observed that the Proposed Tier 1 Project would generate a net total reduction of approximately -1,212 daily person transit trips including -82 morning peak hour transit trips and -84 evening peak hour transit trips. Under Tier I and II Project conditions, the Project would generate approximately 6,831 daily person transit trips including 429 morning peak hour transit trips and 595 evening peak hour transit trips.

Transit Impact Analysis and Mitigations

Transit impact analysis was performed based on the methodology laid out in the Los Angeles County CMP document. The number of project-generated transit trips is estimated and the existing and proposed transit capacity serving the study area is determined.

TABLE 28
EXISTING TRANSIT ROUTES SERVING THE PROJECT SITE

PROVIDER	LINE NUMBER / COLOR	SERVICE AREA	SERVICE TYPE	HOURS OF OPERATIONS	FREQUENCY (AM/MID-DAY/PM)	BUS LINE TRAVEL CORRIDOR
Light Rail						
MTA	BLUE LINE	7th St./Metro Center To Long Beach Transit Mall	LIGHT RAIL	3:53 AM - 1:57 AM	5MIN / 12MIN / 5MIN	---
MTA	GREEN LINE	Redondo Beach Av. & Marine Av. To Hoxie Av. & I-105/I-605 Freeway Interchan	LIGHT RAIL	3:36 AM - 1:25 AM	7MIN / 15MIN / 7MIN	---
120th St. Corridor						
DASH	Watts	Kenneth Hahn Plaza To Manchester Bl. & Central Av.	LOCAL	7:00 AM - 5:40 PM	20MIN / 20MIN / 20MIN	120th St
HTS	2	Kenneth Hahn Plaza To Jarvis Av. & El Segundo Bl.	LOCAL	6:30 AM - 5:52 PM	30MIN / 30MIN / 30MIN	120th St
Central Av. Corridor						
MTA	753	Imperial/Wilmington Blue-Green Line Station To Beaudry Av. & 5th St.	RAPID - LIMITED STOP	4:32 AM - 9:38 PM	15MIN / 30MIN / 15MIN	Central Av/Imperial Hwy
Compton Av. Corridor						
MTA	55/355	Imperial/Wilmington Blue-Green Line Station To Sunset Bl. & Figueroa St.	LOCAL/LIMITED STOP	4:58 AM - 10:02 PM	15MIN / 10MIN / 5MIN	Compton Av
El Segundo Bl. Corridor						
GMB	5	Imperial/Wilmington Blue-Green Line Station To El Segundo Bl. & Sepulveda Bl.	LOCAL	5:21 AM - 8:31 PM	30MIN / 30MIN / 30MIN	El Segundo Bl
Imperial Hwy. Corridor						
MTA	121	Imperial/Wilmington Blue-Green Line Station To Whittwood Center	LOCAL	5:08 AM - 12:50 AM	30MIN / 45MIN / 30MIN	Imperial Hwy
Mona Bl. Corridor						
HTS	1	Kenneth Hahn Plaza To Mona Bl. & El Segundo Bl.	LOCAL	7:00 AM - 5:53 PM	30MIN / 30MIN / 30MIN	Mona Bl/El Segundo Bl/124th S
Willowbrook Av. Corridor						
MTA	202	Avalon Bl. & D St. To Imperial/Wilmington Blue-Green Line Station	LOCAL	5:26 AM - 7:21 PM	30MIN / NA / 30MIN	Willowbrook Av
HTS	3	Kenneth Hahn Plaza To M.L. King Jr. Hospital Main Entrance	LOCAL	7:05 AM - 6:10 PM	10MIN / 10MIN / 10MIN	Willowbrook Av/120th St
Wilmington Av. Corridor						
MTA	205	13th St. & Gaffey St. To Artesia Transit Center	LOCAL	4:21 AM - 11:55 PM	30MIN / 30MIN / 25MIN	Wilmington Av
MTA	305	Imperial/Wilmington Blue-Green Line Station To UCLA Ackerman Loop	LIMITED STOP	5:01 AM - 10:59 PM	30MIN / 45MIN / 35MIN	Wilmington Av
CRT	5	M.L. King Jr. Transit Center/Compton Blue Line Station To M.L. King Jr. Hospita	LOCAL	7:30 AM - 3:15 PM	1 HOUR/1 HOUR/ 1 HOUR	Wilmington Av/El Segundo Bl
MTA	612	Imperial/Wilmington Blue-Green Line Station To Florence Av. & Otis St.	LOCAL - SHUTTLE	4:39 AM - 12:15 AM	45MIN / 45MIN / 45MIN	Wilmington Av/Imperial Hwy

Legend:
MTA - Metropolitan Transportation Authority is operated by the Los Angeles County Metropolitan Transportation Authority
DASH - Downtown Area Short Hop is operated by the City of Los Angeles, Department of Transportation
CRT - Compton Renaissance Transit System is operated by the City of Compton
GMB - Gardena Municipal Bus Line (GMB) is operated by the City of Gardena
HTS - Hahn Trolley and Shuttle Service is operated by the Watts Labor Community Action Committee

TABLE 29
CONGESTION MANAGEMENT PROGRAM TRANSIT TRIP ESTIMATES

	Daily	AM Peak Hour	PM Peak Hour
TIER I PROJECT TRIPS OVERALL			
# of Trips	(5,771)	(391)	(398)
AVO factor	1.4	1.4	1.4
# of people trips	(8,079)	(547)	(557)
% Transit factor	15%	15%	15%
transit trips	(1,212)	(82)	(84)
Total (Person) Transit Trips	(1,212)	(82)	(84)
TIER I AND II PROJECT TRIPS OVERALL			
# of Trips	32,527	2,044	2,834
AVO factor	1.4	1.4	1.4
# of people trips	45,538	2,862	3,968
% Transit factor	15%	15%	15%
transit trips	6,831	429	595
Total (Person) Transit Trips	6,831	429	595

Table 30 summarizes the transit demands and impact analysis. As indicated in Table 30, there are a total of approximately 66 to 82 buses during the peak hours that serve the study area, as well as 40 trains (Metro Green Line and Blue Line) that operate during the peak hours. There would be residual capacity available on a daily basis, both on the existing bus and train lines, serving the study area. Further, the existing residual transit system supply would accommodate the Proposed Project's anticipated transit demands.

TABLE 30
CONGESTION MANAGEMENT PROGRAM TRANSIT IMPACT ANALYSIS

	AM Peak Hour	PM Peak Hour
Tier I Project Condtions		
Project Transit Trips	-82	-84
Existing Capacity - Bus		
Number of Peak Hour Buses	66	82
Average Load Factor	0.75	0.75
Seated Capacity/Bus	42	42
Surplus Capacity	693	861
Surplus/(deficit)	775	945
Existing Capacity - Green/Blue Lines		
Number of Peak Hour Trains	40	40
Average Load Factor	0.75	0.75
Seated Capacity/Train	230	230
Surplus Capacity	2,300	2,300
Surplus/(deficit)	2,382	2,384
Tier I and II Project Conditions		
Project Transit Trips	429	595
Existing Capacity - Bus		
Number of Peak Hour Buses	40	40
Average Load Factor	0.75	0.75
Seated Capacity/Bus	42	42
Surplus Capacity	693	861
Surplus/(deficit)	264	266
Existing Capacity - Green/Blue Lines		
Number of Peak Hour Trains	40	40
Average Load Factor	0.75	0.75
Seated Capacity/Train	230	230
Surplus Capacity	2,300	2,300
Surplus/(deficit)	1,871	1,705

VI. ALTERNATIVES ANALYSIS

This chapter presents a summary of the project alternatives for the Martin Luther King Jr. Medical Center Campus Redevelopment Project. Alternatives analyses are required per CEQA as part of the Environmental Impact Report (EIR) being prepared for the Project. The trip generation estimates of the alternatives, as well as their potential traffic impacts in relation to those of the Proposed Project are discussed in this chapter.

A total of six alternatives have been analyzed in this study. They include the following:

- No Project Alternative
- Alternative 1 – Reduced Project Size Alternative (900,000 square feet in Tier II)
- Alternative 2 – Re-opening of Existing MACC Alternative (250 Beds)
- Alternative 3 – Public Transportation Focused Alternative
- Alternative 4 – 500 Beds Alternative (in Tier I)
- Alternative 5 – No Tier II Alternative

A description of the above alternatives including their proposed land uses and their corresponding trip generation estimates and comparison to the Proposed Project's trip generation is provided in the following sections. The same trip generation rates and assumptions as those used for the Proposed Project have been utilized for the analysis and evaluation of these alternatives.

Table 31 summarizes the net trip generation estimates of all project alternatives as well as a comparison of those estimates to that of the Proposed Project. The differences in trip generation estimates of the various alternatives in relation to those of the Proposed Project expressed in net AM, PM and daily total trip ends as well as percentages are all shown in Table 31 as well. As indicated in the table, all of the proposed alternatives would generate less trips than those generated by the Proposed Project.

TABLE 31
ALTERNATIVES ANALYSIS - SUMMARY AND COMPARISON OF NET TRIP GENERATION ESTIMATES

Scenario	DAILY TOTAL	AM PEAK HOUR IN	AM PEAK HOUR OUT	AM PEAK HOUR TOTAL	PM PEAK HOUR IN	PM PEAK HOUR OUT	PM PEAK HOUR TOTAL
Proposed Project							
Total Net Trip Generation - Tier I + II	19,677	921	319	1,240	568	1,185	1,753
No Project Alternative	0	0	0	0	0	0	0
Difference from Proposed Project	(19,677)	(921)	(319)	(1,240)	(568)	(1,185)	(1,753)
% Difference	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*
Alternative 1 - Reduced Project Size Alternative (900,000 square feet in Tier II)	7,004	347	66	413	205	505	710
Difference from Proposed Project	(12,673)	(574)	(253)	(827)	(363)	(680)	(1,043)
% Difference	*-64%*	*-62%*	*-79%*	*-67%*	*-64%*	*-57%*	*-59%*
Alternative 2 - Re-opening of the Existing MACC Alternative (250 Beds)	0	0	0	0	0	0	0
Difference from Proposed Project	(19,677)	(921)	(319)	(1,240)	(568)	(1,185)	(1,753)
% Difference	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*
Alternative 3 - Public Transportation Focused Alternative	17,709	829	287	1,116	511	1,067	1,578
Difference from Proposed Project	(1,968)	(92)	(32)	(124)	(57)	(118)	(175)
% Difference	*-10%*	*-10%*	*-10%*	*-10%*	*-10%*	*-10%*	*-10%*
Alternative 4 - 500 Beds (in Tier I) Alternative	0	0	0	0	0	0	0
Difference from Proposed Project	(19,677)	(921)	(319)	(1,240)	(568)	(1,185)	(1,753)
% Difference	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*	*-100%*
Alternative 5 - No Tier II Alternative *	(4,905)	(196)	(136)	(332)	(142)	(196)	(338)
Difference from Proposed Project	(24,582)	(1,117)	(455)	(1,572)	(710)	(1,381)	(2,091)
% Difference	*>-100%*	*>-100%*	*>-100%*	*>-100%*	*>-100%*	*>-100%*	*>-100%*

Note: * In this 'No Tier II Alternative', existing buildings with entitlements will be reduced in entitlements by relinquishing those uses from the buildings.

NO PROJECT ALTERNATIVE

The No Project Alternative, which is required for all EIRs, assumes there would be no change to the existing conditions and use of the project site. The existing structures would remain as they currently are and the limited operations at the hospital would continue. Construction of the Tier I and II portions of the Project would not be completed under the No Project Alternative. Therefore, no further analysis is needed for this Alternative. This Alternative will result in no significant traffic impacts and implementation of any mitigation measures would not be required.

ALTERNATIVE 1 – REDUCED PROJECT SIZE ALTERNATIVE

Alternative 1, the Reduced Project Size Alternative, would include the same elements that are described in Tier I of the Proposed Project but have reduced Tier II uses. This Alternative would consist of the same project-level development and improvements described in Tier I of the Proposed Project including the construction of 156,700 square feet, consisting of a new 132,000 square feet MACC and 24,700 square feet ancillary building, tenant improvements in existing buildings, and site improvements. The tenant improvements would be performed in the North and South Support buildings, Interns and Physicians building and Plant Management building to provide support to the new MACC building. Additionally, Tier I would include site improvement consisting of a new parking terrace, new parking lots, and re-striping of existing lots.

Alternative 1 would vary from the Proposed Project in its development of Tier II. Under this Alternative, Tier II of the Proposed Project would still entail the development of a Campus-wide Master Plan and their respective improvements. The buildings that have been identified as being replaced, demolished, or reused for the Proposed Project would be replaced, demolished or reused for this Alternative. However, the potential buildout of Tier II of this Alternative would be less than half of the development that would be included for Tier II of the Proposed Project. Alternative I Tier II would consist of a maximum potential buildout of 900,000 square feet and include 562,753 square feet of hospital use, 39,676 square feet of retail use, 148,785 square feet of medical office use, 74,393 square feet of general office use, and 50 single family residential dwelling units (in approximately 74,393 square feet).

Table 32 presents details of Alternative 1 Project's trip generation including type of use, size, applicable rate and trip generation estimates. Other calculations within the tables also provide for trip generation reductions from transit, internal capture, and pass-by trips.

Alternative 1 Tier I trip generation would be the same as that of Tier I of the Proposed Project. As indicated in Table 32, Tier I would result in 2,586 daily trips of which 176 trips would occur in the morning peak hour and 179 trips would occur in the evening peak hour. Since Tier I also involves removal of existing uses, a net reduction in trips of approximately 4,905 daily trips, 332 A.M. trips and 338 P.M. trips would occur.

Alternative I Tier II component trip generation would result in a net total of approximately 11,909 daily trips of which 745 trips would occur during the morning peak hour and 1,048 trips during the evening peak hour.

Alternative 1 Tiers I and II combined would have a total net trip generation of 7,004 daily trips of which 413 trips would occur during the morning peak hour and 710 trips during the evening peak hour. As indicated in Table 31, this represents 64% less daily trips than the Proposed Project and 67% and 59% less trips during the morning and evening peak hours, respectively.

Similar to the Proposed Project, the Reduced Project Size Alternative would have the potential to result in significant traffic impacts. However, this Alternative would adversely impact traffic to a lesser degree, based on the 67% less trip generation than the Proposed Project. No significant differences in travel patterns outside the project area would be expected between this Alternative and that of the Proposed Project.

ALTERNATIVE 2 – RE-OPENING OF THE EXISTING MACC ALTERNATIVE

Alternative 2, the Re-Opening of the Existing MACC Alternative, would contain no new development. This Alternative would restore the former outpatient and inpatient functions of the MACC building into the existing MACC building located on the existing campus. The existing MACC would be re-opened and would provide up to 250 beds, along with the inpatient services that were previously provided at the hospital. The new MACC and Ancillary buildings would not be constructed and the related tenant and site improvements would not be completed. The focus of this Alternative would be to obtain the licensing, funding, and adequate operational requirements

TABLE 32
ESTIMATED TRIP GENERATION - ALTERNATIVE 1

			AM Peak Hour			PM Peak Hour		
	Size	Daily	IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed Tier I								
Hospital - Removal of Use [1]	(506,485) s.f.	(8,357)	(335)	(232)	(567)	(242)	(335)	(577)
Hospital - Addition	156,700 s.f.	2,586	104	72	176	75	104	179
Tier I Net Trip Generation Total		(5,771)	(231)	(160)	(391)	(167)	(231)	(398)
Tier I Net Trip Generation Less Transit Reduction (15%)		**(4,905)**	**(196)**	**(136)**	**(332)**	**(142)**	**(196)**	**(338)**
Proposed Tier II								
Hospital (Additional Campus Support)	562,753 s.f.	9,285	372	258	630	270	372	642
Commercial/Retail	39,676 s.f.	3,724	54	35	89	168	174	342
Single Family Residential	50 d.u.	550	11	34	45	35	21	56
Medical Office	148,785 s.f.	5,376	270	72	342	139	376	515
General Office	74,393 s.f.	1,062	130	18	148	28	134	162
Tier II Trip Generation Total		19,997	837	417	1,254	640	1,077	1,717
Tier II Trip Generation Total Less Transit Reduction (15%)		16,997	711	354	1,065	544	915	1,459
*Internal Capture Trip Credit (15% - Existing + Tier I + II)		(4,431)	(144)	(144)	(288)	(175)	(174)	(349)
**Pass-By Trip Credit [2]		(657)	(24)	(8)	(32)	(22)	(40)	(62)
Tier II Net Trip Generation Total		**11,909**	**543**	**202**	**745**	**347**	**701**	**1,048**
Alternative 1 - Tier I + Tier II Net Trip Generation Total		**7,004**	**347**	**66**	**413**	**205**	**505**	**710**

* Internal capture credit taken after reduction of transit trips.
** Pass-by trip reduction taken after transit trip and internal capture credits.
[1] Demolition of this facility would occur in Tier II.
[2] Includes 10% pass-by credit for medical office use and retail use.

(including but not limited to staff, supplies, etc.) to re-open the existing MACC. Only the existing MACC would be reused. No other buildings would be replaced, demolished or reused.

Under this Alternative, it is anticipated that no community-based, comprehensive, or mixed use development as described in Tier II, Master Plan Development of the Proposed Project would occur. There would be no new development.

Alternative 2 would contain no new development and therefore would not generate any new trips. This Alternative would generate trips less than the existing baseline. The existing baseline trip generation includes both operational and non-operational existing uses which includes the existing MACC Building. The Re-opening of the Existing MACC Alternative would result in no significant traffic impacts and implementation of any mitigation measures would not be required.

ALTERNATIVE 3 – PUBLIC TRANSPORTATION FOCUSED ALTERNATIVE

Alternative 3, the Public Transportation Focused Alternative, would consist of both Tier I and Tier II development elements of the Proposed Project. Buildings would be reused, replaced, or removed and Tier II elements of the Proposed Project would be developed. Additionally, there would be a greater focus on enhancing the current public transportation services at the existing campus and the surrounding area. The intent of this Alternative is to reduce the anticipated vehicle trips to the campus by approximately 10% more than that of the Proposed Project by implementing a series of transit improvement measures.

The transit improvement measures provided in this Alternative could potentially include a combination of one or more of the following - increase of frequency of service, improvement of connectivity in the system, coordination of transfers and other incentives for increased transit usage. The potential frequency improvement measures could be achieved by increasing the frequency of the Metro Green and Blue lines and by adding more connections between campus and the metro stations. Additional bus routes including extension of Metro Rapid Service with close coordination with the Metropolitan Transportation Authority (MTA) would also be explored with this Alternative. Improvement of frequency, connectivity and coordination of transfers between various transit lines operated by MTA, Los Angeles Department of Transportation Downtown Area Short Hop (DASH), Renaissance Transit System, Gardena Municipal Bus Line, Rosewood Smart Shuttle, Lynwood Trolley, Torrance Transit System, Carson Circuit System, Long Beach Transit, and the Hahn Trolley Shuttle Service would also be explored in this Alternative. The county would also investigate the potential to increase subsidies for visitors using public transportation as well as provision of universal transit passes to employees at subsidized fares. Finally, the County would seek to utilize / purchase an off-site parking lot for patients / visitors to use instead of parking on campus and to use and then be transferred (via shuttle) to/from the campus.

Table 33 presents details of Alternative 3 trip generation including type of use, size, applicable rate and trip generation estimates. Other calculations within the tables also provide for trip generation reductions from transit, internal capture, and pass-by trips. As indicated in Table 33, Alternative 3 Tiers I and II combined would have a total net trip generation of 17,709 daily trips of which 1,116 trips would occur during the morning peak hour and 1,578 trips during the evening peak hour. As indicated in Table 31, this represents 10% less daily, morning and evening peak hour trips than the Proposed Project.

Similar to the Proposed Project, Alternative 3 would have the potential to result in significant traffic impacts. However, this Alternative would adversely impact traffic to a lesser degree, given up to 10% less in trip generation, than the Proposed Project. No significant differences in travel patterns outside the project area would be expected between this Alternative and the Proposed Project.

ALTERNATIVE 4 – 500 BEDS (IN TIER I) ALTERNATIVE

Alternative 4, 500 Beds (in Tier I) Alternative, wound contain no new development. This Alternative would consist of the development and operation of a 500-bed hospital located on the existing campus. The focus of this Alternative would be ensuring that there is a 500 bed facility of the campus. Tier I would consist of the development of a 500 bed hospital that would occupy the existing MACC. The existing MACC would provide up to 500 inpatient beds along with the inpatient services that were previously provided at the hospital.

Similar to Alternative 2, Re-Opening the Existing MACC Alternative, this Alternative would place a limited amount of the former outpatient and inpatient (i.e. the trauma center, emergency services, and up to 500 beds) functions of the MACC building into the existing MACC building.

TABLE 33
ESTIMATED TRIP GENERATION - ALTERNATIVE 3

			AM Peak Hour			PM Peak Hour		
	Size	**Daily**	**IN**	**OUT**	**TOTAL**	**IN**	**OUT**	**TOTAL**
Proposed Tier I								
Hospital - Removal of Use [1]	(506,485) s.f.	(8,357)	(335)	(232)	(567)	(242)	(335)	(577)
Hospital - Addition	156,700 s.f.	2,586	104	72	176	75	104	179
Tier I Net Trip Generation Total		(5,771)	(231)	(160)	(391)	(167)	(231)	(398)
Tier I Net Trip Generation Less Transit Reduction (15%)		**(4,905)**	**(196)**	**(136)**	**(332)**	**(142)**	**(196)**	**(338)**
Proposed Tier II								
Hospital (Additional Campus Support)	1,134,695 s.f.	18,722	750	521	1,271	543	751	1,294
Commercial/Retail	80,000 s.f.	5,874	82	53	135	269	279	548
Single Family Residential	100 d.u.	1,040	20	60	80	66	39	105
Medical Office	300,000 s.f.	10,839	545	145	690	280	758	1,038
General Office	150,000 s.f.	1,823	228	31	259	42	205	247
Tier II Trip Generation Total		38,298	1,625	810	2,435	1,200	2,032	3,232
Tier II Trip Generation Total Less Transit Reduction (15%)		32,553	1,381	689	2,070	1,020	1,727	2,747
*Internal Capture Trip Credit (15% - Existing + Tier I + II)		(6,764)	(219)	(220)	(439)	(271)	(271)	(542)
**Pass-By Trip Credit [2]		(1,207)	(45)	(15)	(60)	(39)	(75)	(114)
Tier II Net Trip Generation Total		**24,582**	**1,117**	**455**	**1,572**	**710**	**1,381**	**2,091**
Alternative 3 - Tier I + Tier II Net Trip Generation Total with 10% Transit Reduction		**17,709**	**829**	**287**	**1,116**	**511**	**1,067**	**1,578**

* Internal capture credit taken after reduction of transit trips.
** Pass-by trip reduction taken after transit trip and internal capture credits.
[1] Demolition of this facility would occur in Tier II.
[2] Includes 10% pass-by credit for medical office use and retail use.

The new MACC and Ancillary buildings would not be constructed and the related tenant and site improvements would not be completed. The focus of this Alternative would be to obtain the licensing, funding, and adequate operational requirements (including but not limited to staff, supplies, etc.) to re-open the existing MACC.

Under this Alternative, it is anticipated that no community-based, comprehensive, or mixed use development as described in Tier II, Master Plan Development of the Proposed Project would occur. There would be no new development.

Alternative 4 would contain no new development and therefore would not generate any net new trips. This Alternative would generate trips equal to or less than the existing baseline. The existing baseline trip generation includes both operational and non-operational existing uses which includes the existing MACC Building. Alternative 4 would result in no significant traffic impacts and implementation of any mitigation measures would not be required.

ALTERNATIVE 5 – NO TIER II ALTERNATIVE

Alternative 5, No Tier II Alternative, would entail the development of Tier I of the Proposed Project. This Alternative would focus on the development of two new buildings (the new 132,000 square feet MACC and 24,700 square feet Ancillary Building) tenant improvements in existing buildings, site improvements, and potential relocation of the MRI Building.

This Alternative would not entail the Campus-wide Master Plan development described in Tier II of the Proposed Project. The existing MACC building, Emergency Room, Storage Building, and Cooling Towers would be vacated but would not reused, replaced, or removed as part of this Alternative. Under this Alternative, it is anticipated that no community-based mixed-use development as described in Tier II Master Plan development of the Proposed Project would occur. There would be no Tier II development.

Alternative 5 Tier I trip generation would be the same as that of the Tier I of the Proposed Project. As indicated in Table 34, Tier I would result in 2,586 daily trips of which 176 trips would occur in the morning peak hour and 179 trips would occur in the evening peak hour. Since Tier I also involves removal of existing uses, a net reduction in trips of approximately 4,905 daily trips, 332 A.M. trips and 338 P.M. trips would occur.

TABLE 34
ESTIMATED TRIP GENERATION - ALTERNATIVE 5

			AM Peak Hour			PM Peak Hour		
	Size	**Daily**	**IN**	**OUT**	**TOTAL**	**IN**	**OUT**	**TOTAL**
Proposed Tier I								
Hospital - Removal of Use	(506,485) s.f.	(8,357)	(335)	(232)	(567)	(242)	(335)	(577)
Hospital - Addition	156,700 s.f.	2,586	104	72	176	75	104	179
Tier I Net Trip Generation Total		(5,771)	(231)	(160)	(391)	(167)	(231)	(398)
Tier I Net Trip Generation Less Transit Reduction (15%)		**(4,905)**	**(196)**	**(136)**	**(332)**	**(142)**	**(196)**	**(338)**

Since Alternative 5 does not contain Tier II development but involves vacation of existing entitlement, this Alternative would result in less trips that that projected for the Proposed Project.

Alternative 5 would result in the net reduction of trips on the street system since it would not generate any net new trips. This Alternative would result in no significant traffic impacts and implementation of any mitigation measures would not be required.

VII. SUMMARY OF CONCLUSIONS

This study was undertaken to assess existing traffic conditions, estimate future conditions with and without the proposed project, analyze potential traffic impacts of the Proposed Project, assess required improvements and identify/recommend project mitigation to alleviate the significant traffic impacts on the transportation system. Raju Associates, Inc. performed this detailed study and the following summarizes the results of the analysis:

- The Project study area encompasses a geographic area bounded by the Century Boulevard to the north, the I-110 Freeway to the west, the SR-91 Freeway to the south and Long Beach Boulevard to the east. The study area was established working closely with the County of Los Angeles by reviewing the travel patterns of the Proposed Project to ensure that all potential traffic impacts of the Martin Luther King Jr. Medical Center Campus Project would be addressed. Within the study area, 64 intersections have been selected for detailed study. These study intersections are located in the County of Los Angeles and Cities of Compton, Los Angeles, and Lynwood jurisdictions.

- Key elements of the traffic study include assessment of existing conditions, evaluation of future horizon year (2014) conditions without and with the Tier I Project, evaluation of future horizon year (2020) conditions without and with the Tier I and II Project, determination of the Proposed Project's trip generation, distribution and assignment on the roadway network, analysis of future conditions with the Proposed Project prior to mitigation, identification of significant impacts, testing of mitigation measures and documentation of significant impacts, if any.

- A detailed inventory of the existing roadway and transit systems was assembled to define the existing transportation supply-side parameters. Detailed field surveys were conducted to compile the specific parameters.

- Detailed morning and evening peak period traffic counts on a commuter weekday were conducted and the peak hour traffic demands on the roadway system were identified.

- Currently, 63 of the 64 analyzed intersection locations are operating at acceptable levels of service (LOS D or better) both during the morning and evening peak hours.

Future Year 2014 – Tier I Analysis

- At the 27 intersections located in the County of Los Angeles, in the Existing (Baseline) with Ambient Growth (2014) conditions, i.e., future conditions without the implementation of the proposed project, all 27 analyzed intersections in the morning peak hour and 26 analyzed intersections in the evening peak hour are projected to operate at LOS D or better.

- At the study intersections located in the other jurisdictions, in the Cumulative (2014) Base conditions, i.e., future conditions without the implementation of the proposed project, 36 of the 37 analyzed intersections in both the morning and evening peak hours are projected to operate at LOS D or better.

- The Proposed Tier I Project involves construction of 156,700 square feet including a new MACC and ancillary buildings, tenant improvements in existing buildings, and site improvements. The construction of Tier I would also include the removal of four structures containing approximately 506,485 square feet. The Tier I Project is estimated to generate a net total of -332 trips during the morning peak hour and -338 trips during the evening peak hour.

- At the County of Los Angeles locations, under the Existing (Baseline) with Ambient Growth (2014) plus Project conditions, all 27 analyzed intersections in the morning peak hour and 26 analyzed intersections in the evening peak hour are projected to operate at LOS D or better. The Existing (Baseline) with Ambient Growth (2014) plus Project conditions indicate that the Proposed Tier I Project would not cause a significant traffic impact at any of the analyzed intersections.

- Under the cumulative (2014) with Tier I Project conditions, 63 of the 64 analyzed intersections in the morning peak hour are projected to operate at LOS D or better. During the evening peak hour, 62 of the 64 analyzed intersections are projected to operate at LOS D or better. At the 27 County of Los Angeles locations, 27 intersections during the morning peak hour and 26 intersections during the evening peak hour are projected to operate at LOS D or better. At the 37 locations in other jurisdictions, 36 intersections during both the morning and evening peak hours are projected to operate at LOS D or better.

- At the County of Los Angeles locations, the Existing (Baseline) with Ambient Growth (2014) plus Tier I Project and Related Projects traffic conditions indicate that the cumulative projects (including the Proposed Tier I Project) would not cause a significant traffic impact at any of the analyzed intersections.

- At the study intersections located in other jurisdictions, the Cumulative (2014) plus Tier I Project conditions indicate that the Proposed Tier I Project would not cause a significant traffic impact at any of the 37 analyzed intersections.

Future Year 2020 – Tier II Analysis

- At the County of Los Angeles locations, in the Existing (Baseline) with Ambient Growth (2020) conditions, i.e., future conditions without the implementation of the proposed project, all 27 analyzed intersections in the morning peak hour and 26 analyzed intersections in the evening peak hour are projected to operate at LOS D or better.

- At the study intersections located in the other jurisdictions, in the Cumulative (2020) Base conditions, i.e., future conditions without the implementation of the proposed project, 36 of the 37 analyzed intersections during the morning peak hour are projected to operate at

LOS D or better. During the evening peak hour, 34 of the 37 analyzed intersections during the morning peak hour are projected to operate at LOS D or better.

- The Proposed Tier II Project consists of 1,134,695 square feet of hospital use, 80,000 square feet of retail use, 300,000 square feet of medical office use, 150,000 square feet of general office use, and 100 single-family residential dwelling units. The Tier II Project is estimated to generate a net total of 1,572 trips during the morning peak hour and 2,091 trips during the evening peak hour.

- The overall Proposed Project (Tier I combined with Tier II) would have a total net trip generation of 1,240 trips (918 inbound, 322 outbound) during the morning peak hour and 1,753 trips (571 inbound, 1,182 outbound) during the evening peak hour.

- At the County of Los Angeles locations, under the Existing (Baseline) with Ambient Growth (2020) plus Tier I and II Project conditions, 25 of the 27 analyzed intersections in the morning peak hour and 22 of the 27 analyzed intersections in the evening peak hour are projected to operate at LOS D or better.

- The Proposed Tier II Project would cause a significant traffic impact at 7 of the 27 analyzed County of Los Angeles intersections (7 in the AM peak hour and 5 in the PM peak hour) and includes the following intersections:

    - Compton Avenue/Imperial Highway – AM Peak Hour
    - I-105 Westbound Ramps/Imperial Highway – AM Peak Hour
    - Wilmington Avenue/118th Street – AM and PM Peak Hours
    - Wilmington Avenue/120th Street-119th Street – AM and PM Peak Hours
    - Wilmington Avenue/I-105 Eastbound Ramps – AM and PM Peak Hours
    - Wilmington Avenue/MLK Jr. Hospital Dwy-120th Street – AM and PM Peak Hours
    - Wilmington Avenue/El Segundo Boulevard – AM and PM Peak Hours

- Under the cumulative (2020) with Tier II Project conditions, 59 of the 64 analyzed intersections during the morning peak hour and 53 of the 64 analyzed intersections during the PM peak hour are projected to operate at LOS D or better. At the 27 County of Los Angeles locations, 24 intersections during the morning peak hour and 19 intersections during the evening peak hour are projected to operate at LOS D or better. At the 37 locations in other jurisdictions, 35 and 34 intersections are projected to operate at LOS D or better during the morning and evening peak hours, respectively.

- At the County of Los Angeles locations, the Existing (Baseline) with Ambient Growth (2020) plus Tier I and II Project and Related Projects traffic conditions indicate that the cumulative projects (including the Proposed Tier II Project) would cause a significant traffic impact at 13 of the 27 analyzed intersections (10 in the AM peak hour and 12 in the PM peak hour) and includes the following intersections:

    - Alameda Street/103rd Street – AM and PM Peak Hours
    - Alameda Street/El Segundo Boulevard – PM Peak Hour
    - Alameda Street/Imperial Highway – AM and PM Peak Hours

- Avalon Boulevard/El Segundo Boulevard – PM Peak Hour
- Central Avenue/El Segundo Boulevard – AM and PM Peak Hours
- Central Avenue/Rosecrans Avenue – PM Peak Hour
- Compton Avenue/Imperial Highway – AM Peak Hour
- I-105 Westbound Ramps/Imperial Highway – AM and PM Peak Hours.
- Wilmington Avenue/118th Street – AM and PM Peak Hours
- Wilmington Avenue/120th Street-119th Street – AM and PM Peak Hours
- Wilmington Avenue/I-105 Eastbound Ramps – AM and PM Peak Hours
- Wilmington Avenue/MLK Jr. Hospital Dwy-120th Street – AM and PM Peak Hours
- Wilmington Avenue/El Segundo Boulevard – AM and PM Peak Hours

- At the study intersections located in the other jurisdictions, the Cumulative (2020) plus Tier I and II Project conditions indicate that the Proposed Tier II Project would cause a significant traffic impact at one of the 37 analyzed intersections. The intersection of Central Avenue/120th Street would be significantly impacted in both the morning and evening peak hours.

In order to address the Tier II Project's impacts, the following mitigation measures described in the section below are recommended for implementation by the Tier II Project:

- Compton Avenue/Imperial Highway – County of Los Angeles/City of Los Angeles: Restripe westbound approach to provide a separate right-turn lane.

- I-105 Westbound Ramps-Croesus Avenue/Imperial Highway – County of Los Angeles/City of Los Angeles/Caltrans: Provide a third northbound left-turn lane by widening off-ramp by 10' for approximately 150' to 200'.

- Wilmington Avenue/El Segundo Boulevard – County of Los Angeles/Compton: Restripe eastbound and westbound approaches to have separate right-turn lanes. Allow buses to go through the intersection from the right-turn lanes.

- Central Avenue/120th Street – City of Los Angeles: Restripe northbound approach to provide a separate right-turn lane. Also, widen the east leg by 3' on each curbside (i.e. reduce sidewalk along 120th street east of Central Avenue by 3' for approximately 120' and restripe westbound 120th Street approach to provide a left-turn, two through lanes and a separate right turn lane.

- Wilmington Avenue Corridor Improvements: Provide an additional southbound travel lane by widening 2' on either side of Wilmington Avenue (reducing the sidewalk to 8' from 10') and restriping the travel lanes between 120th Street-119th Street and the I-105 Eastbound Off-Ramp and by just restriping the lanes (after reducing the central median) between MLK Jr. Hospital Driveway-120th Street and 120th Street-119th Street. The following intersection improvements would also be implemented as part of this corridor improvement:

- Wilmington Avenue/I-105 Eastbound Ramps – County of Los Angeles/Caltrans: Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach would have a left-turn lane, shared left-right turn lane and a separate right-turn lane. The sidewalks on either side of Wilmington Avenue (as noted above) would be reduced by 2' and the Wilmington Avenue roadway would be widened by 2' on either side (a total of 4') from the south leg of this intersection.

  Provide an additional northbound left-turn lane by widening (reducing the medians). The northbound approach would have dual left-turn lanes and three through lanes.

- Wilmington Avenue/118th Street – County of Los Angeles: Widen Wilmington Avenue roadway by 2' on either side and restripe to provide two through lanes, a shared through-right turn lane and dual left-turn lanes along the southbound approach. Restripe the westbound approach to provide a separate right-turn land and a share left-through lane. Northbound approach would have the same lane geometry as existing conditions. Under cumulative conditions, widen 118th Street roadway by 4' and restripe to provide a separate right-turn lane and shared left-through lane along the eastbound approach.

- Wilmington Avenue/120th Street-119th Street – County of Los Angeles: Widen Wilmington Avenue roadway by 2' on either side and restripe the southbound approach to provide a separate right-turn lane, three through lanes and a left-turn lane.

  Restripe northbound approach to provide a shared through-right turn lane, two through lanes and a left-turn lane. Remove median adjacent to northbound approach to facilitate three southbound receiving lanes. Restrict parking along Wilmington Avenue roadway during AM and PM peak periods along the eastside of Wilmington between 120th Street & MLK Jr. Hospital Driveway Entrance.

  Widen 120th Street west of Wilmington Avenue for 250', on the south side by 2' and restripe the eastbound approach to provide a separate right-turn lane, dual left-turn lanes, and a through lane. The westbound approach of 119th Street would have the same lane geometry as existing conditions.

- Wilmington Avenue/MLK Jr. Hospital Entrance-120th Street – County of Los Angeles: Restripe southbound approach to provide a separate right-turn lane, two through lanes and a left turn lane. Provide three northbound receiving lanes and restrict on-street curb parking along the eastside of Wilmington Avenue between MLK Jr. Hospital Driveway-120th Street and 120th Street-119th Street during morning and evening peak hours.

  Remove median within the hospital entrance and restripe the driveway to provide dual left turn lanes, a through lane and a separate right-turn lane along the eastbound approach. Restripe to provide one receiving lane. The east-west signal phasing would operate as a split phase due to the lane configurations.

- The recommended improvements would fully mitigate the project-related impacts at the 8 impacted intersections.

In order to address the cumulative projects impacts determine using County of Los Angeles traffic study guidelines, the following mitigation measures described in the section below are recommended for implementation to alleviate the cumulative significant impacts. These improvements are needed in addition to the improvements identified above for the project-level mitigation measures.

- Avalon Boulevard/El Segundo Boulevard – County of Los Angeles: Widen NB approach by 2 feet and restripe the approach to provide a left turn lane, two through lanes and a separate right turn lane (10’, 10’, 10’, 12’). The approach could be widened by narrowing the 5’ median to a 3’ median, or by reducing the 12’ sidewalk to a 10’ sidewalk. This widening would need to occur all the way to an alley located approximately 100’ south of the intersection. The bus stop at this approach would continue to be located at the same location; however, buses would be allowed to go straight through the intersection.

- Alameda Street/El Segundo Boulevard – County of Los Angeles/Compton: Restripe northbound/southbound approaches and provide a SBR turn lane. The lanes along the north leg would be restriped to provide 13’ and 11’ receiving lanes; 10’, 11’, 10’, 12’ approach lanes for SBL, SBT, SBT, and SBR lanes, respectively. The lanes along the south leg would have 13’ shared thru-right, 11’ thru lane, 10’ left turn lane, 12’ receiving lane and a 20’ receiving lane. Remove 2 on-street parking spaces along SB approach during peak hours.

- Alameda Street/103rd Street – County of Los Angeles/Lynwood: Restripe eastbound approach to provide a 10’ left turn lane and a 12’ left-right shared lane. The receiving lane would be restriped for 18.5’.

- Central Avenue/Rosecrans Avenue – County of Los Angeles/Compton: Restripe westbound approach to provide a separate right-turn lane. Allow buses to go through the intersection from the right-turn lane.

- Central Avenue/El Segundo Boulevard – County of Los Angeles/Compton: Restripe SB approach to provide a separate right-turn lane. Widen NB approach by reducing median by 1’ to 2’. Provide restriping to show a separate NB right-turn lane. Allow buses to go through the intersection from the right-turn lane.

- Alameda Street/Imperial Highway – County of Los Angeles/City of Lynwood: Restripe southbound approach to provide the following roadway geometry: dual left-turn lanes, a through lane, a shared through-right turn lane, and a separate right turn lane.

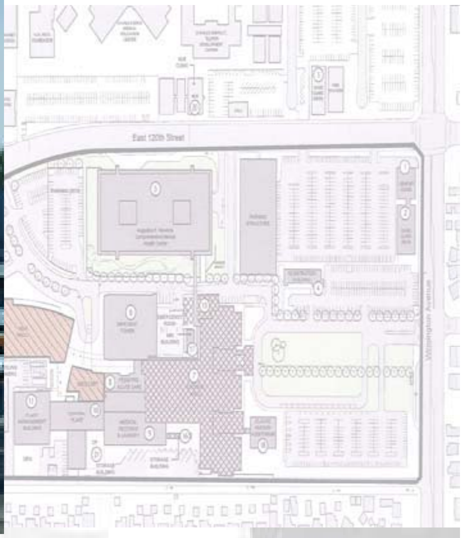
- The recommended improvements would fully mitigate the cumulative projects-related impacts at the 13 impacted intersections.

APPENDICES

UNDER SEPARATE COVER

TRAFFIC STUDY
FOR THE MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS PROJECT DEIR

APPENDIX



Prepared for:

COUNTY OF LOS ANGELES CALIFORNIA

July 2, 2010

Submitted by :

RAJU Associates Inc

APPENDICES

A	MEMORANDUM OF UNDERSTANDING
B	INTERSECTION LANE CONFIGURATIONS
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D	ICU WORKSHEETS – EXISTING (2010) CONDITIONS
E	EXISTING BASELINE PEAK HOUR TRAFFIC VOLUMES
F	ICU WORKSHEETS – EXISTING (BASELINE) WITH AMBIENT GROWTH (2014) CONDITIONS
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N	ICU WORKSHEETS – EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT AND RELATED PROJECTS/CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
O	ICU WORKSHEETS – EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT WITH MITIGATION MEASURES
P	ICU WORKSHEETS – EXISTING (BASELINE) WITH AMBIENT GROWTH (2020) PLUS TIER I AND II PROJECT AND RELATED PROJECTS/CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS WITH MITIGATION MEASURES
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R	CALTRANS ANALYSIS

APPENDIX A

Memorandum of Understanding

SCOPING FOR TRAFFIC STUDY

Project Name:	Martin Luther King Jr. Medical Center Campus Redevelopment Project

This Memorandum of Understanding (MOU) acknowledges Los Angeles County Department of Public Works, Traffic and Lighting Division (TLD) requirements of traffic impact analysis for the project and is subject to change:

Project Address:	12021 Wilmington Avenue, Willowbrook, County of Los Angeles, CA 90059		
Project Description:	Tier 1: Removal of use of 506,485 s.f. of Hospital and construction of 152,000 s.f. Hospital. Tier 2: Includes 1,134,695 s.f. Hospital, 80,000 s.f. commercial/retail, 150,000 s.f. (100 d.u.) single-family residential, 300,000 s.f. medical office, and 150,000 s.f. general office. Demolition of 506,485 s.f. Hospital (use of this facility removed in Tier 1).		
City:	Willowbrook (Unincorporated Los Angeles County)		
Project Buildout Year:	Tier 1: 2014 Tier 2: 2020	**Ambient or CMP Growth Rate per Year:**	0.72%
Closest Intersection (Xtn) to the Project			
Xtn N/S Street Name:	Wilmington Avenue		
Xtn E/W Street Name:	120th Street		
Thomas Guide Pg+Grid:	704-G7	**Los Angeles County Supervisorial District:**	2nd

	Consultant	**Developer**
Company:	Raju Associates, Inc.	County of Los Angeles
Name:	Srinath Raju, P.E	Office of CEO
Address:	524 S. Rosemead Boulevard	500 W. Temple St., Room 754
City, State, Zip Code:	Pasadena, CA, 91107	Los Angeles, CA 90012
Phone #:	(626) 792-2700	(213) 974-2620
Fax #:	(626) 792-2772	
Email:	srinath.raju@rajuassociates.com	

By: Srinath R

Print Name: Srinath Raju

Reviewed By: Shen Fei, Lau

Print Name: Shen Fei LAU.

5/25/10

SCOPING FOR TRAFFIC STUDY

Project Name:	Martin Luther King Jr. Medical Center Campus Redevelopment Project

Consultant/Developer's Representative	**Date**	**TLD's Representative**	**Date**

1. Traffic Distribution: Figure(s) illustrating project trip distribution in percentages and volumes at the studied intersections analyzed.

	N:25%	
W:25%	N	E:25%
	S:25%	

Trip Credit: Exact amount of credit subject to approval by TLD.

Transportation Demand Management (TDM)	**Yes**	15% Transit Reduction
Existing Active Land Use	**Yes**	See Attachment A.
Previous Land Use	**No**	
Internal Trip Reduction	**Yes**	15% Internal Capture
Pass-by Trip Reduction	**Yes**	10% Retail, 10% Medical Office

SCOPING FOR TRAFFIC STUDY

Project Name:	Martin Luther King Jr. Medical Center Campus Redevelopment Project

2. Trip Generation

Trip Generation Rate(s) Source:	**I – Institute of Transportation Engineers; S – San Diego Traffic Generators; C – County; O – Other:**	**Edition:**	8th

Land Use Code	**Land Use**	**Rate Based on**	**Qty**	***AVTE vs**	**ADT**	Weekday a.m. peak		Weekday p.m. peak		Weekend peak hour	
						In	Out	In	Out	In	Out
	See Attachment A.	Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									

* - Average Vehicle Trip Ends.

SCOPING FOR TRAFFIC STUDY

Project Name:	Martin Luther King Jr. Medical Center Campus Redevelopment Project

3. Study Intersections: At minimum, the study shall include the following intersections. The list is subject to change after related projects, trip generation and distribution are determined. Consultant should check with adjoining Cities regarding their requirements in addition to the following County/City intersections. Documentation of the consultation from these agencies shall be included in the traffic study.

Xtn #	% County	Thomas Guide Page+Grid	N S/E W Street Name	City	Signalized	CMP
			See Attachment B.			

Cities to be consulted: Los Angeles, Compton, County of Los Angeles Regional Planning

4. Related Projects: Consultant should check with Los Angeles County Department of Regional Planning and planning departments of adjoining Cities. Documentation of the consultation from these agencies shall be included in the traffic study. Related projects list shall be submitted to TLD for our review and approval before being incorporated in the study.

5. Congested Management Program (CMP): A CMP TIA is required for all projects required to prepare an environmental assessment based on local determination or projects requiring a traffic study. Where the project meets the criteria established in the Transportation Impact Analysis (TIA section of the County of Los Angeles' CMP TIA Land Use Analysis Guidelines, a CMP analysis must be prepared. At a minimum, the geographic area examined in the TIA must include the following:

- All CMP arterial monitoring intersections (see Appendix A, exhibit A-2, page A-15 of the 2002 Guidelines), including freeway on- or off-ramp intersections, where the proposed project will add 50 or more trips during either the a.m. or p.m. peak hours.

- Main line freeway monitoring locations (see Chapter 2, exhibit 2-4, page 16 of the 2002 Guidelines) where the project will add 150 or more trips, in either direction, during the a.m. or p.m. weekday peak hours.

A copy of the 2002 CMP Land Use Analysis Guidelines can be obtained by calling the CMP Hotline at (213) 922-2830.

6. Freeway Analysis: The potential traffic impact on the following Freeway(s) must be considered.

- Century (I-105) Freeway, Long Beach (I-710) Freeway, Gardena (SR-91) Freeway, and Harbor (I-110) Freeway

The applicant shall consult with the State of California Department of Transportation (Caltrans) to determine the California Environmental Quality Act levels of significance with regard to traffic impacts on Caltrans' freeway facilities. This consultation shall also include a determination of Caltrans requirements for the study of traffic impacts to its facilities and the mitigation of any such impacts. This analysis must follow the most current Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) and can be obtained from http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tiguide.pdf. If Caltrans finds that the project has a significant impact on the freeway, Caltrans shall be requested to include the basis for this finding in their response. If fees are proposed to mitigate the freeway impact, Caltrans shall be requested to identify the specific project to which the fees will apply. These written comments from Caltrans shall be included with the traffic study and submitted to Public Works for review and approval. If a documented good faith effort is made to consult with Caltrans and written comments cannot be obtained from within a reasonable amount of time, an analysis of the freeway impact shall be made using the County of Los Angeles' CMP Land Use Analysis Guidelines.

7. Other:

-For the proposed project and/or cumulative mitigation measures, a feasibility study, cost estimate, and conceptual plan (including signing and striping plans, signal plans, etc.) for the improvements shall be included in the study for review and approval.
A 40 foot scale site plan indicating all adjacent driveways, adjacent intersections, and opposite driveways along the project frontage shall be prepared and submitted to our Land Development Review Section of Traffic and Lighting Division.
Additional intersections may be added if required upon the review of the study.
Traffic Counts:
• Must be taken on Tuesdays, Wednesdays or Thursdays.
• Must exclude holidays, and the first weekdays before and after the holiday.
• Must be taken on days when local schools or colleges are in session.
• Must be taken on days of good weather, and avoid atypical conditions (e.g., road construction, detours, or major traffic incidents).
• Traffic counts used for other traffic studies in the area shall **NOT** be reused again, unless 25% of the counts conducted for that particular traffic study are validated with new counts. The difference in volumes between the old and new counts at each corresponding movement should not be more than 10%.
• New traffic counts shall be checked to ensure the difference in volumes at corresponding approaches, if applicable, between two adjacent intersections is no more than 10% unless the difference can be justified.
• The County's methodology shall be used when evaluating the County and/or County/City intersections. The applicant must confer with Caltrans and City of Los Angeles in order to select the methodology to use when determining the impact to the freeways and the transportation circulation system within their respective jurisdictions.

This analysis must follow the most current Traffic Impact Analysis Report Guidelines.

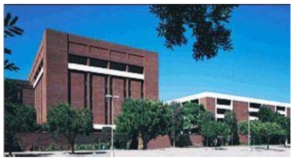
SCOPING FOR TRAFFIC STUDY

Project Name: Martin Luther King Jr. Medical Center Campus Redevelopment Project

Please return signed page 1 of 8 in person, by Mail or by Fax

In Person

Los Angeles County Department of Public Works
Traffic and Lighting Division,
Traffic Studies Section, Traffic Studies Unit
1000 South Fremont Avenue
Building A-9E, 4th Floor
Alhambra, CA 91803-8800



Our building, on the left with parking structure on the right. Check the following web site, for additional information: http://www.thealhambra.net/index.asp

By Mail

Los Angeles County Department of Public Works
Traffic and Lighting Division,
Traffic Studies Section, Traffic Studies Unit
P.O. Box 1460
Alhambra, CA 91802-1460

By Fax

	Processing Engineer	Telephone No.	Fax No.	E-Mail Address
	Jeff Pletyak, P.E.	(626) 300-4721	(626) 300-4736	JPletyak@ladpw.org
	Suen Fei LAU, P.E.	(626) 300-4820		sflau@ladpw.org
	Peggy Oki, P.E.	(626) 300-4866		POki@ladpw.org
	Isaac Wong	(626) 300-4796		IsWong@ladpw.org
	Virgilio Lazatin	(626) 300-4766		VLazatin@ladpw.org

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
TRAFFIC AND LIGHTING DIVISION
APPLICATION FOR ENVIRONMENTAL IMPACT REPORT
TRAFFIC STUDY REVIEW SERVICES, ORDINANCE NO. 91-0101

Road Fund No:	**B03**	**Revenue Source**	**9254**	**Program No:**	**R291**

Department Receipt No.:		**Date:**	
Project No.:		**Studies No.:**	
Project Name:	Martin Luther King Jr. Medical Center Campus Redevelopment Project		
Applicant/Engineer:	Office of CEO	**Telephone No.:**	(213) 974-2620
Company:	County of Los Angeles	**Fax No.:**	
Address:	500 West Temple Street, Room 754		
City:	Los Angeles	**Zip:**	90012

The traffic study (TS, required as part of the environmental review process, has been received. **Before a traffic study review can begin, the indicated fee must be paid to this Department.** The fee may be paid in person or mailed to:

In Person	By Mail
Cashier, Mezzanine (626) 458-6399 **Los Angeles County Department of Public Works** **900 South Fremont Avenue** **Alhambra, CA 91803-1331**	**Cashier, Mezzanine** **Los Angeles County Department of Public Works** **P.O. Box 1460** **Alhambra, CA 91802-1460**

Please **return this form** along with your payment to insure proper credit to your account. Make check payable to the **Los Angeles County Department of Public Works.**

TS review fees are based on the number of Average Daily Trips (ADT's) generated by the project (before any trip reductions or credits) and for six traffic conditions as indicated on page 5 of our 1997 guidelines, as follows:

ADT's		**FEE (Effective September 22, 2008)*	Conditions/phases/alternatives
1 - 1,000		$1,574	
1,001 - 5,000		$3,147	
5,001 - 10,000		$3,935	
10,001 and over		$4,722	
ADT For This Project:	32,449	Fee:	$4,722

* For additional information, http://planning.lacounty.gov/fees ** Additional fee is required for additional traffic conditions/phases/alternatives, and for 3rd & alternating subsequent reviews of the study for the same project.

Processing Engineer		Section	Telephone No.	Fax No.	E-Mail Address
	Jeff Pletyak, P.E.	Traffic Studies	(626) 300-4721	(626) 300-4736	JPletyak@ladpw.org
	Suen Fei LAU, P.E.	Traffic Studies	(626) 300-4820		sflau@ladpw.org
	Peggy Oki, P.E.	Traffic Studies	(626) 300-4866		POki@ladpw.org
	Isaac Wong	Traffic Studies	(626) 300-4796		IsWong@ladpw.org
	Virgilio Lazatin	Traffic Studies	(626) 300-4766		VLazatin@ladpw.org

cc: Cashier Note: Normal review time is 6-8 weeks after review fee is paid and receipt is received by Land Development.
P:\TLPUB\WPFILES\FILES\STU\Jennifer\TSS\TSS Latest.doc Updated 03/03/08

ATTACHMENT A
MLK CAMPUS PROJECT
ESTIMATED PROJECT TRIP GENERATION

	Size	Daily	AM Peak Hour			PM Peak Hour		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Baseline including Existing								
Hospital	1,243,692 s.f.	20,521	822	571	1,393	596	822	1,418
Baseline Trip Generation Total Less Transit Reduction (15%)		17,443	699	485	1,184	507	699	1,206
Proposed Tier I								
Hospital - Removal of Use [1]	(506,485) s.f.	(8,357)	(335)	(232)	(567)	(242)	(335)	(577)
Hospital - Addition	152,000 s.f.	2,508	100	70	170	73	100	173
Tier I Net Trip Generation Total		(5,849)	(235)	(162)	(397)	(169)	(235)	(404)
Tier I Net Trip Generation Less Transit Reduction (15%)		**(4,972)**	**(200)**	**(138)**	**(338)**	**(144)**	**(200)**	**(344)**
Baseline + Tier I Total On-Site Trips		**12,471**	**499**	**347**	**846**	**363**	**499**	**862**
Proposed Tier II								
Hospital (Additional Campus Support)	1,134,695 s.f.	18,722	750	521	1,271	543	751	1,294
Commercial/Retail	80,000 s.f.	5,874	82	53	135	269	279	548
Single Family Residential	100 d.u.	1,040	20	60	80	66	39	105
Medical Office	300,000 s.f.	10,839	545	145	690	280	758	1,038
General Office	150,000 s.f.	1,823	228	31	259	42	205	247
Tier II Trip Generation Total		38,298	1,625	810	2,435	1,200	2,032	3,232
Tier II Trip Generation Total Less Transit Reduction (15%)		32,553	1,381	689	2,070	1,020	1,727	2,747
*Internal Capture Trip Credit (15% - Existing + Tier I + II)		(6,754)	(219)	(219)	(438)	(271)	(270)	(541)
**Pass-By Trip Credit [2]		(1,278)	(48)	(12)	(60)	(36)	(78)	(114)
Tier II Net Trip Generation Total		**24,521**	**1,114**	**459**	**1,573**	**713**	**1,379**	**2,092**
Tier I + Tier II Net Trip Generation Total		**19,549**	**914**	**321**	**1,235**	**569**	**1,179**	**1,748**
Baseline + Tier I + Tier II Total On-Site Trips		**36,992**	**1,613**	**806**	**2,419**	**1,076**	**1,878**	**2,954**

* Internal capture credit taken after reduction of transit trips.
** Pass-by trip reduction taken after transit trip and internal capture credits.
[1] Demolition of this facility would occur in Tier II.
[2] Includes 10% pass-by credit for medical office use and retail use.

RAJU Associates, Inc.

Attachment B
MLK Medical Campus Project
List of Intersections

XTN Number	% County	Thomas Guide Page + Grid	N S/E W Street Names	City	Signalized	CMP
1	0%	734-B1	I-110 SB Ramps/El Segundo Bl.	City of Los Angeles	Yes	No
2	0%	734-B1	I-110 NB Ramps/El Segundo Bl.	City of Los Angeles	Yes	No
3	0%	734-B1	Figueroa St/El Segundo Bl.	City of Los Angeles	Yes	No
4	100%	734-C1	Broadway/El Segundo Bl.	Los Angeles County	Yes	No
5	100%	734-C1	Main St/El Segundo Bl.	Los Angeles County	Yes	No
6	0%	704-D7	San Pedro St./120th St.	City of Los Angeles	Yes	No
7	100%	734-D1	San Pedro St./El Segundo Bl.	Los Angeles County	Yes	No
8	0%	704-D4	Avalon Bl/Century Bl.	City of Los Angeles	Yes	No
9	0%	704-D6	Avalon Bl./Imperial Hwy	City of Los Angeles	Yes	No
10	0%	704-D7	Avalon Bl./120th St.	City of Los Angeles	Yes	No
11	100%	734-D1	Avalon Bl./El Segundo Bl.	Los Angeles County	Yes	No
12	100%	734-D3	Avalon Bl/Rosecrans Av.	Los Angeles County	Yes	No
13	0%	704-F4	Central Av./Century Bl.	City of Los Angeles	Yes	No
14	0%	704-F5	Central Av./103rd St.	City of Los Angeles	Yes	No
15	12.5%	704-F7	Central Av./Imperial Hwy.	City of Los Angeles/Los Angeles County	Yes	No
16	0%	704-F7	Central Av./I-105 WB Ramps	City of Los Angeles	Yes	No
17	0%	704-F7	Central Av./I-105 EB Ramps	City of Los Angeles	Yes	No
18	0%	704-F7	Central Av./120th St.	City of Los Angeles	Yes	No
19	50%	734-F1	Central Av./El Segundo Bl.	City of Compton/Los Angeles County	Yes	No
20	50%	734-F3	Central Av./Rosecrans Av.	City of Compton/Los Angeles County	Yes	No
21	0%	734-F4	Central Av./Compton Bl.	City of Compton	Yes	No
22	0%	734-F5	Central Av./Alondra Bl.	City of Compton	Yes	No
23	100%	704-F7	Success Av. - Slater Av./120th St.	Los Angeles County	Yes	No
24	0%	704-G5	Compton Av./103rd St.	City of Los Angeles	Yes	No
25	50%	704-G7	Compton Av./Imperial Hwy.	City of Los Angeles/Los Angeles County	Yes	No
26	100%	704-G7	Compton Av./118th St.	Los Angeles County	Yes	No
27	100%	704-G7	Compton Av./120th St.	Los Angeles County	Yes	No
28	100%	734-G1	Compton Av./124th St.	Los Angeles County	Yes	No
29	0%	734-G1	Compton Av./El Segundo Bl.	City of Compton	Yes	No
30	0%	704-G5	Wilmington Av./103rd St.	City of Los Angeles	Yes	No
31	0%	704-G5	Wilmington Av./Santa Ana Bl (N).	City of Los Angeles	Yes	No
32	0%	704-G5	Wilmington Av./Santa Ana Bl (S).	City of Los Angeles	Yes	No
33	50%	704-G7	Wilmington Av./Imperial Hwy-Willowbrook Av.	City of Los Angeles/Los Angeles County	Yes	No
34	100%	704-G7	Wilmington Av./I-105 EB Ramps	Los Angeles County	Yes	No
35	100%	704-G7	Wilmington Av./118th St.	Los Angeles County	Yes	No
36	100%	704-G7	Wilmington Av./120th St.-119th St.	Los Angeles County	Yes	No
37	100%	704-G7	Wilmington Av./MLK Hospital Dwy. – 120th St.	Los Angeles County	Yes	No
38	100%	734-G1	Wilmington Av./124th St.	Los Angeles County	Yes	No
39	25%	734-G1	Wilmington Av./El Segundo Bl.	City of Compton/Los Angeles County	Yes	No
40	0%	734-H3	Wilmington Av./Rosecrans Av.	City of Compton	Yes	No
41	0%	734-H4	Wilmington Av./Compton Bl.	City of Compton	Yes	No
42	0%	734-H5	Wilmington Av./Alondra Bl.	City of Compton	Yes	No
43	0%	734-H6	Wilmington Av./Greenleaf Bl.	City of Compton	Yes	No
44	0%	734-H7	Wilmington Av./Artesia Bl. (N)	City of Compton	Yes	No
45	0%	734-H7	Wilmington Av./Artesia Bl. (S)	City of Compton	Yes	No
46	100%	704-H7	Willowbrook Av./119th St.	Los Angeles County	Yes	No
47	100%	734-H1	Willowbrook Av./El Segundo Bl.	Los Angeles County	Yes	No
48	0%	734-J3	Willowbrook Av./Rosecrans Av.	City of Compton	Yes	No

Attachment B
MLK Medical Campus Project
List of Intersections

XTN Number	% County	Thomas Guide Page + Grid	N S/E W Street Names	City	Signalized	CMP
49	50%	704-H7	I-105 WB Ramps/Imperial Hwy.	City of Los Angeles/Los Angeles County	Yes	No
50	50%	704-H7	Mona Bl./Imperial Hwy.	City of Los Angeles/City of Lynwood/Los Angeles County	Yes	No
51	100%	734-J1	Mona Bl./El Segundo Bl.	Los Angeles County	Yes	No
52	50%	704-J5	S. Alameda St./103rd St.	City of Lynwood/Los Angeles County	Yes	No
53	0%	704-J5	S. Alameda St./Martin Luther King Jr. Bl.	City of Lynwood	Yes	No
54	50%	704-J6	S. Alameda St./Imperial Hwy.	City of Lynwood/Los Angeles County	Yes	Yes
55	50%	734-J1	S. Alameda St./El Segundo Bl.	City of Compton/Los Angeles County	Yes	No
56	0%	735-A4	S. Alameda St./Compton Bl.	City of Compton	Yes	Yes
57	0%	705-A5	Long Beach Bl./Martin Luther King Jr. Bl.	City of Lynwood	Yes	No
58	0%	705-B6	Long Beach Bl./Imperial Hwy.	City of Lynwood	Yes	No
59	0%	705-B7	Long Beach Bl./I-105 WB Ramps	City of Lynwood	Yes	No
60	0%	705-B7	Long Beach Bl./I-105 EB Ramps	City of Lynwood	Yes	No
61	0%	734-F1	Slater Av./ElSegundo Bl.	City of Compton	Yes	No
62	0%	704-G5	Compton Av./108th St.	City of Los Angeles	Yes	No
63	0%	704-G6	Compton Av./111th St.	City of Los Angeles	Yes	No
64	0%	704-G6	Wilmington Av./111th St.	City of Los Angeles	Yes	No

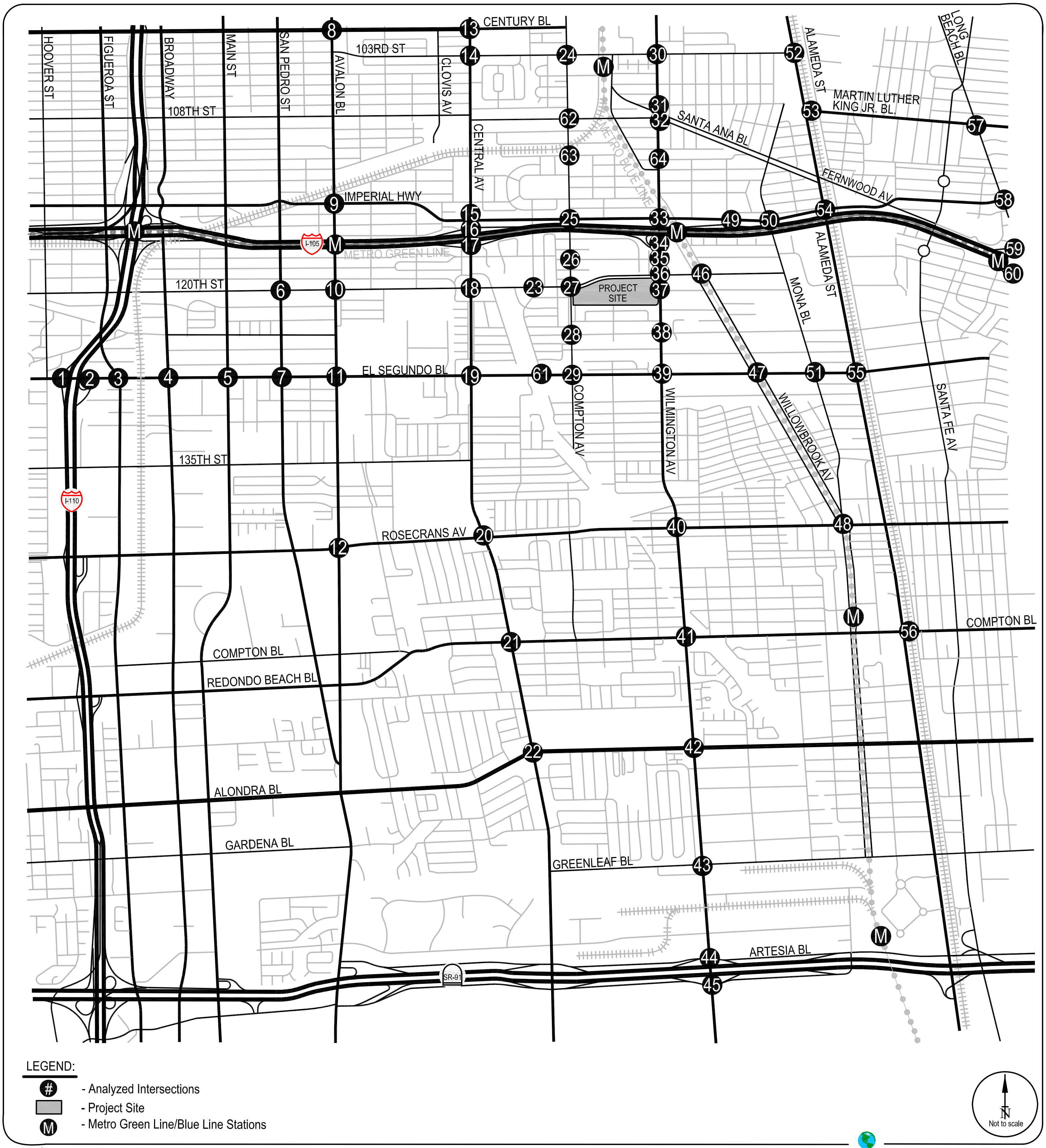


FIGURE 1
LOCATION OF PROJECT AND ANALYZED INTERSECTIONS

RAJU Associates, Inc.

APPENDIX B

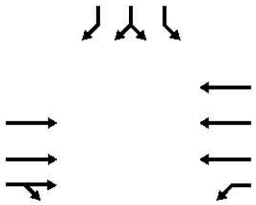
Intersection Lane Configurations

MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

STREET

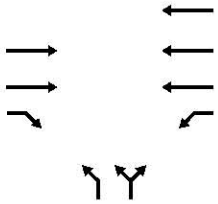
EXISTING 2010
CONDITIONS

1 N/S: I-110 SB RAMPS
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)



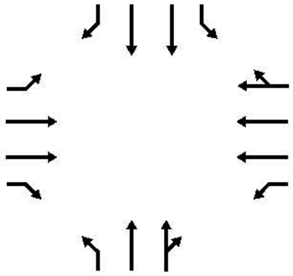
ATSAC/ATCS

2 N/S: I-110 NB RAMPS
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)

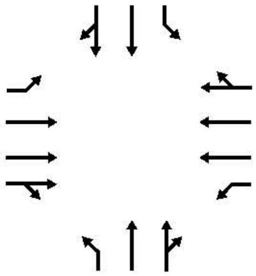


ATSAC/ATCS

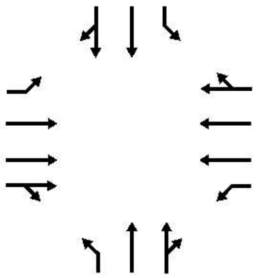
3 N/S: FIGUEROA ST
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)



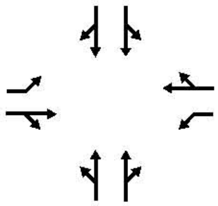
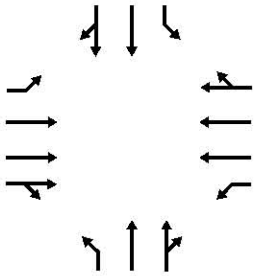
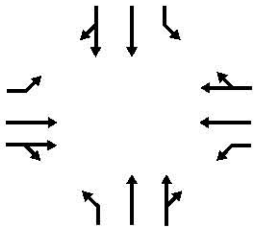
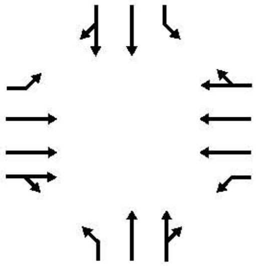
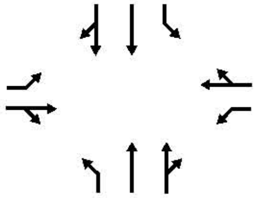
4 N/S: BROADWAY
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)



5 N/S: MAIN ST
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)



MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

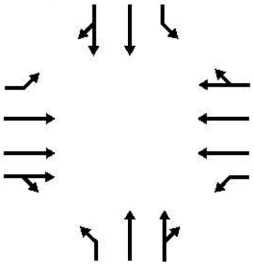
	STREET	EXISTING 2010 CONDITIONS
6	N/S: SAN PEDRO ST E/W: 120TH ST (TRAFFIC SIGNAL)	
7	N/S: SAN PEDRO ST E/W: EL SEGUNDO BL (TRAFFIC SIGNAL)	
8	N/S: AVALON BL E/W: CENTURY BL (TRAFFIC SIGNAL)	
9	N/S: AVALON BL E/W: IMPERIAL HWY (TRAFFIC SIGNAL)	 ATSAC/ATCS
10	N/S: AVALON BL E/W: 120TH ST (TRAFFIC SIGNAL)	

MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

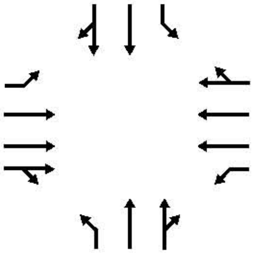
STREET

EXISTING 2010
CONDITIONS

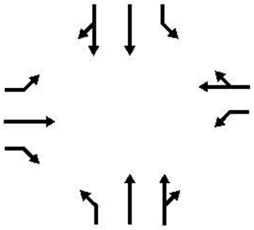
11 N/S: AVALON BL
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)



12 N/S: AVALON BL
E/W: ROSECRANS AV
(TRAFFIC SIGNAL)

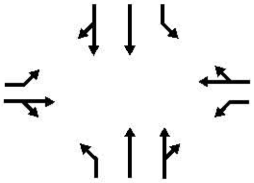


13 N/S: CENTRAL AV
E/W: CENTURY BL
(TRAFFIC SIGNAL)



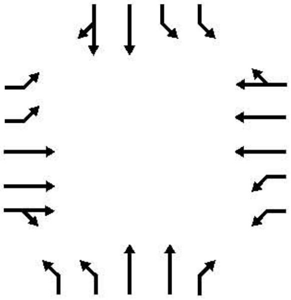
ATSAC/ATCS

14 N/S: CENTRAL AV
E/W: 103RD ST
(TRAFFIC SIGNAL)



ATSAC/ATCS

15 N/S: CENTRAL AV
E/W: IMPERIAL HWY
(TRAFFIC SIGNAL)



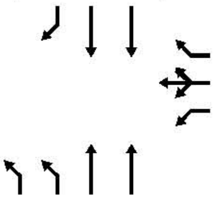
ATSAC/ATCS

MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

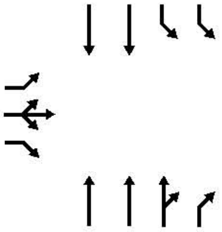
STREET

EXISTING 2010 CONDITIONS

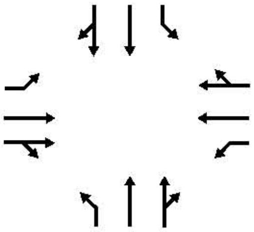
16 N/S: CENTRAL AV
E/W: I-105 WB RAMPS
(TRAFFIC SIGNAL)



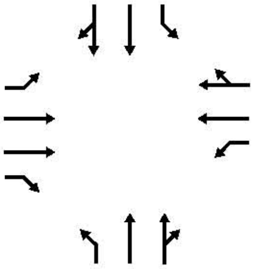
17 N/S: CENTRAL AV
E/W: I-105 EB RAMPS
(TRAFFIC SIGNAL)



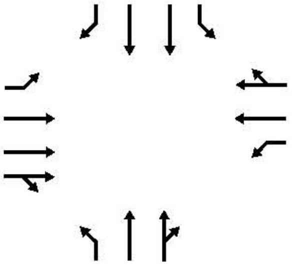
18 N/S: CENTRAL AV
E/W: 120th ST
(TRAFFIC SIGNAL)



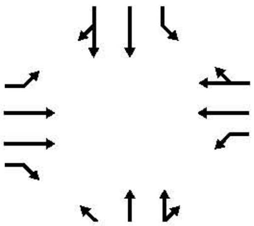
19 N/S: CENTRAL AV
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)



20 N/S: CENTRAL AV
E/W: ROSECRANS AV
(TRAFFIC SIGNAL)



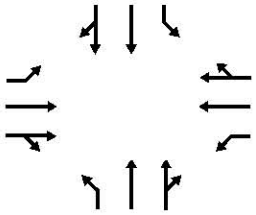
21 N/S: CENTRAL AV
E/W: COMPTON BL
(TRAFFIC SIGNAL)



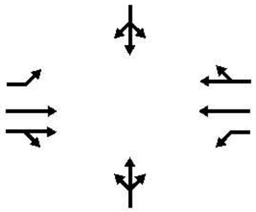
MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

STREET | EXISTING 2010 CONDITIONS

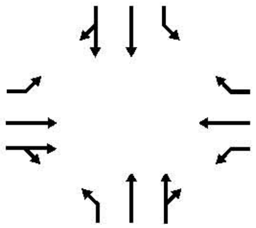
22 N/S: CENTRAL AV
E/W: ALONDRA BL
(TRAFFIC SIGNAL)



23 N/S: SUCCESS AV-SLATER AV
E/W: 120TH ST
(TRAFFIC SIGNAL)

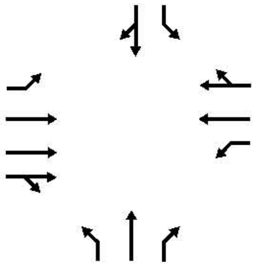


24 N/S: COMPTON AV
E/W: 103RD AV
(TRAFFIC SIGNAL)



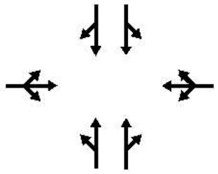
ATSAC/ATCS

25 N/S: COMPTON AV
E/W: IMPERIAL HWY
(TRAFFIC SIGNAL)

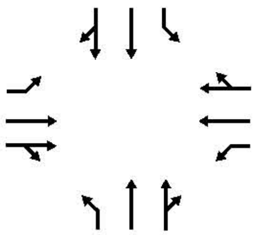


ATSAC/ATCS

26 N/S: COMPTON AV
E/W: 118TH ST
(TRAFFIC SIGNAL)



27 N/S: COMPTON AV
E/W: 120TH ST
(TRAFFIC SIGNAL)

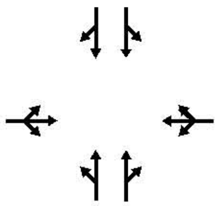


MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

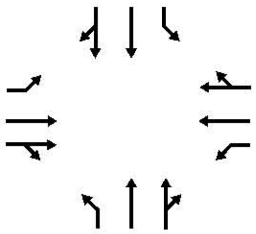
STREET

EXISTING 2010
CONDITIONS

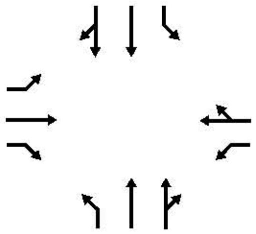
28 N/S: COMPTON AV
E/W: 124THST
(TRAFFIC SIGNAL)



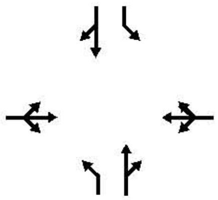
29 N/S: COMPTON AV
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)



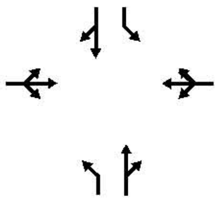
30 N/S: WILMINGTON AV
E/W: 103RD ST
(TRAFFIC SIGNAL)



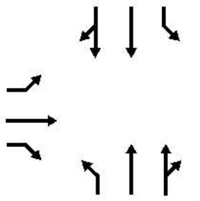
31 N/S: WILMINGTON AV
E/W: SANTA ANA BL (N)
(TRAFFIC SIGNAL)



32 N/S: WILMINGTON AV
E/W: 108TH ST-SANTA ANA BL (S)
(TRAFFIC SIGNAL)

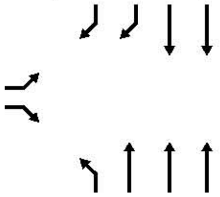
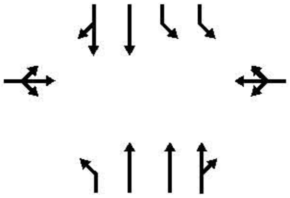
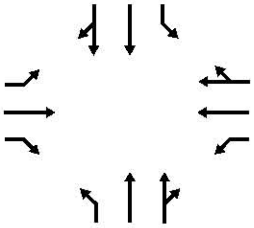
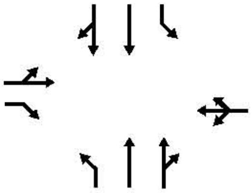
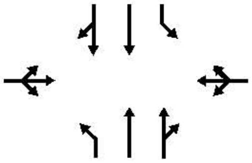
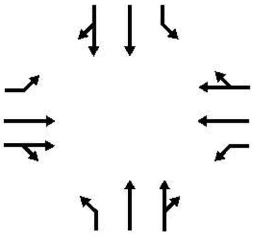


33 N/S: WILMINGTON AV
E/W: IMPERIAL HWY RAMPS-
WILLOWBROOK AV
(TRAFFIC SIGNAL)



ATSAC/ATCS

MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

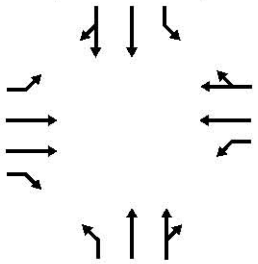
	STREET	EXISTING 2010 CONDITIONS
34	N/S: WILMINGTON AV E/W: I-105 EB RAMPS (TRAFFIC SIGNAL)	
35	N/S: WILMINGTON AV E/W: 118TH ST-HANH PLAZA DWY (TRAFFIC SIGNAL)	
36	N/S: WILMINGTON AV E/W: 119TH - 120TH ST (TRAFFIC SIGNAL)	
37	N/S: WILMINGTON AV E/W: 120TH ST -MLK HOSPITAL DWY (TRAFFIC SIGNAL)	
38	N/S: WILMINGTON AV E/W: 124TH ST (TRAFFIC SIGNAL)	
39	N/S: WILMINGTON AV E/W: EL SEGUNDO BL (TRAFFIC SIGNAL)	

MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

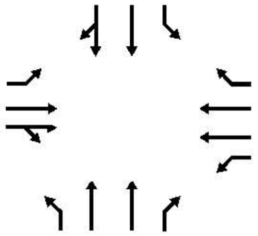
STREET

EXISTING 2010
CONDITIONS

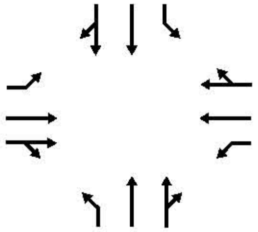
40 N/S: WILMINGTON AV
E/W: ROSECRANS AV
(TRAFFIC SIGNAL)



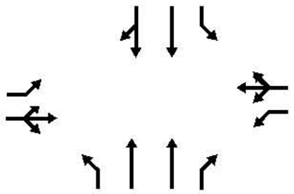
41 N/S: WILMINGTON AV
E/W: COMPTON BL
(TRAFFIC SIGNAL)



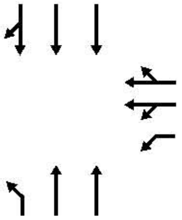
42 N/S: WILMINGTON AV
E/W: ALONDRA BL
(TRAFFIC SIGNAL)



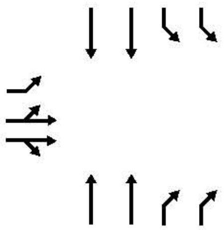
43 N/S: WILMINGTON AV
E/W: GREEN LEAF BL
(TRAFFIC SIGNAL)



44 N/S: WILMINGTON AV
E/W: ARTESIA BL (N)
(TRAFFIC SIGNAL)



45 N/S: WILMINGTON AV
E/W: ARTESIA BL (S)
(TRAFFIC SIGNAL)

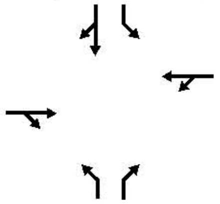


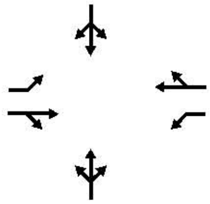
MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

STREET

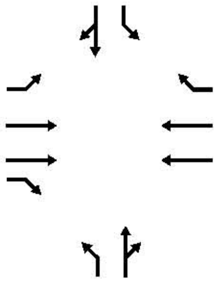
EXISTING 2010 CONDITIONS

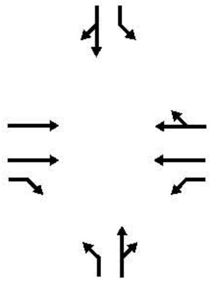
46 N/S: WILLOWBROOK AV
E/W: 119TH ST
(TRAFFIC SIGNAL)


WILLOWBROOK AV (W)

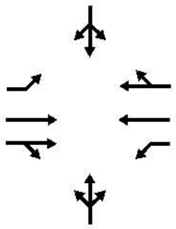

WILLOWBROOK AV (E)

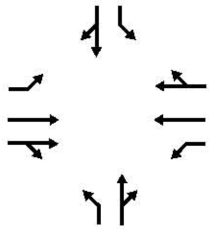
47 N/S: WILLOWBROOK AV
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)


WILLOWBROOK AV (W)

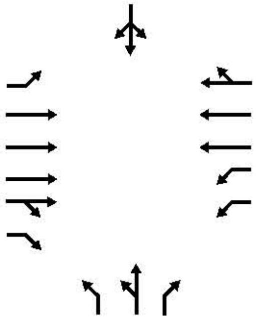

WILLOWBROOK AV (E)

48 N/S: WILLOWBROOK AV
E/W: ROSECRANS AV
(TRAFFIC SIGNAL)

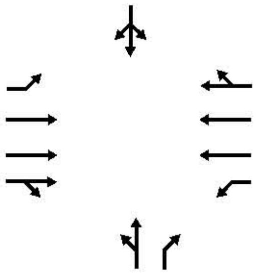

WILLOWBROOK AV (W)


WILLOWBROOK AV (E)

49 N/S: I-105 WB RAMPS-CROESUS AV
E/W: IMPERIAL HWY
(TRAFFIC SIGNAL)



50 N/S: MONA BL
E/W: IMPERIAL HWY
(TRAFFIC SIGNAL)

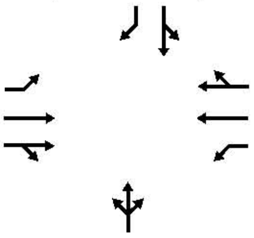


MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

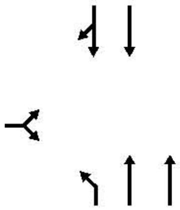
STREET

EXISTING 2010
CONDITIONS

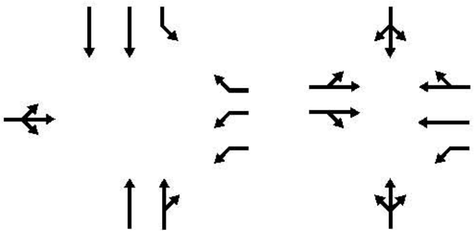
51 N/S: MONA BL
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)



52 N/S: S ALAMEDA ST
E/W: 103RD ST
(TRAFFIC SIGNAL)

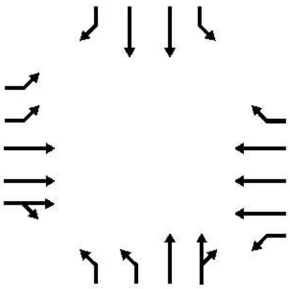


53 N/S: ALAMEDA ST (W)
E/W: MARTIN LUTHER KING JR BL
(TRAFFIC SIGNAL)

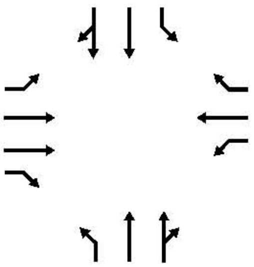


ALAMEDA ST (W) ALAMEDA ST (E)

54 N/S: ALAMEDA ST
E/W: IMPERIAL HWY
(TRAFFIC SIGNAL)



55 N/S: ALAMEDA ST (W)
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)

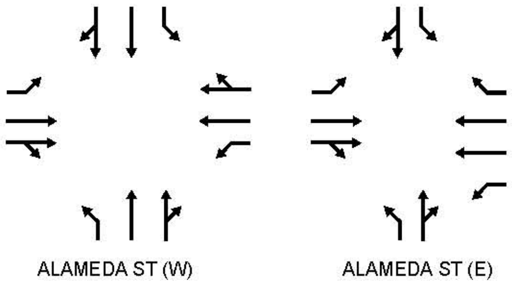


MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

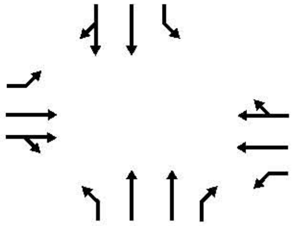
STREET

EXISTING 2010 CONDITIONS

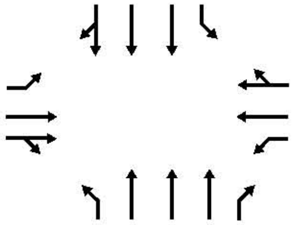
56 N/S: ALAMEDA ST (W)
E/W: COMPTON BL
(TRAFFIC SIGNAL)



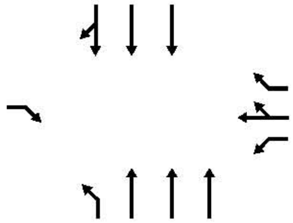
57 N/S: LONG BEACH BL
E/W: MARTIN LUTHER KING JR BL
(TRAFFIC SIGNAL)



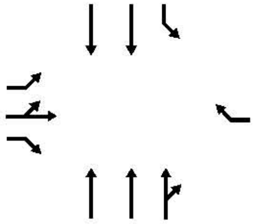
58 N/S: LONG BEACH BL
E/W: IMPERIAL HWY
(TRAFFIC SIGNAL)



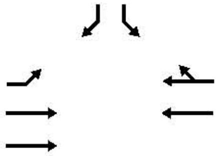
59 N/S: LONG BEACH BL
E/W: I-105 WB RAMPS
(TRAFFIC SIGNAL)



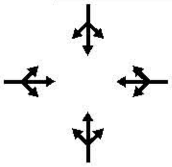
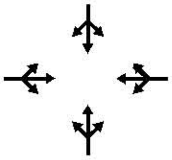
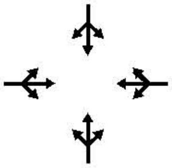
60 N/S: LONG BEACH BL
E/W: I-105 EB RAMPS
(TRAFFIC SIGNAL)



61 N/S: SLATER AV
E/W: EL SEGUNDO BL
(TRAFFIC SIGNAL)



MARTIN LUTHER KING JR MEDICAL CAMPUS CENTER PROJECT
INTERSECTION LANE CONFIGURATIONS

	STREET	EXISTING 2010 CONDITIONS
62	N/S: COMPTON AV E/W: 108TH ST (TRAFFIC SIGNAL)	
63	N/S: COMPTON AV E/W: 111TH ST (TRAFFIC SIGNAL)	
64	N/S: WILMINGTON AV E/W: 111TH ST (TRAFFIC SIGNAL)	

APPENDIX C

Traffic Counts

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: 120th St

DAY: WEDNESDAY

PROJECT# 10-5032-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	1	0	1	1	0	
7:00 AM	4	92	23	13	95	13	15	44	7	24	49	21	400
7:15 AM	9	116	22	14	117	3	18	61	11	22	59	28	480
7:30 AM	13	119	36	27	149	9	16	74	17	48	94	24	626
7:45 AM	9	133	39	25	169	9	18	63	22	44	84	35	650
8:00 AM	17	108	31	15	128	11	22	71	19	30	67	26	545
8:15 AM	10	98	26	16	111	10	15	38	9	26	69	15	443
8:30 AM	8	89	18	12	81	8	13	45	14	23	40	13	364
8:45 AM	8	72	17	14	64	5	8	49	10	26	45	12	330
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	78	827	212	136	914	68	125	445	109	243	507	174	3838

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	48	476	128	81	563	32	74	269	69	144	304	113	2301
PEAK HR. FACTOR:		0.901			0.833			0.920			0.845		0.885

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: 120th St

DAY: WEDNESDAY

PROJECT# 10-5032-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	1	0	1	1	0	
4:00 PM	8	129	34	23	122	15	21	73	8	31	61	13	538
4:15 PM	10	155	42	25	127	7	23	95	12	28	60	15	599
4:30 PM	16	150	41	30	149	13	26	82	15	28	72	20	642
4:45 PM	13	193	42	24	126	15	21	96	16	35	76	20	677
5:00 PM	17	127	45	30	136	14	23	83	10	31	64	24	604
5:15 PM	11	177	42	30	132	18	26	91	6	26	62	17	638
5:30 PM	12	149	33	22	129	8	26	88	8	27	67	15	584
5:45 PM	12	162	28	26	143	13	30	96	7	26	55	12	610
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	99	1242	307	210	1064	103	196	704	82	232	517	136	4892

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	57	647	170	114	543	60	96	352	47	120	274	81	2561
PEAK HR. FACTOR:		0.881			0.934			0.930			0.906		0.946

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Century Blvd

DAY: TUESDAY

PROJECT# 10-5148-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	32	115	12	13	75	24	16	109	22	11	147	20	596
7:15 AM	41	146	14	7	105	28	18	114	14	18	167	12	684
7:30 AM	40	152	12	11	131	28	18	165	29	43	203	11	843
7:45 AM	39	152	13	16	118	16	25	162	35	36	151	18	781
8:00 AM	34	117	13	16	106	14	9	146	35	20	126	9	645
8:15 AM	27	114	11	7	105	9	24	107	20	25	112	14	575
8:30 AM	27	104	16	12	84	19	14	94	33	16	106	8	533
8:45 AM	33	109	16	7	67	15	14	107	22	21	88	10	509

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	273	1009	107	89	791	153	138	1004	210	190	1100	102	5166

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	154	567	52	50	460	86	70	587	113	117	647	50	2953
PEAK HR. FACTOR:		0.947			0.876			0.867			0.792		0.876

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Century Blvd

DAY: TUESDAY

PROJECT# 10-5148-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	31	117	9	16	125	25	31	173	29	17	132	15	720
4:15 PM	28	125	15	13	141	14	23	180	32	22	144	16	753
4:30 PM	23	136	10	24	130	18	28	155	40	26	114	17	721
4:45 PM	29	163	21	11	121	28	33	171	40	22	141	22	802
5:00 PM	42	138	18	18	118	18	25	183	34	20	140	14	768
5:15 PM	30	125	22	20	141	25	30	189	53	27	143	12	817
5:30 PM	41	118	11	9	130	20	26	204	39	12	150	22	782
5:45 PM	28	129	24	24	136	21	43	193	36	36	133	18	821

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	252	1051	130	135	1042	169	239	1448	303	182	1097	136	6184

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	141	510	75	71	525	84	124	769	162	95	566	66	3188
PEAK HR. FACTOR:		0.917			0.914			0.970			0.972		0.971

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: WEDNESDAY

PROJECT# 10-5032-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
7:00 AM	11	74	14	9	82	27	20	68	22	17	142	32	518
7:15 AM	10	84	17	18	98	36	32	93	12	18	197	23	638
7:30 AM	15	105	28	20	133	24	36	112	11	13	236	29	762
7:45 AM	15	125	14	28	136	37	34	138	17	21	231	49	845
8:00 AM	19	100	31	34	100	30	17	94	15	27	189	35	691
8:15 AM	18	93	11	18	92	21	20	80	20	18	121	31	543
8:30 AM	21	71	13	24	70	21	23	78	19	9	97	20	466
8:45 AM	22	71	12	14	55	12	17	66	14	15	95	19	412
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	131	723	140	165	766	208	199	729	130	138	1308	238	4875

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	59	414	90	100	467	127	119	437	55	79	853	136	2936
PEAK HR. FACTOR:		0.914			0.863			0.808			0.887		0.869

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: WEDNESDAY

PROJECT# 10-5032-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
4:00 PM	28	114	30	24	85	20	25	232	26	22	123	33	762
4:15 PM	29	155	29	31	110	23	27	247	32	25	116	18	842
4:30 PM	27	143	22	35	125	23	31	268	29	25	125	22	875
4:45 PM	26	165	30	33	110	23	33	276	24	22	103	27	872
5:00 PM	30	133	40	38	110	26	23	268	35	17	119	25	864
5:15 PM	35	170	34	34	121	18	28	272	29	28	105	29	903
5:30 PM	29	142	42	36	119	21	34	284	35	27	110	31	910
5:45 PM	29	152	45	46	115	11	34	239	31	19	111	26	858
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	233	1174	272	277	895	165	235	2086	241	185	912	211	6886

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	120	610	146	141	460	88	118	1100	123	94	437	112	3549
PEAK HR. FACTOR:		0.916			0.979			0.950			0.957		0.975

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy

DAY: WEDNESDAY

PROJECT# 10-5032-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
7:00 AM	25	94	12	34	95	11	20	81	15	28	179	33	627
7:15 AM	40	122	23	32	106	9	23	113	32	25	187	48	760
7:30 AM	40	138	25	51	158	17	25	142	40	36	229	72	973
7:45 AM	30	152	21	43	155	19	44	122	32	41	231	65	955
8:00 AM	37	140	18	45	128	19	29	127	22	24	177	60	826
8:15 AM	17	99	11	32	104	22	26	89	19	28	173	37	657
8:30 AM	25	105	12	28	85	11	24	93	17	24	164	41	629
8:45 AM	14	81	18	30	63	15	23	99	23	23	129	48	566
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	228	931	140	295	894	123	214	866	200	229	1469	404	5993

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	147	552	87	171	547	64	121	504	126	126	824	245	3514
PEAK HR. FACTOR:		0.968			0.865			0.907			0.886		0.903

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy

DAY: WEDNESDAY

PROJECT# 10-5032-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
4:00 PM	31	135	23	44	133	18	28	288	43	35	148	53	979
4:15 PM	25	117	26	41	122	21	32	271	39	20	138	32	884
4:30 PM	21	148	15	47	140	19	39	302	34	24	147	32	968
4:45 PM	33	177	27	42	123	14	33	267	26	26	140	39	947
5:00 PM	25	140	17	44	133	32	41	330	44	16	144	42	1008
5:15 PM	30	166	29	61	140	20	37	297	38	32	159	42	1051
5:30 PM	32	146	19	45	125	20	42	342	34	30	139	35	1009
5:45 PM	29	166	23	37	125	26	44	354	40	29	141	57	1071
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	226	1195	179	361	1041	170	296	2451	298	212	1156	332	7917

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	116	618	88	187	523	98	164	1323	156	107	583	176	4139
PEAK HR. FACTOR:		0.913			0.914			0.938			0.929		0.966

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave

DAY: TUESDAY

PROJECT# 10-5148-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
7:00 AM	1			1									2
7:15 AM	0			0									
7:30 AM	1			1									2
7:45 AM	1			0									1
8:00 AM	1			3									4
8:15 AM	1			0									1
8:30 AM	1			1									2
8:45 AM	0			0									

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	6	0	0	6	0	0	0	0	0	0	0	0	12

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	4	0	0	4	0	0	0	0	0	0	0	0	8
PEAK HR. FACTOR:		1.000			0.333			0.000			0.000		0.500

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave

DAY: TUESDAY

PROJECT# 10-5148-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
4:00 PM	1			2									3
4:15 PM	1			2									3
4:30 PM	0			2									2
4:45 PM	0			2									2
5:00 PM	0			0									
5:15 PM	0			1									1
5:30 PM	2			0									2
5:45 PM	0			0									

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	4	0	0	9	0	0	0	0	0	0	0	0	13

PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	2	0	0	8	0	0	0	0	0	0	0	0	10
PEAK HR. FACTOR:		0.500			1.000			0.000			0.000		0.833

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave

DAY: TUESDAY

PROJECT# 10-5148-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
7:00 AM	20	84	18	20	58	18	9	61	7	20	178	21	514
7:15 AM	35	72	12	29	79	26	9	80	10	25	213	28	618
7:30 AM	28	106	13	33	107	22	12	121	22	24	276	29	793
7:45 AM	36	119	24	44	95	22	15	128	17	30	191	38	759
8:00 AM	23	112	32	40	78	19	15	124	18	33	224	46	764
8:15 AM	22	81	19	27	83	13	12	103	16	23	177	32	608
8:30 AM	27	72	17	24	68	25	9	96	14	14	158	25	549
8:45 AM	21	58	17	12	61	24	12	98	17	9	153	25	507

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	212	704	152	229	629	169	93	811	121	178	1570	244	5112

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	122	409	81	146	359	89	51	453	67	112	904	141	2934
PEAK HR. FACTOR:		0.855			0.917			0.892			0.879		0.925

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Avalon Blvd

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave

DAY: TUESDAY

PROJECT# 10-5148-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
4:00 PM	37	110	28	45	84	20	43	233	17	14	122	21	774
4:15 PM	26	113	25	40	81	11	29	200	17	21	125	25	713
4:30 PM	33	147	36	41	95	12	23	243	29	17	135	36	847
4:45 PM	30	113	35	41	99	19	34	239	15	14	129	37	805
5:00 PM	36	148	33	53	111	18	23	244	20	28	133	28	875
5:15 PM	28	130	36	62	78	18	22	260	22	15	162	38	871
5:30 PM	25	116	23	39	90	16	20	228	17	14	113	27	728
5:45 PM	18	113	21	24	100	4	28	261	23	11	110	31	744

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	233	990	237	345	738	118	222	1908	160	134	1029	243	6357

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	127	538	140	197	383	67	102	986	86	74	559	139	3398
PEAK HR. FACTOR:		0.927			0.889			0.965			0.898		0.971

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Broadway

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: THURSDAY

PROJECT# 10-5148-035

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
7:00 AM	11	48	4	9	45	26	18	128	26	18	201	15	549
7:15 AM	10	70	3	16	39	22	9	157	32	20	265	19	662
7:30 AM	11	41	3	9	52	24	10	180	34	12	300	25	701
7:45 AM	5	56	5	15	54	20	29	173	29	29	253	25	693
8:00 AM	8	58	10	13	38	19	16	167	22	8	241	17	617
8:15 AM	12	44	6	9	34	14	16	132	26	12	211	17	533
8:30 AM	14	44	7	10	22	18	16	150	27	9	169	8	494
8:45 AM	12	36	3	3	24	15	14	113	18	9	141	10	398

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	83	397	41	84	308	158	128	1200	214	117	1781	136	4647

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	34	225	21	53	183	85	64	677	117	69	1059	86	2673
PEAK HR. FACTOR:		0.843			0.902			0.929			0.901		0.953

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Broadway

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: THURSDAY

PROJECT# 10-5148-035

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
4:00 PM	41	88	39	20	37	20	27	272	20	3	156	15	738
4:15 PM	17	48	12	19	51	17	29	294	18	2	185	16	708
4:30 PM	34	92	28	14	39	13	23	298	13	8	176	21	759
4:45 PM	28	52	17	26	49	22	22	284	23	4	159	12	698
5:00 PM	38	78	23	13	46	12	26	290	15	4	185	25	755
5:15 PM	23	54	19	26	36	17	35	310	8	5	176	15	724
5:30 PM	19	70	19	18	48	15	25	317	13	9	167	11	731
5:45 PM	12	45	13	16	37	26	24	304	10	4	171	13	675

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	212	527	170	152	343	142	211	2369	120	39	1375	128	5788

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	123	276	87	79	170	64	106	1182	59	21	696	73	2936
PEAK HR. FACTOR:		0.789			0.807			0.954			0.923		0.967

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave DATE: 04/13/2010 LOCATION: City of Los Angeles

E-W STREET: 103rd St DAY: TUESDAY PROJECT# 10-5148-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	1	2	0	1	1	0	1	1	0	
7:00 AM	7	227	28	11	176	2	10	40	10	23	30	22	586
7:15 AM	11	251	42	22	228	2	14	29	13	42	31	25	710
7:30 AM	21	254	60	29	232	0	13	69	12	46	48	37	821
7:45 AM	12	234	53	31	217	7	6	35	17	40	51	41	744
8:00 AM	6	219	46	32	195	3	6	38	16	45	45	33	684
8:15 AM	8	192	36	28	183	6	12	39	12	43	38	31	628
8:30 AM	10	194	36	17	170	1	6	41	7	34	29	31	576
8:45 AM	8	163	37	25	173	5	5	35	11	34	27	30	553

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	83	1734	338	195	1574	26	72	326	98	307	299	250	5302

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	50	958	201	114	872	12	39	171	58	173	175	136	2959
PEAK HR. FACTOR:		0.902			0.956			0.713			0.917		0.901

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: 103rd St

DAY: TUESDAY

PROJECT# 10-5148-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	1	2	0	1	1	0	1	1	0	
4:00 PM	6	235	66	33	184	8	8	39	12	35	61	49	736
4:15 PM	11	230	64	35	219	9	9	48	11	50	56	37	779
4:30 PM	12	232	53	40	224	10	14	59	11	42	64	43	804
4:45 PM	14	225	57	36	247	11	11	51	12	29	58	49	800
5:00 PM	16	236	60	38	235	8	10	38	12	52	57	37	799
5:15 PM	19	242	51	57	253	8	10	45	12	34	63	36	830
5:30 PM	13	241	38	34	230	11	6	41	11	41	55	38	759
5:45 PM	14	221	50	44	227	3	5	38	10	39	51	43	745

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	105	1862	439	317	1819	68	73	359	91	322	465	332	6252

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	61	935	221	171	959	37	45	193	47	157	242	165	3233
PEAK HR. FACTOR:		0.975			0.917			0.848			0.946		0.974

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: 120th St

DAY: WEDNESDAY

PROJECT# 10-5032-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	20	177	8	30	130	14	28	53	10	12	42	29	553
7:15 AM	17	159	24	34	172	11	32	72	5	26	89	43	684
7:30 AM	21	170	37	49	178	17	32	107	13	35	112	56	827
7:45 AM	26	158	51	58	228	22	20	103	13	39	147	45	910
8:00 AM	15	171	31	40	200	24	31	63	7	31	84	29	726
8:15 AM	16	133	19	31	178	18	27	59	8	11	60	27	587
8:30 AM	14	128	12	21	159	20	13	37	12	8	44	21	489
8:45 AM	12	120	8	17	135	24	21	57	12	7	46	18	477
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	141	1216	190	280	1380	150	204	551	80	169	624	268	5253

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	79	658	143	181	778	74	115	345	38	131	432	173	3147
PEAK HR. FACTOR:		0.936			0.838			0.819			0.797		0.865

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: 120th St

DAY: WEDNESDAY

PROJECT# 10-5032-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	11	194	19	37	199	19	28	66	21	15	62	41	712
4:15 PM	16	177	14	45	190	30	34	82	19	17	63	41	728
4:30 PM	19	231	19	36	246	24	37	99	24	16	81	53	885
4:45 PM	23	197	25	30	222	24	44	90	16	21	79	45	816
5:00 PM	20	208	17	27	204	25	30	87	28	20	56	50	772
5:15 PM	17	217	19	25	210	23	28	83	14	23	66	26	751
5:30 PM	19	176	21	34	191	26	29	84	13	21	64	48	726
5:45 PM	26	177	10	35	199	26	30	80	27	15	55	38	718
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	151	1577	144	269	1661	197	260	671	162	148	526	342	6108

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	79	853	80	118	882	96	139	359	82	80	282	174	3224
PEAK HR. FACTOR:		0.941			0.895			0.906			0.893		0.911

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Alondra Blvd

DAY: TUESDAY

PROJECT# 10-5148-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	3	0	
7:00 AM	20	105	7	19	110	15	9	33	12	14	78	16	438
7:15 AM	21	132	14	26	152	21	15	57	18	21	84	27	588
7:30 AM	33	137	13	31	179	34	17	63	23	25	115	24	694
7:45 AM	37	141	22	29	174	37	20	89	35	24	108	36	752
8:00 AM	34	141	22	42	191	27	15	79	24	26	84	46	731
8:15 AM	23	126	12	19	116	20	13	59	33	23	70	22	536
8:30 AM	12	108	12	19	109	13	8	50	16	21	66	22	456
8:45 AM	14	79	14	15	87	16	8	42	19	11	52	21	378

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	194	969	116	200	1118	183	105	472	180	165	657	214	4573

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	125	551	71	128	696	119	67	288	100	96	391	133	2765
PEAK HR. FACTOR:		0.934			0.907			0.790			0.923		0.919

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave DATE: 04/13/2010 LOCATION: City of Los Angeles

E-W STREET: Alondra Blvd DAY: TUESDAY PROJECT# 10-5148-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	3	0	
4:00 PM	0	158	30	32	123	20	22	120	24	11	66	26	632
4:15 PM	22	148	21	41	109	24	26	137	18	19	72	35	672
4:30 PM	32	133	28	35	150	20	23	108	26	14	61	44	674
4:45 PM	32	176	20	49	150	27	24	106	27	17	54	37	719
5:00 PM	21	150	22	34	154	13	29	121	36	25	67	38	710
5:15 PM	19	162	25	46	163	29	37	167	28	17	79	50	822
5:30 PM	26	164	25	37	155	22	31	109	26	15	60	46	716
5:45 PM	32	170	29	51	154	24	34	118	33	13	57	38	753

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	184	1261	200	325	1158	179	226	986	218	131	516	314	5698

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	98	646	101	168	626	88	131	515	123	70	263	172	3001
PEAK HR. FACTOR:		0.915			0.926			0.829			0.865		0.913

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Century Blvd

DAY: TUESDAY

PROJECT# 10-5148-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	1	2	0	1	2	0	0	2	0	
7:00 AM	49	195	6	6	142	20	21	66	33	11	100	6	655
7:15 AM	60	227	4	10	196	23	18	67	34	10	99	7	755
7:30 AM	82	228	15	15	202	25	23	85	40	15	100	16	846
7:45 AM	47	222	14	9	183	28	25	99	64	11	76	8	786
8:00 AM	35	223	15	7	180	12	24	83	46	18	90	11	744
8:15 AM	28	201	6	14	167	22	24	83	40	9	66	14	674
8:30 AM	40	162	9	14	129	12	30	56	40	17	46	12	567
8:45 AM	30	171	17	14	155	15	24	68	34	10	58	9	605

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	371	1629	86	89	1354	157	189	607	331	101	635	83	5632

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	224	900	48	41	761	88	90	334	184	54	365	42	3131
PEAK HR. FACTOR:		0.902			0.919			0.809			0.880		0.925

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Century Blvd

DAY: TUESDAY

PROJECT# 10-5148-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	1	2	0	1	2	0	0	2	0	
4:00 PM	51	231	16	19	172	17	24	95	44	10	85	15	779
4:15 PM	55	211	14	17	194	14	23	113	58	10	77	8	794
4:30 PM	56	210	17	13	223	14	23	100	52	13	83	12	816
4:45 PM	44	233	9	17	231	14	29	132	44	18	87	14	872
5:00 PM	47	204	20	28	189	17	27	117	70	18	93	9	839
5:15 PM	51	226	22	17	219	21	30	122	58	17	93	14	890
5:30 PM	42	234	19	22	196	19	36	119	48	23	88	15	861
5:45 PM	39	220	12	14	192	19	31	117	62	13	68	12	799

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	385	1769	129	147	1616	135	223	915	436	122	674	99	6650

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	184	897	70	84	835	71	122	490	220	76	361	52	3462
PEAK HR. FACTOR:		0.962			0.945			0.972			0.970		0.972

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Compton Blvd

DAY: TUESDAY

PROJECT# 10-5148-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	3	0	1	2	1	1	2	0	
7:00 AM				1									1
7:15 AM				0									
7:30 AM				0									
7:45 AM				0									
8:00 AM				1									1
8:15 AM				1									1
8:30 AM				3									3
8:45 AM				1									1

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	0	0	0	7	0	0	0	0	0	0	0	0	7

AM Peak Hr Begins at: 800 AM

PEAK VOLUMES =	0	0	0	6	0	0	0	0	0	0	0	0	6
PEAK HR. FACTOR:		0.000			0.500			0.000			0.000		0.500

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Compton Blvd

DAY: TUESDAY

PROJECT# 10-5148-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	3	0	1	2	1	1	2	0	
4:00 PM				2									2
4:15 PM				1									1
4:30 PM				2									2
4:45 PM				1									1
5:00 PM				1									1
5:15 PM				3									3
5:30 PM				6									6
5:45 PM				1									1

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	0	0	0	17	0	0	0	0	0	0	0	0	17

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	0	0	0	11	0	0	0	0	0	0	0	0	11
PEAK HR. FACTOR:		0.000			0.458			0.000			0.000		0.458

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave DATE: 04/13/2010 LOCATION: City of Los Angeles

E-W STREET: Compton Blvd DAY: TUESDAY PROJECT# 10-5148-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	3	0	1	2	1	1	2	0	
7:00 AM	18	89	20	23	110	8	11	82	33	9	56	15	474
7:15 AM	22	131	26	29	114	15	31	110	20	13	80	10	601
7:30 AM	35	144	43	42	148	17	30	136	32	24	88	29	768
7:45 AM	32	171	52	42	173	17	30	158	30	31	133	34	903
8:00 AM	27	159	26	38	193	24	38	112	38	27	97	40	819
8:15 AM	38	114	19	26	98	10	24	77	29	24	59	17	535
8:30 AM	29	94	27	16	124	21	13	72	30	23	61	17	527
8:45 AM	19	78	22	23	107	35	20	79	32	19	74	11	519

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	220	980	235	239	1067	147	197	826	244	170	648	173	5146

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	116	605	147	151	628	73	129	516	120	95	398	113	3091
PEAK HR. FACTOR:		0.851			0.835			0.877			0.765		0.856

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Compton Blvd

DAY: TUESDAY

PROJECT# 10-5148-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	3	0	1	2	1	1	2	0	
4:00 PM	21	162	20	27	135	29	34	119	25	15	66	34	687
4:15 PM	19	164	13	41	144	32	34	115	24	31	101	54	772
4:30 PM	25	165	13	34	166	29	32	140	31	16	89	40	780
4:45 PM	20	180	35	44	189	41	40	117	27	19	86	53	851
5:00 PM	12	174	29	26	171	27	28	130	26	22	75	34	754
5:15 PM	18	186	23	35	206	28	42	128	38	23	84	40	851
5:30 PM	15	190	15	30	166	32	25	131	31	19	75	33	762
5:45 PM	22	208	19	37	176	32	41	105	34	22	81	30	807

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	152	1429	167	274	1353	250	276	985	236	167	657	318	6264

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	75	705	100	139	732	125	142	515	122	80	334	167	3236
PEAK HR. FACTOR:		0.936			0.909			0.936			0.919		0.951

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: WEDNESDAY

PROJECT# 10-5032-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	1	1	2	0	
7:00 AM	21	132	20	11	101	37	32	51	4	28	116	13	566
7:15 AM	34	144	33	16	147	48	28	85	17	26	166	15	759
7:30 AM	39	173	50	20	118	44	30	90	30	34	178	16	822
7:45 AM	41	171	75	43	190	49	21	92	32	47	201	17	979
8:00 AM	37	149	86	23	153	42	35	98	24	48	140	22	857
8:15 AM	30	120	36	12	133	40	24	72	17	36	115	22	657
8:30 AM	25	103	24	17	102	27	29	69	19	20	98	13	546
8:45 AM	22	93	14	9	101	34	26	73	19	19	108	13	531
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	249	1085	338	151	1045	321	225	630	162	258	1122	131	5717

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	151	637	244	102	608	183	114	365	103	155	685	70	3417
PEAK HR. FACTOR:		0.899			0.792			0.927			0.858		0.873

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: WEDNESDAY

PROJECT# 10-5032-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	1	1	2	0	
4:00 PM	27	164	48	35	157	26	46	191	27	22	99	18	860
4:15 PM	17	152	37	26	164	25	37	215	27	18	111	25	854
4:30 PM	27	169	42	32	182	27	62	233	31	31	138	39	1013
4:45 PM	26	174	52	35	180	37	57	218	50	40	114	25	1008
5:00 PM	32	159	45	34	160	38	53	222	47	18	87	24	919
5:15 PM	24	180	53	33	173	41	59	254	34	29	116	19	1015
5:30 PM	34	152	48	36	167	26	43	234	59	15	92	15	921
5:45 PM	14	132	35	43	157	21	36	207	32	22	72	11	782
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	201	1282	360	274	1340	241	393	1774	307	195	829	176	7372

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	109	682	192	134	695	143	231	927	162	118	455	107	3955
PEAK HR. FACTOR:		0.956			0.964			0.951			0.817		0.974

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: I-105 EB Ramps

DAY: WEDNESDAY

PROJECT# 10-5032-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	3	1	2	2	0	1.3	0.3	1.3	0	0	0	
7:00 AM		160	87	134	89		193	0	93				756
7:15 AM		188	78	146	120		184	0	125				841
7:30 AM		195	85	133	116		184	3	152				868
7:45 AM		182	72	112	146		200	11	188				911
8:00 AM		174	67	102	127		169	5	133				777
8:15 AM		150	57	103	116		106	0	112				644
8:30 AM		129	53	91	114		98	0	69				554
8:45 AM		114	59	73	113		87	1	71				518

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	0	1292	558	894	941	0	1221	20	943	0	0	0	5869

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	0	739	302	493	509	0	737	19	598	0	0	0	3397
PEAK HR. FACTOR:		0.929			0.942			0.848			0.000		0.932

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: I-105 EB Ramps

DAY: WEDNESDAY

PROJECT# 10-5032-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	3	1	2	2	0	1.3	0.3	1.3	0	0	0	
4:00 PM		198	82	96	172		141	17	99				805
4:15 PM		191	62	119	163		124	48	101				808
4:30 PM		211	104	118	217		138	29	101				918
4:45 PM		217	99	115	189		114	42	95				871
5:00 PM		211	84	126	190		109	34	92				846
5:15 PM		199	82	124	187		134	49	85				860
5:30 PM		179	81	110	199		129	47	96				841
5:45 PM		194	70	102	195		123	41	79				804
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	1600	664	910	1512	0	1012	307	748	0	0	0	6753

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	0	838	369	483	783	0	495	154	373	0	0	0	3495
PEAK HR. FACTOR:		0.955			0.945			0.953			0.000		0.952

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: I-105 WB Ramps

DAY: WEDNESDAY

PROJECT# 10-5032-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	0	0	2	1	0	0	0	1.3	0.3	1.3	
7:00 AM	102	255			193	130				30	0	102	812
7:15 AM	113	255			232	170				34	1	92	897
7:30 AM	112	271			226	192				26	0	86	913
7:45 AM	88	289			209	200				45	0	98	929
8:00 AM	87	259			188	126				42	1	86	789
8:15 AM	67	186			169	116				48	0	106	692
8:30 AM	64	166			165	105				42	1	95	638
8:45 AM	53	145			141	89				44	0	89	561
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	686	1826	0	0	1523	1128	0	0	0	311	3	754	6231

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	415	1070	0	0	860	692	0	0	0	135	1	378	3551
PEAK HR. FACTOR:		0.969			0.928			0.000			0.899		0.956

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: I-105 WB Ramps

DAY: WEDNESDAY

PROJECT# 10-5032-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	0	0	2	1	0	0	0	1.3	0.3	1.3	
4:00 PM	88	254			194	120				77		99	832
4:15 PM	88	224			215	116				64		137	844
4:30 PM	127	225			242	142				95		111	942
4:45 PM	101	234			236	135				69		97	872
5:00 PM	99	217			245	134				69		111	875
5:15 PM	91	246			243	136				69		133	918
5:30 PM	78	226			235	129				73		161	902
5:45 PM	86	232			235	139				66		127	885
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	758	1858	0	0	1845	1051	0	0	0	582	0	976	7070

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	418	922	0	0	966	547	0	0	0	302	0	452	3607
PEAK HR. FACTOR:		0.952			0.985			0.000			0.915		0.957

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave	DATE: 01/27/2010	LOCATION: City of Los Angeles	
E-W STREET: Imperial Hwy	DAY: WEDNESDAY	PROJECT# 10-5032-004	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	1	2	3	0	2	3	0	2	3	0	
7:00 AM	58	222	48	22	205	5	7	75	58	44	178	43	965
7:15 AM	45	247	42	33	254	7	7	118	83	66	191	60	1153
7:30 AM	49	234	68	37	233	10	15	109	83	80	190	62	1170
7:45 AM	61	240	90	50	249	9	13	121	71	77	199	57	1237
8:00 AM	47	255	59	18	205	15	13	103	53	60	153	42	1023
8:15 AM	62	216	23	20	175	8	14	82	45	48	155	28	876
8:30 AM	58	159	28	13	161	10	17	85	50	45	122	26	774
8:45 AM	49	169	31	19	153	10	13	73	29	42	96	37	721
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	429	1742	389	212	1635	74	99	766	472	462	1284	355	7919

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	202	976	259	138	941	41	48	451	290	283	733	221	4583
PEAK HR. FACTOR:		0.919			0.909			0.948			0.929		0.926

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave
DATE: 01/27/2010
LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy
DAY: WEDNESDAY
PROJECT# 10-5032-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	1	2	3	0	2	3	0	2	3	0	
4:00 PM	50	216	86	30	192	10	21	185	59	51	135	36	1071
4:15 PM	48	236	80	26	211	12	25	227	59	54	122	28	1128
4:30 PM	62	187	83	39	242	8	18	215	74	63	138	38	1167
4:45 PM	45	200	78	23	228	13	29	259	66	57	100	37	1135
5:00 PM	47	207	71	26	247	13	14	279	84	48	149	29	1214
5:15 PM	60	216	89	51	219	22	32	240	85	59	114	34	1221
5:30 PM	63	239	78	48	222	8	26	227	74	67	123	39	1214
5:45 PM	77	209	76	36	218	15	22	272	89	53	107	34	1208
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	452	1710	641	279	1779	101	187	1904	590	452	988	275	9358

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	247	871	314	161	906	58	94	1018	332	227	493	136	4857
PEAK HR. FACTOR:		0.942			0.963			0.943			0.934		0.994

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave

DAY: WEDNESDAY

PROJECT# 10-5032-009

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	1	1	3	0	0	2	1	
7:00 AM	26	124	12	13	94	48	23	68	18	20	177	21	644
7:15 AM	22	137	7	24	116	37	31	64	22	22	209	38	729
7:30 AM	30	154	16	30	154	35	37	94	35	34	240	37	896
7:45 AM	27	146	11	28	160	43	48	112	38	51	213	31	908
8:00 AM	29	144	18	40	150	31	28	132	42	43	184	35	876
8:15 AM	36	112	15	25	149	35	36	83	33	19	175	42	760
8:30 AM	37	108	15	29	93	18	34	73	28	30	179	23	667
8:45 AM	27	106	14	26	88	33	28	81	28	30	129	19	609
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	234	1031	108	215	1004	280	265	707	244	249	1506	246	6089

NB U-turns	SB U-turns	WB U-turns
4	2	0
7	0	0
2	0	0
5	0	0
4	2	1
7	1	0
5	1	1
4	1	2
WL	WT	WR
38	7	4

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	122	556	60	123	613	144	149	421	148	147	812	145	3440
PEAK HR. FACTOR:		0.923			0.952			0.889			0.887		0.947

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave
DATE: 01/27/2010
LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave
DAY: WEDNESDAY
PROJECT# 10-5032-009

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	1	1	3	0	0	2	1	
4:00 PM	43	156	26	62	154	35	33	227	27	27	130	43	963
4:15 PM	40	148	35	61	121	34	53	233	39	29	162	38	993
4:30 PM	34	154	26	67	139	44	64	249	43	48	138	39	1045
4:45 PM	44	155	27	65	171	27	52	248	52	32	149	38	1060
5:00 PM	47	175	36	67	174	41	44	254	34	35	149	35	1091
5:15 PM	40	189	22	66	154	22	58	249	50	36	159	33	1078
5:30 PM	40	205	30	62	184	33	54	248	51	45	158	37	1147
5:45 PM	40	170	27	46	160	40	55	194	54	37	118	24	965
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	328	1352	229	496	1257	276	413	1902	350	289	1163	287	8342

NB U-turns	SB U-turns	WB U-turns
3	1	1
0	2	5
1	1	4
3	2	1
3	2	2
5	0	3
4	0	4
3	3	5
WL	WT	WR
22	11	25

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	171	724	115	260	683	123	208	999	187	148	615	143	4376
PEAK HR. FACTOR:		0.918			0.945			0.976			0.944		0.954

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: 103rd St

DAY: TUESDAY

PROJECT# 10-5148-024

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	1	1	
7:00 AM	9	80	8	10	76	11	15	40	10	16	42	12	329
7:15 AM	17	84	15	7	96	20	20	48	22	23	52	15	419
7:30 AM	20	92	19	15	116	21	41	69	31	26	78	26	554
7:45 AM	31	125	48	14	113	15	22	71	30	35	87	30	621
8:00 AM	16	93	29	16	86	21	15	67	23	25	83	16	490
8:15 AM	20	64	16	11	65	16	12	48	25	18	53	20	368
8:30 AM	18	59	22	11	60	6	12	51	25	18	56	9	347
8:45 AM	15	49	20	10	52	9	12	50	18	18	65	16	334

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	146	646	177	94	664	119	149	444	184	179	516	144	3462

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	84	394	111	52	411	77	98	255	106	109	300	87	2084
PEAK HR. FACTOR:		0.722			0.888			0.814			0.816		0.839

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: 103rd St

DAY: TUESDAY

PROJECT# 10-5148-024

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	1	1	
4:00 PM	36	87	29	18	88	31	13	82	15	31	103	18	551
4:15 PM	24	93	32	21	107	24	17	97	17	28	112	20	592
4:30 PM	42	112	21	21	83	24	22	85	25	29	92	22	578
4:45 PM	27	113	32	20	88	19	21	97	24	22	114	23	600
5:00 PM	31	121	28	21	113	10	20	79	21	29	83	21	577
5:15 PM	23	90	26	23	94	25	21	82	24	28	85	22	543
5:30 PM	24	97	29	28	78	16	11	74	18	36	70	19	500
5:45 PM	16	97	15	23	86	14	8	80	22	19	78	17	475

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	223	810	212	175	737	163	133	676	166	222	737	162	4416

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	124	439	113	83	391	77	80	358	87	108	401	86	2347
PEAK HR. FACTOR:		0.939			0.906			0.924			0.930		0.978

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: 108th St

DAY: TUESDAY

PROJECT# 10-5148-025

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	9	98	11	4	90	3	10	9	14	12	11	3	274
7:15 AM	7	123	11	0	114	6	8	13	7	24	16	6	335
7:30 AM	4	151	13	9	124	12	28	20	10	33	19	29	452
7:45 AM	13	193	23	8	112	14	19	15	6	28	21	27	479
8:00 AM	8	146	20	6	103	14	10	23	7	19	27	11	394
8:15 AM	3	90	5	7	85	6	9	12	5	11	21	5	259
8:30 AM	6	95	7	3	70	9	4	12	6	6	16	4	238
8:45 AM	4	73	9	6	69	4	9	11	12	11	14	5	227

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	54	969	99	43	767	68	97	115	67	144	145	90	2658

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	32	613	67	23	453	46	65	71	30	104	83	73	1660
PEAK HR. FACTOR:		0.777			0.900			0.716			0.802		0.866

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: 108th St

DAY: TUESDAY

PROJECT# 10-5148-025

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
4:00 PM	6	133	19	6	121	18	7	19	11	18	21	11	390
4:15 PM	5	126	9	16	130	11	11	23	5	14	21	8	379
4:30 PM	13	135	18	7	145	12	4	28	10	11	11	5	399
4:45 PM	5	119	16	9	126	6	8	17	14	11	19	6	356
5:00 PM	3	117	14	15	138	19	8	25	14	12	15	10	390
5:15 PM	8	132	16	8	139	10	7	24	14	19	14	5	396
5:30 PM	4	109	23	7	136	21	5	31	10	9	20	8	383
5:45 PM	9	97	14	5	120	16	2	18	11	3	21	8	324

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	53	968	129	73	1055	113	52	185	89	97	142	61	3017

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	29	503	64	39	548	47	27	94	52	53	59	26	1541
PEAK HR. FACTOR:		0.898			0.922			0.920			0.908		0.966

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: 111th St

DAY: TUESDAY

PROJECT# 10-5148-026

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	2	97	9	20	88	8	8	5	5	9	2	12	265
7:15 AM	2	102	9	23	122	11	12	8	4	10	4	22	329
7:30 AM	8	140	11	29	133	11	19	18	7	10	7	17	410
7:45 AM	3	153	4	17	118	16	19	20	2	17	13	31	413
8:00 AM	4	126	13	11	99	15	13	6	4	8	11	11	321
8:15 AM	3	95	3	7	91	7	4	2	4	11	8	6	241
8:30 AM	5	91	7	8	87	8	6	5	5	7	9	4	242
8:45 AM	2	87	5	3	88	6	5	3	2	9	4	9	223

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	29	891	61	118	826	82	86	67	33	81	58	112	2444

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	17	521	37	80	472	53	63	52	17	45	35	81	1473
PEAK HR. FACTOR:		0.898			0.874			0.750			0.660		0.892

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET:	Compton Ave	DATE:	04/13/2010	LOCATION:	City of Los Angeles
E-W STREET:	111th St	DAY:	TUESDAY	PROJECT#	10-5148-026

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
4:00 PM	0	115	7	10	120	13	8	1	7	7	1	16	305
4:15 PM	2	133	5	12	145	10	8	3	5	7	1	12	343
4:30 PM	8	120	5	2	144	2	15	2	6	10	3	7	324
4:45 PM	4	116	5	9	130	11	8	2	3	6	2	11	307
5:00 PM	4	130	5	13	163	11	9	2	3	6	4	11	361
5:15 PM	4	124	5	15	137	12	9	2	5	7	0	16	336
5:30 PM	5	124	9	10	139	11	12	2	5	7	0	24	348
5:45 PM	3	122	4	15	138	13	5	0	4	2	1	14	321

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	30	984	45	86	1116	83	74	14	38	52	12	111	2645

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	16	500	23	53	577	47	35	6	17	22	5	65	1366
PEAK HR. FACTOR:		0.969			0.905			0.763			0.742		0.946

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: 118th St

DAY: WEDNESDAY

PROJECT# 10-5148-027

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	0	1	0	0	1	0	
7:00 AM	1	68	5	4	76	1	2	2	4	4	0	2	169
7:15 AM	2	96	14	8	96	3	3	1	12	11	2	9	257
7:30 AM	1	114	23	10	120	2	7	4	15	9	3	10	318
7:45 AM	5	146	24	11	152	3	12	7	9	20	3	20	412
8:00 AM	0	42	7	8	102	2	3	4	3	19	7	12	209
8:15 AM	1	40	11	6	59	0	0	3	1	5	2	10	138
8:30 AM	0	56	12	6	50	0	1	4	2	5	3	10	149
8:45 AM	1	45	4	0	42	7	2	4	1	3	4	3	116

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	11	607	100	53	697	18	30	29	47	76	24	76	1768

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	8	398	68	37	470	10	25	16	39	59	15	51	1196
PEAK HR. FACTOR:		0.677			0.779			0.714			0.727		0.726

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: 118th St

DAY: WEDNESDAY

PROJECT# 10-5148-027

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	0	1	0	0	1	0	
4:00 PM	3	78	12	5	70	2	2	2	1	8	6	9	198
4:15 PM	2	83	12	10	80	1	2	6	4	9	4	9	222
4:30 PM	0	101	10	14	81	1	3	8	2	10	5	12	247
4:45 PM	2	87	9	6	91	2	2	4	2	5	7	9	226
5:00 PM	1	102	8	7	86	2	1	3	0	2	5	12	229
5:15 PM	3	76	7	7	83	0	1	6	2	5	5	12	207
5:30 PM	1	100	13	7	84	1	1	5	3	12	5	16	248
5:45 PM	1	62	8	10	76	3	0	6	1	7	3	9	186

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	13	689	79	66	651	12	12	40	15	58	40	88	1763

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	5	373	39	37	338	6	8	21	8	26	21	42	924
PEAK HR. FACTOR:		0.939			0.962			0.712			0.824		0.935

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: 120th St

DAY: WEDNESDAY

PROJECT# 10-5032-011

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	19	47	15	9	41	11	14	54	7	7	51	17	292
7:15 AM	28	54	9	28	65	35	40	74	19	8	78	23	461
7:30 AM	26	76	17	25	70	38	38	86	14	18	95	44	547
7:45 AM	26	104	17	39	77	45	51	120	32	16	107	59	693
8:00 AM	31	59	9	22	69	16	25	92	25	9	64	15	436
8:15 AM	14	43	13	18	49	15	10	67	19	4	53	13	318
8:30 AM	10	20	9	15	38	17	15	54	8	3	50	9	248
8:45 AM	12	28	14	15	40	10	8	49	13	3	30	13	235
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	166	431	103	171	449	187	201	596	137	68	528	193	3230

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	111	293	52	114	281	134	154	372	90	51	344	141	2137
PEAK HR. FACTOR:		0.776			0.821			0.759			0.736		0.771

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: 120th St

DAY: WEDNESDAY

PROJECT# 10-5032-011

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	18	64	8	23	55	16	43	81	34	8	69	15	434
4:15 PM	16	62	9	19	91	11	19	87	31	12	65	12	434
4:30 PM	20	76	12	21	61	22	40	95	30	6	123	19	525
4:45 PM	25	52	8	23	79	12	26	91	34	8	92	19	469
5:00 PM	31	60	9	20	61	12	23	92	33	11	77	21	450
5:15 PM	18	63	5	20	71	23	23	99	30	9	67	14	442
5:30 PM	7	20	8	16	63	25	32	93	46	4	78	16	408
5:45 PM	20	29	9	18	52	21	17	88	19	6	65	15	359
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	155	426	68	160	533	142	223	726	257	64	636	131	3521

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	94	251	34	84	272	69	112	377	127	34	359	73	1886
PEAK HR. FACTOR:		0.877			0.932			0.933			0.787		0.898

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: 124th St

DAY: WEDNESDAY

PROJECT# 10-5148-028

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	0	1	0	0	1	0	
7:00 AM	0	56	2	1	56	0	2	0	1	5	2	7	132
7:15 AM	0	80	2	9	79	3	2	1	0	2	2	12	192
7:30 AM	0	84	5	9	80	1	2	2	1	12	8	11	215
7:45 AM	1	97	4	12	118	2	1	5	0	16	15	17	288
8:00 AM	1	56	6	8	95	5	2	3	1	6	2	12	197
8:15 AM	0	48	2	6	52	3	1	3	1	5	5	8	134
8:30 AM	0	36	1	8	28	1	0	1	0	4	1	5	85
8:45 AM	1	39	0	5	49	2	1	1	0	4	2	7	111

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	3	496	22	58	557	17	11	16	4	54	37	79	1354

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	2	317	17	38	372	11	7	11	2	36	27	52	892
PEAK HR. FACTOR:		0.824			0.797			0.833			0.599		0.774

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: 124th St

DAY: WEDNESDAY

PROJECT# 10-5148-028

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	0	1	0	0	1	0	
4:00 PM	0	67	10	12	64	0	1	0	1	3	0	9	167
4:15 PM	0	82	3	7	77	1	0	4	2	3	1	7	187
4:30 PM	0	71	4	8	82	2	1	3	0	3	5	8	187
4:45 PM	1	63	3	12	83	3	1	1	1	6	1	6	181
5:00 PM	0	72	6	13	71	2	0	1	2	5	3	10	185
5:15 PM	0	68	10	8	71	1	1	0	0	5	1	10	175
5:30 PM	1	69	4	12	72	4	1	1	0	1	2	11	178
5:45 PM	0	64	9	11	59	1	2	0	1	6	1	4	158

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	2	556	49	83	579	14	7	10	7	32	14	65	1418

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	1	288	16	40	313	8	2	9	5	17	10	31	740
PEAK HR. FACTOR:		0.897			0.921			0.667			0.806		0.989

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: WEDNESDAY

PROJECT# 10-5148-009

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	13	11	1	12	6	35	19	82	5	3	141	14	342
7:15 AM	19	15	3	14	12	42	28	105	4	3	211	19	475
7:30 AM	39	17	5	25	10	52	43	176	15	2	248	21	653
7:45 AM	46	14	6	42	15	76	48	190	31	1	268	29	766
8:00 AM	24	12	1	27	17	48	38	143	15	1	180	15	521
8:15 AM	14	13	5	12	10	30	36	99	16	1	138	7	381
8:30 AM	8	8	1	11	8	25	20	81	11	1	134	14	322
8:45 AM	10	11	1	20	6	21	15	63	9	4	92	17	269

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	173	101	23	163	84	329	247	939	106	16	1412	136	3729

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	128	58	15	108	54	218	157	614	65	7	907	84	2415
PEAK HR. FACTOR:		0.761			0.714			0.777			0.837		0.788

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: WEDNESDAY

PROJECT# 10-5148-009

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	9	8	4	33	10	29	48	212	22	2	108	18	503
4:15 PM	12	9	1	32	13	36	48	224	19	2	118	26	540
4:30 PM	13	3	4	26	15	34	50	231	18	4	98	18	514
4:45 PM	8	3	1	36	17	37	47	226	28	2	97	27	529
5:00 PM	18	7	3	30	13	26	46	255	29	4	94	26	551
5:15 PM	18	9	6	29	14	29	50	245	30	4	123	10	567
5:30 PM	18	6	4	29	10	24	41	229	34	4	104	21	524
5:45 PM	15	11	5	28	17	22	39	259	23	0	95	21	535

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	111	56	28	243	109	237	369	1881	203	22	837	167	4263

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	69	33	18	116	54	101	176	988	116	12	416	78	2177
PEAK HR. FACTOR:		0.909			0.941			0.970			0.923		0.960

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy

DAY: WEDNESDAY

PROJECT# 10-5032-010

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	0	1	2	0	1	2	0	
7:00 AM	11	40	20	35	36	30	20	110	8	35	202	39	586
7:15 AM	29	65	22	46	66	28	19	148	23	21	264	35	766
7:30 AM	24	74	42	39	87	27	26	187	31	40	302	38	917
7:45 AM	34	111	52	30	95	25	25	179	61	45	300	48	1005
8:00 AM	32	71	33	36	43	39	34	129	26	35	240	53	771
8:15 AM	9	44	19	35	35	19	23	94	15	28	195	29	545
8:30 AM	17	47	17	29	35	29	19	103	12	25	187	40	560
8:45 AM	18	40	17	30	22	30	30	91	19	18	166	29	510
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	174	492	222	280	419	227	196	1041	195	247	1856	311	5660

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	119	321	149	151	291	119	104	643	141	141	1106	174	3459
PEAK HR. FACTOR:		0.747			0.917			0.838			0.904		0.860

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Compton Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy

DAY: WEDNESDAY

PROJECT# 10-5032-010

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	0	1	2	0	1	2	0	
4:00 PM	22	59	26	41	66	34	28	329	30	18	186	40	879
4:15 PM	21	63	20	46	47	23	31	311	21	17	170	59	829
4:30 PM	20	74	37	52	58	28	33	294	23	20	162	41	842
4:45 PM	24	54	31	39	59	36	41	312	24	18	161	52	851
5:00 PM	22	64	35	54	59	45	24	317	25	24	196	40	905
5:15 PM	25	72	23	39	60	34	31	364	21	18	155	59	901
5:30 PM	27	65	30	49	75	39	23	344	26	23	156	36	893
5:45 PM	17	70	25	52	56	30	29	359	21	23	170	47	899
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	178	521	227	372	480	269	240	2630	191	161	1356	374	6999

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	91	271	113	194	250	148	107	1384	93	88	677	182	3598
PEAK HR. FACTOR:		0.973			0.908			0.952			0.911		0.994

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Figueroa St

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: THURSDAY

PROJECT# 10-5148-034

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	1	1	3	0	1	3	0	
7:00 AM	13	70	6	17	40	23	26	165	61	12	207	27	667
7:15 AM	22	71	9	12	68	33	21	177	53	15	268	26	775
7:30 AM	30	94	4	18	70	37	32	201	49	15	292	17	859
7:45 AM	27	93	5	16	83	29	29	218	81	14	238	20	853
8:00 AM	24	87	8	18	58	19	27	189	69	14	236	15	764
8:15 AM	25	85	13	19	45	25	26	163	57	6	195	35	694
8:30 AM	13	66	6	10	49	21	26	173	49	10	171	23	617
8:45 AM	28	57	11	15	39	19	20	153	70	5	159	23	599

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	182	623	62	125	452	206	207	1439	489	91	1766	186	5828

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	103	345	26	64	279	118	109	785	252	58	1034	78	3251
PEAK HR. FACTOR:		0.926			0.900			0.873			0.903		0.946

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Figueroa St

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: THURSDAY

PROJECT# 10-5148-034

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	1	1	3	0	1	3	0	
4:00 PM	56	89	37	19	50	16	26	267	39	8	189	29	825
4:15 PM	38	72	29	27	57	23	30	265	30	6	179	23	779
4:30 PM	59	96	57	31	79	26	23	281	27	13	175	25	892
4:45 PM	31	87	26	22	60	28	25	282	34	14	182	23	814
5:00 PM	57	99	31	16	91	27	32	296	29	10	194	28	910
5:15 PM	41	104	23	21	81	28	47	319	48	7	180	27	926
5:30 PM	47	95	38	26	67	26	33	294	28	14	180	25	873
5:45 PM	32	80	20	24	82	27	29	300	39	13	175	23	844

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	361	722	261	186	567	201	245	2304	274	85	1454	203	6863

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	177	378	112	87	321	108	141	1209	144	44	729	103	3553
PEAK HR. FACTOR:		0.892			0.963			0.902			0.944		0.959

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: I-105 WB Ramps

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy

DAY: TUESDAY

PROJECT# 10-5032-027

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1.5	0.5	1	0	1	0	1	2.5	1.5	2	3	0	
7:00 AM	123	1	46	1	12	12	19	149	129	204	228	3	927
7:15 AM	111	1	42	3	22	6	5	174	95	223	265	8	955
7:30 AM	147	0	21	1	20	12	10	222	90	234	256	9	1022
7:45 AM	175	1	39	7	12	12	11	208	109	197	279	4	1054
8:00 AM	140	3	49	1	9	5	11	189	92	185	193	2	879
8:15 AM	152	3	39	1	1	6	4	153	66	161	214	1	801
8:30 AM	138	0	35	1	1	13	6	165	44	151	172	4	730
8:45 AM	140	6	53	1	3	4	12	149	59	131	152	2	712
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	1126	15	324	16	80	70	78	1409	684	1486	1759	33	7080

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	556	3	148	12	66	42	45	753	423	858	1028	24	3958
PEAK HR. FACTOR:		0.822			0.909			0.931			0.957		0.939

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: I-105 WB Ramps

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy

DAY: TUESDAY

PROJECT# 10-5032-027

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1.5	0.5	1	0	1	0	1	2.5	1.5	2	3	0	
4:00 PM	125	4	51	1	8	6	6	331	76	134	193	2	937
4:15 PM	140	4	57	2	7	11	11	327	57	134	197	5	952
4:30 PM	148	12	52	2	1	9	12	328	77	151	156	2	950
4:45 PM	151	5	46	6	4	5	6	434	78	128	200	1	1064
5:00 PM	142	4	74	3	13	5	8	332	67	136	175	5	964
5:15 PM	163	1	50	5	5	9	6	440	54	148	187	2	1070
5:30 PM	110	8	53	3	5	7	7	372	53	152	184	5	959
5:45 PM	130	1	75	0	4	5	8	353	65	109	142	1	893
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	1109	39	458	22	47	57	64	2917	527	1092	1434	23	7789

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	566	18	223	17	27	26	27	1578	252	564	746	13	4057
PEAK HR. FACTOR:		0.917			0.833			0.896			0.970		0.948

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: I-110 NB Ramps

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: THURSDAY

PROJECT# 10-5148-033

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1.5	0	0.5	0	0	0	0	2	1	1	3	0	
7:00 AM	120		43					209	49	32	206		659
7:15 AM	175		60					191	53	38	293		810
7:30 AM	239		74					213	57	38	327		948
7:45 AM	217		66					257	56	33	265		894
8:00 AM	173		61					225	49	26	256		790
8:15 AM	155		41					204	58	36	213		707
8:30 AM	118		44					205	52	14	185		618
8:45 AM	122		44					197	64	41	165		633

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	1319	0	433	0	0	0	0	1701	438	258	1910	0	6059

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	804	0	261	0	0	0	0	886	215	135	1141	0	3442
PEAK HR. FACTOR:		0.851			0.000			0.879			0.874		0.908

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: I-110 NB Ramps　DATE: 04/15/2010　LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd　DAY: THURSDAY　PROJECT# 10-5148-033

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1.5	0	0.5	0	0	0	0	2	1	1	3	0	
4:00 PM	101		84					253	104	81	185		808
4:15 PM	105		63					257	109	78	168		780
4:30 PM	91		66					270	104	84	174		789
4:45 PM	103		63					280	96	82	166		790
5:00 PM	100		80					274	91	95	189		829
5:15 PM	123		67					353	86	76	168		873
5:30 PM	127		71					279	111	83	176		847
5:45 PM	60		61					312	87	66	170		756

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	810	0	555	0	0	0	0	2278	788	645	1396	0	6472

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	453	0	281	0	0	0	0	1186	384	336	699	0	3339
PEAK HR. FACTOR:		0.927			0.000			0.894			0.911		0.956

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET:	I-110 SB Ramps	DATE:	04/15/2010	LOCATION:	City of Los Angeles
E-W STREET:	El Segundo Blvd	DAY:	THURSDAY	PROJECT#	10-5148-032

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	2	0	1	0	3	0	1	3	0	
7:00 AM				110		104		148	94	65	266		787
7:15 AM				108		165		135	112	88	375		983
7:30 AM				122		153		150	140	104	467		1136
7:45 AM				146		207		165	94	82	396		1090
8:00 AM				143		177		135	101	76	353		985
8:15 AM				104		155		155	89	56	312		871
8:30 AM				125		132		140	80	48	257		782
8:45 AM				116		133		138	75	40	245		747

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	0	0	0	974	0	1226	0	1166	785	559	2671	0	7381

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	0	0	0	519	0	702	0	585	447	350	1591	0	4194
PEAK HR. FACTOR:		0.000			0.865			0.890			0.850		0.923

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: I-110 SB Ramps

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: THURSDAY

PROJECT# 10-5148-032

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	2	0	1	0	3	0	1	3	0	
4:00 PM				91		102		271	136	68	221		889
4:15 PM				75		81		286	124	60	209		835
4:30 PM				104		89		276	126	50	218		863
4:45 PM				91		82		290	132	54	220		869
5:00 PM				63		89		297	138	59	225		871
5:15 PM				112		95		334	144	35	262		982
5:30 PM				87		98		297	148	51	247		928
5:45 PM				88		110		313	118	44	193		866

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	711	0	746	0	2364	1066	421	1795	0	7103

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	0	0	0	353	0	364	0	1218	562	199	954	0	3650
PEAK HR. FACTOR:		0.000			0.866			0.931			0.967		0.929

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: Martin Luther King Jr Blvd

DAY: WEDNESDAY

PROJECT# 10-5148-020

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	0	1	2	0	1	2	0	
7:00 AM	5												5
7:15 AM	3												3
7:30 AM	2												2
7:45 AM	2												2
8:00 AM	1												1
8:15 AM	3												3
8:30 AM	0												
8:45 AM	1												1

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	17	0	0	0	0	0	0	0	0	0	0	0	17

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	12	0	0	0	0	0	0	0	0	0	0	0	12
PEAK HR. FACTOR:		0.600			0.000			0.000			0.000		0.600

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: Martin Luther King Jr Blvd

DAY: WEDNESDAY

PROJECT# 10-5148-020

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	0	1	2	0	1	2	0	
4:00 PM	1												1
4:15 PM	2												2
4:30 PM	1												1
4:45 PM	0												
5:00 PM	0												
5:15 PM	1												1
5:30 PM	1												1
5:45 PM	2												2

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	8	0	0	0	0	0	0	0	0	0	0	0	8

PM Peak Hr Begins at: 515 PM

PEAK VOLUMES =	4	0	0	0	0	0	0	0	0	0	0	0	4
PEAK HR. FACTOR:		0.500			0.000			0.000			0.000		0.500

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd

DATE: 04/20/2010

LOCATION: City of Los Angeles

E-W STREET: I-105 WB On-Off Ramp

DAY: TUESDAY

PROJECT# 10-5148-137

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
7:00 AM						160							160
7:15 AM						199							199
7:30 AM						154							154
7:45 AM						135							135
8:00 AM						178							178
8:15 AM						129							129
8:30 AM						158							158
8:45 AM						93							93

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	0	0	0	0	0	1206	0	0	0	0	0	0	1206

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	0	0	0	0	0	666	0	0	0	0	0	0	666
PEAK HR. FACTOR:		0.000			0.837			0.000			0.000		0.837

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd DATE: 04/20/2010 LOCATION: City of Los Angeles

E-W STREET: I-105 WB On-Off Ramp DAY: TUESDAY PROJECT# 10-5148-137

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
4:00 PM						131							131
4:15 PM						149							149
4:30 PM						157							157
4:45 PM						164							164
5:00 PM						165							165
5:15 PM						159							159
5:30 PM						144							144
5:45 PM						143							143

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	0	0	0	0	0	1212	0	0	0	0	0	0	1212

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	0	0	0	0	0	645	0	0	0	0	0	0	645
PEAK HR. FACTOR:		0.000			0.977			0.000			0.000		0.977

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd

DATE: 04/20/2010

LOCATION: City of Los Angeles

E-W STREET: I-105 EB On-Off Ramps

DAY: TUESDAY

PROJECT# 10-5148-038

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	3	1	1	2	2	1.5	0.5	1	0	1	0	
7:00 AM		226	130	4	100	196	147	0	55			3	861
7:15 AM		277	142	6	114	245	148	0	88			1	1021
7:30 AM		254	158	2	105	233	168	0	85			3	1008
7:45 AM		241	122	10	131	213	171	0	115			0	1003
8:00 AM		235	88	6	139	194	158	2	81			3	906
8:15 AM		256	95	6	139	196	143	0	99			1	935
8:30 AM		244	112	1	131	192	132	0	58			2	872
8:45 AM		192	90	7	131	183	131	0	83			2	819

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	0	1925	937	42	990	1652	1198	2	664	0	0	15	7425

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	0	1007	510	24	489	885	645	2	369	0	0	7	3938
PEAK HR. FACTOR:		0.905			0.958			0.888			0.583		0.964

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd

DATE: 04/20/2010

LOCATION: City of Los Angeles

E-W STREET: I-105 EB On-Off Ramps

DAY: TUESDAY

PROJECT# 10-5148-038

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	3	1	1	2	2	1.5	0.5	1	0	1	0	
4:00 PM		226	70	8	268	197	117	0	67			1	954
4:15 PM		268	86	2	218	182	137	1	68			2	964
4:30 PM		234	91	1	270	180	98	2	63			1	940
4:45 PM		252	108	5	247	185	121	0	56			0	974
5:00 PM		284	139	2	240	166	107	2	64			5	1009
5:15 PM		223	98	5	268	165	113	5	72			0	949
5:30 PM		238	104	3	273	161	114	0	79			4	976
5:45 PM		241	75	1	220	176	111	1	74			5	904

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	0	1966	771	27	2004	1412	918	11	543	0	0	18	7670

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	0	997	449	15	1028	677	455	7	271	0	0	9	3908
PEAK HR. FACTOR:		0.855			0.982			0.949			0.450		0.968

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd DATE: 04/20/2010 LOCATION: City of Los Angeles

E-W STREET: I-105 WB On-Off Ramps DAY: TUESDAY PROJECT# 10-5148-037

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	1	0	3	0	0	1	0	1	0.5	1.5	
7:00 AM	2	234	146		268	8			2	31	0	196	887
7:15 AM	4	255	173		314	4			1	49	2	150	952
7:30 AM	0	301	121		305	3			2	41	5	187	965
7:45 AM	3	327	96		291	0			1	55	4	159	936
8:00 AM	0	297	104		305	2			1	40	1	152	902
8:15 AM	5	316	84		293	6			4	51	4	152	915
8:30 AM	1	299	87		257	3			5	64	4	179	899
8:45 AM	3	238	84		265	0			1	54	2	175	822

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	18	2267	895	0	2298	26	0	0	17	385	22	1350	7278

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	7	1180	494	0	1215	9	0	0	5	185	12	648	3755
PEAK HR. FACTOR:		0.973			0.962			0.625			0.907		0.973

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd

DATE: 04/20/2010

LOCATION: City of Los Angeles

E-W STREET: I-105 WB On-Off Ramps

DAY: TUESDAY

PROJECT# 10-5148-037

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	1	0	3	0	0	1	0	1	0.5	1.5	
4:00 PM	1	249	92		352	1			1	127	3	236	1062
4:15 PM	1	315	90		291	2			4	99	2	258	1062
4:30 PM	1	260	77		347	1			2	110	3	225	1026
4:45 PM	0	289	88		340	3			5	100	3	238	1066
5:00 PM	1	291	110		295	5			4	101	3	237	1047
5:15 PM	1	265	73		329	2			5	108	1	265	1049
5:30 PM	8	251	99		324	2			2	107	0	240	1033
5:45 PM	3	264	86		319	7			9	74	2	206	970

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	16	2184	715	0	2597	23	0	0	32	826	17	1905	8315

PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	3	1113	347	0	1330	7	0	0	12	436	11	957	4216
PEAK HR. FACTOR:		0.901			0.947			0.600			0.959		0.989

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy

DAY: WEDNESDAY

PROJECT# 10-5148-021

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	1	1	3	0	1	3	0	1	2	0	
7:00 AM	54	212	87	14	228	9	11	78	38	94	183	6	1014
7:15 AM	57	287	86	11	221	13	7	118	47	100	242	9	1198
7:30 AM	50	214	94	26	260	10	8	178	47	88	259	8	1242
7:45 AM	68	243	118	29	279	13	14	135	48	92	230	16	1285
8:00 AM	53	203	110	22	209	11	15	159	52	88	253	14	1189
8:15 AM	49	222	98	19	208	15	15	130	66	87	171	10	1090
8:30 AM	51	207	74	28	220	12	14	111	52	88	136	8	1001
8:45 AM	34	213	87	15	178	10	15	117	61	69	134	17	950

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	416	1801	754	164	1803	93	99	1026	411	706	1608	88	8969

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	228	947	408	88	969	47	44	590	194	368	984	47	4914
PEAK HR. FACTOR:		0.920			0.860			0.888			0.985		0.956

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET:	Long Beach Blvd	DATE: 04/14/2010	LOCATION: City of Los Angeles
E-W STREET:	Imperial Hwy	DAY: WEDNESDAY	PROJECT# 10-5148-021

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	1	1	3	0	1	3	0	1	2	0	
4:00 PM	52	265	89	37	252	12	38	206	62	81	159	15	1268
4:15 PM	58	277	101	36	271	24	32	215	58	71	137	19	1299
4:30 PM	60	301	103	31	257	26	35	236	78	68	171	13	1379
4:45 PM	50	310	100	27	233	14	29	256	68	72	201	29	1389
5:00 PM	44	278	107	20	264	16	33	238	52	75	179	20	1326
5:15 PM	41	292	102	33	301	25	36	238	59	72	200	18	1417
5:30 PM	57	301	100	32	260	15	38	214	68	71	153	22	1331
5:45 PM	59	300	103	31	233	38	27	248	59	62	167	15	1342

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	421	2324	805	247	2071	170	268	1851	504	572	1367	151	10751

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	195	1181	412	111	1055	81	133	968	257	287	751	80	5511
PEAK HR. FACTOR:		0.963			0.868			0.962			0.925		0.972

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: Martin Luther King Jr Blvd

DAY: WEDNESDAY

PROJECT# 10-5148-020

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	0	1	2	0	1	2	0	
7:00 AM	55	165	13	20	177	5	4	62	26	27	121	37	712
7:15 AM	68	205	13	24	202	4	5	95	29	28	204	40	917
7:30 AM	56	209	14	52	208	7	9	122	34	23	166	34	934
7:45 AM	64	157	18	36	198	3	8	121	18	32	185	39	879
8:00 AM	32	154	19	27	209	3	10	79	33	38	131	37	772
8:15 AM	28	156	22	30	147	5	6	107	21	33	131	32	718
8:30 AM	37	190	23	26	153	3	8	59	35	19	92	38	683
8:45 AM	31	171	15	12	141	4	1	49	18	27	79	30	578

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	371	1407	137	227	1435	34	51	694	214	227	1109	287	6193

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	220	725	64	139	817	17	32	417	114	121	686	150	3502
PEAK HR. FACTOR:		0.882			0.911			0.853			0.880		0.937

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: Martin Luther King Jr Blvd

DAY: WEDNESDAY

PROJECT# 10-5148-020

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	0	1	2	0	1	2	0	
4:00 PM	39	260	25	44	231	7	7	134	49	25	91	37	949
4:15 PM	38	257	27	47	256	5	13	101	30	23	98	47	942
4:30 PM	47	242	34	50	236	8	12	138	43	30	88	47	975
4:45 PM	31	285	29	43	229	8	7	118	40	31	95	53	969
5:00 PM	40	226	42	47	231	14	11	152	54	22	96	45	980
5:15 PM	41	264	38	42	248	7	9	145	40	19	105	30	988
5:30 PM	37	220	35	53	243	5	13	148	43	32	94	46	969
5:45 PM	46	270	38	35	208	6	14	120	30	24	81	37	909

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	319	2024	268	361	1882	60	86	1056	329	206	748	342	7681

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	159	1017	143	182	944	37	39	553	177	102	384	175	3912
PEAK HR. FACTOR:		0.956			0.979			0.886			0.923		0.990

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd

DATE: 04/20/2010

LOCATION: City of Los Angeles

E-W STREET: Park & Ride Dwy

DAY: TUESDAY

PROJECT# 10-5148-138

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
7:00 AM			8										8
7:15 AM			3										3
7:30 AM			3										3
7:45 AM			5										5
8:00 AM													
8:15 AM													
8:30 AM			4										4
8:45 AM			3										3

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	0	0	26	0	0	0	0	0	0	0	0	0	26

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	0	0	19	0	0	0	0	0	0	0	0	0	19
PEAK HR. FACTOR:		0.594			0.000			0.000			0.000		0.594

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Long Beach Blvd

DATE: 04/20/2010

LOCATION: City of Los Angeles

E-W STREET: Park & Ride Dwy

DAY: TUESDAY

PROJECT# 10-5148-138

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
4:00 PM			2										2
4:15 PM			2										2
4:30 PM													
4:45 PM			1										1
5:00 PM			2										2
5:15 PM			4										4
5:30 PM			2										2
5:45 PM			3										3

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	16	0	0	0	0	0	0	0	0	0	16

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	0	0	11	0	0	0	0	0	0	0	0	0	11
PEAK HR. FACTOR:		0.688			0.000			0.000			0.000		0.688

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Main St

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: THURSDAY

PROJECT# 10-5148-036

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
7:00 AM	17	43	9	11	31	10	27	96	19	12	223	12	510
7:15 AM	17	50	6	18	46	27	23	113	22	18	258	16	614
7:30 AM	11	53	5	24	73	26	22	127	27	21	305	15	709
7:45 AM	15	57	7	16	73	13	15	138	29	24	272	10	669
8:00 AM	16	39	7	19	55	22	26	123	23	15	232	9	586
8:15 AM	16	47	4	21	41	16	13	103	12	17	177	14	481
8:30 AM	13	40	9	8	27	11	25	112	15	11	165	15	451
8:45 AM	18	37	5	19	33	13	18	102	19	14	156	15	449

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	123	366	52	136	379	138	169	914	166	132	1788	106	4469

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	59	199	25	77	247	88	86	501	101	78	1067	50	2578
PEAK HR. FACTOR:		0.896			0.837			0.945			0.876		0.909

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Main St
DATE: 04/15/2010
LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd
DAY: THURSDAY
PROJECT# 10-5148-036

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
4:00 PM	17	58	17	30	51	7	29	281	21	5	138	17	671
4:15 PM	17	70	19	24	42	18	27	261	20	14	154	21	687
4:30 PM	27	101	44	28	50	16	28	307	14	6	168	19	808
4:45 PM	23	72	16	37	39	13	34	287	18	11	127	16	693
5:00 PM	23	77	19	24	31	10	27	295	10	11	175	19	721
5:15 PM	18	77	27	25	49	14	24	310	9	7	155	12	727
5:30 PM	23	64	20	25	43	15	41	303	19	10	153	18	734
5:45 PM	20	54	14	19	41	11	19	270	13	9	141	10	621

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	168	573	176	212	346	104	229	2314	124	73	1211	132	5662

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	91	327	106	114	169	53	113	1199	51	35	625	66	2949
PEAK HR. FACTOR:		0.762			0.894			0.976			0.885		0.912

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Mona Blvd

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: THURSDAY

PROJECT# 10-5148-031

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	1	1	2	0	1	2	0	
7:00 AM	9	18	13	5	10	12	9	70	3	1	93	9	252
7:15 AM	12	28	16	10	16	19	8	94	5	2	125	10	345
7:30 AM	16	52	19	20	40	20	14	120	13	6	176	13	509
7:45 AM	11	40	22	26	41	22	13	130	17	9	158	9	498
8:00 AM	9	18	19	18	30	21	13	108	5	11	147	6	405
8:15 AM	6	15	19	5	14	14	10	82	6	9	112	9	301
8:30 AM	5	25	9	9	16	18	9	86	3	6	102	8	296
8:45 AM	4	12	8	9	11	12	6	85	5	3	80	7	242

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	72	208	125	102	178	138	82	775	57	47	993	71	2848

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	48	138	76	74	127	82	48	452	40	28	606	38	1757
PEAK HR. FACTOR:		0.753			0.795			0.844			0.862		0.863

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Mona Blvd

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: THURSDAY

PROJECT# 10-5148-031

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	1	1	2	0	1	2	0	
4:00 PM	8	18	18	22	21	22	15	187	12	7	99	14	443
4:15 PM	2	24	10	17	22	17	20	190	14	9	94	17	436
4:30 PM	12	17	6	10	17	26	17	194	8	8	114	20	449
4:45 PM	13	24	14	11	23	23	17	215	8	11	82	10	451
5:00 PM	7	25	20	13	29	21	19	194	11	15	105	14	473
5:15 PM	10	28	13	15	34	16	12	203	19	8	102	10	470
5:30 PM	5	22	9	17	33	17	22	227	22	7	100	19	500
5:45 PM	8	23	14	21	28	20	19	192	29	8	92	8	462

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	65	181	104	126	207	162	141	1602	123	73	788	112	3684

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	30	98	56	66	124	74	72	816	81	38	399	51	1905
PEAK HR. FACTOR:		0.885			0.957			0.894			0.910		0.953

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Mona Blvd

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy

DAY: THURSDAY

PROJECT# 10-5148-030

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	1	0	1	0	1	3	0	1	3	0	
7:00 AM	49	6	24	7	10	31	7	159	24	18	359	3	697
7:15 AM	41	13	33	9	15	31	13	213	36	37	397	10	848
7:30 AM	41	15	42	4	27	28	13	191	26	38	435	7	867
7:45 AM	32	15	39	9	24	30	19	239	32	60	441	4	944
8:00 AM	36	10	27	3	25	19	19	188	48	50	382	8	815
8:15 AM	30	8	35	5	8	23	19	163	39	29	339	6	704
8:30 AM	34	13	33	3	8	17	12	204	46	29	293	5	697
8:45 AM	28	5	20	10	9	9	14	176	34	24	251	4	584

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	291	85	253	50	126	188	116	1533	285	285	2897	47	6156

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	150	53	141	25	91	108	64	831	142	185	1655	29	3474
PEAK HR. FACTOR:		0.878			0.889			0.894			0.925		0.920

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Mona Blvd DATE: 04/15/2010 LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy DAY: THURSDAY PROJECT# 10-5148-030

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	1	0	1	0	1	3	0	1	3	0	
4:00 PM	37	12	45	5	24	11	31	351	49	26	273	11	875
4:15 PM	41	19	41	12	18	15	26	383	48	43	245	8	899
4:30 PM	41	19	57	9	11	28	19	332	39	28	274	15	872
4:45 PM	34	12	41	4	12	20	36	408	59	28	235	7	896
5:00 PM	33	12	52	7	11	18	31	384	68	35	266	5	922
5:15 PM	46	19	49	15	12	20	36	384	61	38	290	9	979
5:30 PM	32	12	52	1	18	28	29	401	70	25	243	9	920
5:45 PM	40	16	55	7	13	23	32	428	53	50	223	9	949

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	304	121	392	60	119	163	240	3071	447	273	2049	73	7312

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	151	59	208	30	54	89	128	1597	252	148	1022	32	3770
PEAK HR. FACTOR:		0.917			0.920			0.963			0.892		0.963

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S Alameda St (E)

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: Martin Luther King Jr Blvd

DAY: WEDNESDAY

PROJECT# 10-5148-118

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	2	0	1	2	0	
7:00 AM	2	40	21	4	11	12	32	48	1	2	144	21	338
7:15 AM	1	55	15	8	22	19	32	40	0	2	189	34	417
7:30 AM	0	37	11	11	16	21	16	58	0	4	185	17	376
7:45 AM	1	36	11	13	16	6	10	61	2	4	172	9	341
8:00 AM	1	24	9	8	20	10	4	47	2	4	133	8	270
8:15 AM	1	11	14	4	14	3	5	43	3	1	124	5	228
8:30 AM	1	9	7	4	7	8	2	41	2	2	125	3	211
8:45 AM	1	5	2	1	3	5	7	58	1	1	88	8	180

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	8	217	90	53	109	84	108	396	11	20	1160	105	2361

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	4	168	58	36	65	58	90	207	3	12	690	81	1472
PEAK HR. FACTOR:		0.810			0.811			0.926			0.870		0.882

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S Alameda St (E)

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: Martin Luther King Jr Blvd

DAY: WEDNESDAY

PROJECT# 10-5148-118

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	2	0	1	2	0	
4:00 PM	0	23	15	8	10	11	6	76	5	2	87	4	247
4:15 PM	1	27	12	9	13	8	13	66	3	4	89	7	252
4:30 PM	1	33	19	4	14	21	10	78	3	3	85	7	278
4:45 PM	2	32	26	6	9	14	9	73	0	1	94	9	275
5:00 PM	0	25	24	13	11	16	8	74	0	2	113	9	295
5:15 PM	1	25	24	4	16	17	10	94	6	0	99	7	303
5:30 PM	0	18	27	8	8	13	9	63	1	0	107	5	259
5:45 PM	0	20	14	9	11	9	6	85	0	0	81	2	237

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	5	203	161	61	92	109	71	609	18	12	755	50	2146

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	4	115	93	27	50	68	37	319	9	6	391	32	1151
PEAK HR. FACTOR:		0.883			0.906			0.830			0.865		0.950

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S Alameda St (W) DATE: 04/13/2010 LOCATION: City of Los Angeles

E-W STREET: Compton Blvd DAY: TUESDAY PROJECT# 10-5148-019

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	12	85	3	12	87	9	14	63	8	4	94	24	415
7:15 AM	6	111	4	22	151	11	14	79	13	8	107	27	553
7:30 AM	16	97	6	30	189	18	17	94	14	3	157	29	670
7:45 AM	20	96	6	22	179	24	22	93	10	8	145	34	659
8:00 AM	19	98	11	25	161	18	21	130	7	13	127	25	655
8:15 AM	19	96	10	23	136	13	15	97	23	7	142	30	611
8:30 AM	11	84	12	22	138	18	13	80	23	4	105	15	525
8:45 AM	18	78	4	15	96	14	18	101	11	8	101	19	483

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	121	745	56	171	1137	125	134	737	109	55	978	203	4571

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	74	387	33	100	665	73	75	414	54	31	571	118	2595
PEAK HR. FACTOR:		0.965			0.884			0.859			0.952		0.968

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S Alameda St (W)　DATE: 04/13/2010　LOCATION: City of Los Angeles

E-W STREET: Compton Blvd　DAY: TUESDAY　PROJECT# 10-5148-019

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	18	146	15	22	134	18	25	167	23	5	106	32	711
4:15 PM	18	127	7	27	147	18	16	158	25	8	115	28	694
4:30 PM	31	138	13	28	142	16	24	165	12	9	144	27	749
4:45 PM	13	176	14	20	156	13	19	179	14	11	114	14	743
5:00 PM	11	139	11	25	153	14	26	142	14	8	120	23	686
5:15 PM	15	156	19	29	155	23	20	158	11	7	131	24	748
5:30 PM	21	162	17	22	130	8	16	143	10	8	96	19	652
5:45 PM	16	150	20	32	151	23	19	145	12	7	124	30	729
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	143	1194	116	205	1168	133	165	1257	121	63	950	197	5712

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	70	609	57	102	606	66	89	644	51	35	509	88	2926
PEAK HR. FACTOR:		0.906			0.935			0.925			0.878		0.977

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S Alameda St (W)

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: Martin Luther King Jr Blvd

DAY: WEDNESDAY

PROJECT# 10-5148-018

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	1	2	0	0	1	0	2	0	1	
7:00 AM		215	50	28	186	1	2	1	1	77	1	79	641
7:15 AM		206	48	26	226	0	0	0	0	113	3	95	717
7:30 AM		228	43	29	301	1	2	0	2	113	1	91	811
7:45 AM		230	34	41	243	0	1	0	1	86	3	91	730
8:00 AM		173	20	31	196	0	1	1	2	68	0	74	566
8:15 AM		193	21	27	198	0	1	4	3	40	0	90	577
8:30 AM		171	10	33	171	2	1	0	0	62	0	70	520
8:45 AM		240	28	40	215	1	0	1	1	46	0	50	622

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	1656	254	255	1736	5	8	7	10	605	8	640	5184

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	0	879	175	124	956	2	5	1	4	389	8	356	2899
PEAK HR. FACTOR:		0.972			0.817			0.625			0.892		0.894

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S Alameda St (W)

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: Martin Luther King Jr Blvd

DAY: WEDNESDAY

PROJECT# 10-5148-018

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	1	2	0	0	1	0	2	0	1	
4:00 PM		194	29	58	260	0	0	1	0	50	0	46	638
4:15 PM		198	31	46	259	2	0	3	0	38	1	60	638
4:30 PM		213	35	54	253	2	0	1	0	52	0	53	663
4:45 PM		249	40	36	254	0	0	4	1	42	2	66	694
5:00 PM		248	47	33	261	0	5	4	1	73	0	56	728
5:15 PM		244	48	56	300	0	2	5	1	76	1	39	772
5:30 PM		215	38	36	266	0	0	0	0	51	1	69	676
5:45 PM		246	41	49	248	0	0	0	0	42	0	47	673

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	1807	309	368	2101	4	7	18	3	424	5	436	5482

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	0	956	173	161	1081	0	7	13	3	242	4	230	2870
PEAK HR. FACTOR:		0.957			0.872			0.575			0.922		0.929

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S Alameda St
DATE: 04/14/2010
LOCATION: City of Los Angeles

E-W STREET: 103rd St
DAY: WEDNESDAY
PROJECT# 10-5148-017

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	2	0	0	1	0	0	0	0	
7:00 AM	17	256			199	34	64		12				582
7:15 AM	25	285			250	46	69		21				696
7:30 AM	19	287			297	62	77		23				765
7:45 AM	23	292			239	69	56		27				706
8:00 AM	13	223			216	57	64		22				595
8:15 AM	20	263			203	41	50		13				590
8:30 AM	17	205			204	42	45		13				526
8:45 AM	23	243			190	32	35		20				543

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	157	2054	0	0	1798	383	460	0	151	0	0	0	5003

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	80	1087	0	0	1002	234	266	0	93	0	0	0	2762
PEAK HR. FACTOR:		0.926			0.861			0.898			0.000		0.903

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S Alameda St
DATE: 04/14/2010
LOCATION: City of Los Angeles

E-W STREET: 103rd St
DAY: WEDNESDAY
PROJECT# 10-5148-017

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	2	0	0	1	0	0	0	0	
4:00 PM	29	237			271	59	65		24				685
4:15 PM	29	246			257	58	53		29				672
4:30 PM	24	264			272	62	67		27				716
4:45 PM	29	286			267	56	64		16				718
5:00 PM	38	280			276	58	59		24				735
5:15 PM	11	289			287	76	68		34				765
5:30 PM	26	270			292	65	73		28				754
5:45 PM	19	279			263	46	71		28				706

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	205	2151	0	0	2185	480	520	0	210	0	0	0	5751

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	104	1125	0	0	1122	255	264	0	102	0	0	0	2972
PEAK HR. FACTOR:		0.966			0.948			0.897			0.000		0.971

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S Alameda St (E)

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Compton Blvd

DAY: TUESDAY

PROJECT# 10-5148-119

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0	2	0	1	2	1	
7:00 AM	5	20	6	7	14	0	1	72	5	3	118	9	260
7:15 AM	5	21	5	2	28	2	0	94	11	2	133	11	314
7:30 AM	7	24	14	12	50	1	2	119	11	2	181	18	441
7:45 AM	12	42	15	11	40	3	2	105	12	5	172	17	436
8:00 AM	8	28	12	4	34	2	4	151	13	5	158	12	431
8:15 AM	8	27	18	1	23	3	4	118	6	3	165	6	382
8:30 AM	5	19	7	5	24	1	3	108	6	3	119	16	316
8:45 AM	4	21	18	6	27	0	1	108	8	8	123	7	331

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	54	202	95	48	240	12	17	875	72	31	1169	96	2911

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	35	121	59	28	147	9	12	493	42	15	676	53	1690
PEAK HR. FACTOR:		0.779			0.730			0.814			0.925		0.958

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S Alameda St (E)
DATE: 04/13/2010
LOCATION: City of Los Angeles

E-W STREET: Compton Blvd
DAY: TUESDAY
PROJECT# 10-5148-119

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0	2	0	1	2	1	
4:00 PM	5	16	12	5	13	5	6	197	3	5	133	6	406
4:15 PM	9	37	12	6	17	3	3	174	13	1	138	8	421
4:30 PM	5	20	10	7	16	3	4	196	9	4	172	4	450
4:45 PM	3	27	13	9	25	2	3	204	3	2	135	8	434
5:00 PM	6	25	13	6	28	7	5	166	4	4	136	2	402
5:15 PM	6	48	10	4	17	2	4	199	6	8	157	6	467
5:30 PM	4	32	14	8	13	4	3	173	3	4	112	2	372
5:45 PM	9	28	12	7	11	0	6	189	2	5	153	13	435

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	47	233	96	52	140	26	34	1498	43	33	1136	49	3387

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	20	120	46	26	86	14	16	765	22	18	600	20	1753
PEAK HR. FACTOR:		0.727			0.768			0.956			0.886		0.938

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S. Alameda St
DATE: 01/27/2010
LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd
DAY: WEDNESDAY
PROJECT# 10-5032-029

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	1	1	
7:00 AM	20	112	8	9	103	20	23	53	9	7	51	13	428
7:15 AM	33	159	8	13	131	20	36	66	20	15	69	24	594
7:30 AM	31	116	15	17	115	17	27	103	42	18	52	20	573
7:45 AM	18	106	12	22	120	16	26	66	32	8	66	22	514
8:00 AM	24	95	11	12	115	19	15	49	20	12	60	23	455
8:15 AM	21	115	14	13	95	14	22	53	20	10	36	15	428
8:30 AM	43	140	10	17	156	37	30	77	31	14	94	23	672
8:45 AM	57	188	11	13	171	32	36	88	35	17	76	20	744
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	247	1031	89	116	1006	175	215	555	209	101	504	160	4408

AM Peak Hr Begins at: 800 AM

PEAK VOLUMES =	145	538	46	55	537	102	103	267	106	53	266	81	2299
PEAK HR. FACTOR:		0.712			0.803			0.748			0.763		0.773

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S. Alameda St

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: WEDNESDAY

PROJECT# 10-5032-029

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	1	1	
4:00 PM	36	212	15	19	157	31	43	133	27	14	74	14	775
4:15 PM	27	176	8	29	165	27	47	132	50	6	78	22	767
4:30 PM	47	175	6	25	182	34	34	139	36	10	66	21	775
4:45 PM	37	162	12	25	183	24	57	152	39	9	73	22	795
5:00 PM	30	158	13	20	189	25	34	145	49	7	53	16	739
5:15 PM	37	190	9	27	160	34	43	150	48	16	83	15	812
5:30 PM	37	133	9	23	165	12	48	151	32	12	70	17	709
5:45 PM	25	150	14	30	171	28	58	156	52	9	68	14	775
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	276	1356	86	198	1372	215	364	1158	333	83	565	141	6147

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	151	685	40	97	714	117	168	586	172	42	275	74	3121
PEAK HR. FACTOR:		0.928			0.963			0.933			0.857		0.961

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S. Alameda St

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy

DAY: WEDNESDAY

PROJECT# 10-5032-028

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	1	2	3	0	1	3	1	
7:00 AM	37	118	15	11	110	101	107	54	27	16	258	8	862
7:15 AM	57	173	19	22	125	167	112	88	34	11	267	16	1091
7:30 AM	35	147	21	19	176	141	102	126	43	43	313	4	1170
7:45 AM	47	170	28	26	152	127	108	93	37	34	268	15	1105
8:00 AM	40	122	11	21	128	110	61	93	25	33	204	20	868
8:15 AM	50	129	16	21	122	124	79	83	35	26	164	23	872
8:30 AM	40	70	11	23	86	103	81	96	25	22	165	14	736
8:45 AM	38	123	15	25	100	92	71	85	39	24	127	11	750
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	344	1052	136	168	999	965	721	718	265	209	1766	111	7454

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	179	612	79	88	581	545	383	400	139	121	1052	55	4234
PEAK HR. FACTOR:		0.873			0.903			0.851			0.853		0.905

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: S. Alameda St

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy

DAY: WEDNESDAY

PROJECT# 10-5032-028

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	1	2	3	0	1	3	1	
4:00 PM	63	189	29	26	153	90	117	258	35	17	138	12	1127
4:15 PM	49	194	37	37	164	100	110	263	32	37	160	13	1196
4:30 PM	44	175	34	33	185	124	109	253	31	25	128	13	1154
4:45 PM	64	192	33	37	167	124	116	347	44	26	176	13	1339
5:00 PM	34	154	48	37	180	116	117	260	31	22	129	10	1138
5:15 PM	69	183	32	51	173	122	118	332	50	20	196	11	1357
5:30 PM	41	162	35	41	174	110	114	282	52	31	152	12	1206
5:45 PM	30	161	51	32	169	95	114	299	48	27	154	14	1194
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	394	1410	299	294	1365	881	915	2294	323	205	1233	98	9711

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	208	691	148	166	694	472	465	1221	177	99	653	46	5040
PEAK HR. FACTOR:		0.906			0.962			0.919			0.879		0.929

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: San Pedro St	DATE: 04/15/2010	LOCATION: City of Los Angeles	
E-W STREET: 120th St	DAY: THURSDAY	PROJECT# 10-5148-002	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	1	1	0	1	1	0	
7:00 AM	13	51	16	10	43	18	8	58	8	9	43	8	285
7:15 AM	9	38	11	13	55	19	4	91	13	8	52	14	327
7:30 AM	14	66	22	9	59	27	6	107	17	14	83	12	436
7:45 AM	19	61	12	9	90	25	5	138	23	9	76	13	480
8:00 AM	15	53	18	6	64	20	10	94	13	14	65	13	385
8:15 AM	9	32	0	5	42	12	8	66	8	5	57	7	251
8:30 AM	3	31	9	3	36	7	5	60	13	10	53	9	239
8:45 AM	12	31	7	3	26	8	5	59	6	6	51	2	216

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	94	363	95	58	415	136	51	673	101	75	480	78	2619

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	57	218	63	37	268	91	25	430	66	45	276	52	1628
PEAK HR. FACTOR:		0.828			0.798			0.785			0.856		0.848

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: San Pedro St

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: 120th St

DAY: THURSDAY

PROJECT# 10-5148-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	1	1	0	1	1	0	
4:00 PM	18	67	9	6	63	24	5	69	9	16	84	8	378
4:15 PM	14	61	13	4	62	27	10	72	18	9	105	13	408
4:30 PM	20	65	9	11	69	23	11	81	20	22	124	5	460
4:45 PM	17	59	8	5	66	31	9	71	16	10	118	14	424
5:00 PM	14	52	8	7	73	27	10	69	14	16	95	7	392
5:15 PM	18	44	8	8	54	20	14	74	12	17	112	9	390
5:30 PM	17	51	10	8	63	16	10	66	23	9	98	6	377
5:45 PM	14	39	13	3	59	20	7	66	12	9	101	7	350

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	132	438	78	52	509	188	76	568	124	108	837	69	3179

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	65	237	38	27	270	108	40	293	68	57	442	39	1684
PEAK HR. FACTOR:		0.904			0.946			0.895			0.891		0.915

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: San Pedro St

DATE: 04/15/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: THURSDAY

PROJECT# 10-5148-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
7:00 AM	23	24	11	7	29	28	15	92	6	6	185	14	440
7:15 AM	29	35	9	16	34	34	17	95	13	11	214	23	530
7:30 AM	26	40	15	12	48	30	16	119	19	28	275	10	638
7:45 AM	26	64	22	22	47	44	28	126	19	35	247	11	691
8:00 AM	24	42	17	21	39	21	18	115	10	27	229	18	581
8:15 AM	22	31	11	18	28	26	11	109	16	14	188	13	487
8:30 AM	21	21	6	12	25	18	10	109	10	9	173	10	424
8:45 AM	25	24	8	5	26	20	17	101	12	7	138	8	391

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	196	281	99	113	276	221	132	866	105	137	1649	107	4182

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	105	181	63	71	168	129	79	455	61	101	965	62	2440
PEAK HR. FACTOR:		0.779			0.814			0.860			0.901		0.883

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET:	San Pedro St	DATE:	04/15/2010	LOCATION:	City of Los Angeles
E-W STREET:	El Segundo Blvd	DAY:	THURSDAY	PROJECT#	10-5148-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
4:00 PM	10	40	15	19	49	28	28	287	19	23	124	24	666
4:15 PM	18	50	13	28	40	20	29	270	18	11	157	32	686
4:30 PM	22	66	14	21	38	24	24	309	14	15	146	29	722
4:45 PM	19	42	10	23	50	27	32	310	25	10	112	25	685
5:00 PM	22	58	9	13	36	23	19	296	17	14	153	15	675
5:15 PM	19	55	8	16	35	17	29	309	20	7	146	18	679
5:30 PM	12	47	16	21	39	15	25	285	19	10	145	19	653
5:45 PM	18	44	16	16	26	10	28	282	14	7	141	21	623

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	140	402	101	157	313	164	214	2348	146	97	1124	183	5389

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	81	216	46	85	164	94	104	1185	74	50	568	101	2768
PEAK HR. FACTOR:		0.841			0.858			0.928			0.899		0.958

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET:	Slater Ave	DATE:	04/14/2010	LOCATION:	City of Los Angeles
E-W STREET:	El Segundo Blvd	DAY:	WEDNESDAY	PROJECT#	10-5148-023

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	1	0	1	2	0	0	2	0	
7:00 AM				3		14	6	98			178	2	301
7:15 AM				7		13	7	138			272	3	440
7:30 AM				9		21	19	233			344	3	629
7:45 AM				7		43	24	273			377	4	728
8:00 AM				4		21	9	180			245	5	464
8:15 AM				2		9	7	140			182	6	346
8:30 AM				3		8	5	118			165	0	299
8:45 AM				3		5	2	84			117	3	214

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	38	0	134	79	1264	0	0	1880	26	3421

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	0	0	0	27	0	98	59	824	0	0	1238	15	2261
PEAK HR. FACTOR:		0.000			0.625			0.743			0.822		0.776

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Slater Ave

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: WEDNESDAY

PROJECT# 10-5148-023

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	1	0	1	2	0	0	2	0	
4:00 PM				5		6	5	271			137	2	426
4:15 PM				2		11	15	287			157	3	475
4:30 PM				0		15	14	292			138	3	462
4:45 PM				2		3	12	293			133	3	446
5:00 PM				3		12	8	329			138	2	492
5:15 PM				5		17	14	312			152	5	505
5:30 PM				4		12	9	298			136	2	461
5:45 PM				3		10	15	310			135	6	479

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	24	0	86	92	2392	0	0	1126	26	3746

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	0	0	0	15	0	51	46	1249	0	0	561	15	1937
PEAK HR. FACTOR:		0.000			0.750			0.961			0.917		0.959

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Success Ave-Slater Ave

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: 120th St

DAY: WEDNESDAY

PROJECT# 10-5148-022

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
7:00 AM	3	0	1	3	4	3	4	61	1	2	78	4	164
7:15 AM	3	5	1	3	3	7	7	105	0	2	128	6	270
7:30 AM	10	9	2	16	6	17	16	109	1	5	158	6	355
7:45 AM	7	14	8	6	11	4	6	127	4	9	214	17	427
8:00 AM	5	17	2	13	10	10	5	70	2	3	103	9	249
8:15 AM	4	2	1	3	3	1	1	61	2	6	71	3	158
8:30 AM	1	0	2	0	2	2	2	40	2	2	67	6	126
8:45 AM	3	2	3	1	0	1	0	31	1	1	56	3	102

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	36	49	20	45	39	45	41	604	13	30	875	54	1851

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	25	45	13	38	30	38	34	411	7	19	603	38	1301
PEAK HR. FACTOR:		0.716			0.679			0.825			0.688		0.762

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Success Ave-Slater Ave
DATE: 04/14/2010
LOCATION: City of Los Angeles

E-W STREET: 120th St
DAY: WEDNESDAY
PROJECT# 10-5148-022

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
4:00 PM	2	3	2	2	1	12	5	118	9	3	91	3	251
4:15 PM	3	4	5	5	3	8	7	93	3	5	100	5	241
4:30 PM	2	2	5	7	3	6	2	102	2	1	125	1	258
4:45 PM	3	2	3	4	3	5	5	123	3	2	103	2	258
5:00 PM	1	2	3	2	3	10	14	161	2	4	123	4	329
5:15 PM	3	2	5	5	3	12	8	128	4	4	93	1	268
5:30 PM	3	4	3	4	5	11	5	122	4	1	88	5	255
5:45 PM	6	4	4	4	7	5	5	115	6	4	76	7	243

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	23	23	30	33	28	69	51	962	33	24	799	28	2103

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	9	8	16	18	12	33	29	514	11	11	444	8	1113
PEAK HR. FACTOR:		0.825			0.788			0.782			0.884		0.846

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (E)

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: 119th St

DAY: TUESDAY

PROJECT# 10-5032-022

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	1	0	1	1	0	
7:00 AM	13	6	10	2	6	6	5	21	17	3	26	0	115
7:15 AM	16	2	4	1	8	18	6	23	19	2	41	0	140
7:30 AM	8	10	12	1	17	15	9	26	23	5	40	2	168
7:45 AM	20	9	9	1	8	18	12	30	27	8	53	0	195
8:00 AM	15	21	10	1	3	5	11	27	21	5	28	1	148
8:15 AM	14	2	9	2	0	6	7	25	10	1	19	0	95
8:30 AM	10	1	7	1	1	9	9	26	14	3	17	1	99
8:45 AM	9	1	3	1	1	8	5	18	10	0	16	0	72
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	105	52	64	10	44	85	64	196	141	27	240	4	1032

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	59	42	35	4	36	56	38	106	90	20	162	3	651
PEAK HR. FACTOR:		0.739			0.727			0.848			0.758		0.835

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (E)

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: 119th St

DAY: TUESDAY

PROJECT# 10-5032-022

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	1	0	1	1	0	
4:00 PM	28	7	11	2	3	4	21	46	21	3	21	1	168
4:15 PM	22	2	8	3	4	8	18	48	14	5	22	0	154
4:30 PM	25	17	4	0	4	12	18	53	36	6	26	0	201
4:45 PM	18	7	9	2	9	18	7	54	24	6	31	1	186
5:00 PM	16	2	7	1	5	4	16	58	27	0	29	0	165
5:15 PM	18	3	5	1	7	22	15	55	23	2	36	0	187
5:30 PM	18	3	9	1	6	10	15	40	29	5	25	0	161
5:45 PM	8	5	6	1	1	12	10	46	34	4	24	1	152
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	153	46	59	11	39	90	120	400	208	31	214	3	1374

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	77	29	25	4	25	56	56	220	110	14	122	1	739
PEAK HR. FACTOR:		0.712			0.708			0.902			0.901		0.919

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (E)
DATE: 01/27/2010
LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd
DAY: WEDNESDAY
PROJECT# 10-5032-024

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0	2	1	1	2	0	
7:00 AM	5	10	6	6	11	2	0	62	1	5	94	10	212
7:15 AM	3	9	8	8	9	2	0	94	7	4	129	6	279
7:30 AM	5	21	7	8	25	9	0	97	5	10	174	12	373
7:45 AM	7	31	6	19	29	9	1	136	6	8	189	14	455
8:00 AM	5	21	14	9	19	6	0	138	3	4	105	5	329
8:15 AM	4	10	14	7	11	0	1	111	4	4	94	6	266
8:30 AM	2	7	5	2	8	4	0	67	4	7	104	8	218
8:45 AM	2	8	9	3	7	2	1	88	5	3	63	6	197
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	33	117	69	62	119	34	3	793	35	45	952	67	2329

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	20	82	35	44	82	26	1	465	21	26	597	37	1436
PEAK HR. FACTOR:		0.778			0.667			0.851			0.782		0.789

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (E)

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: WEDNESDAY

PROJECT# 10-5032-024

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0	2	1	1	2	0	
4:00 PM	3	21	9	12	14	6	2	174	0	15	94	13	363
4:15 PM	0	22	8	11	11	6	1	198	7	9	116	11	400
4:30 PM	3	14	14	18	24	2	0	181	7	12	112	11	398
4:45 PM	5	29	8	9	20	5	0	205	16	14	113	19	443
5:00 PM	7	15	13	17	17	2	0	202	6	13	84	5	381
5:15 PM	8	17	14	8	21	5	2	224	14	14	134	13	474
5:30 PM	3	18	10	19	21	5	0	198	10	20	97	9	410
5:45 PM	8	12	12	18	15	6	0	237	9	14	111	11	453
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	37	148	88	112	143	37	5	1619	69	111	861	92	3322

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	26	62	49	62	74	18	2	861	39	61	426	38	1718
PEAK HR. FACTOR:		0.878			0.856			0.917			0.815		0.906

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (E) DATE: 01/27/2010 LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave DAY: WEDNESDAY PROJECT# 10-5032-026

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	2	0	1	2	0	
7:00 AM	6	9	3	27	11	6	6	151	11	6	170	9	415
7:15 AM	8	3	4	21	15	8	6	176	13	5	251	14	524
7:30 AM	15	5	5	49	21	22	11	199	5	6	318	16	672
7:45 AM	7	6	6	29	21	33	18	223	6	11	330	33	723
8:00 AM	9	2	4	31	9	17	31	236	12	10	242	29	632
8:15 AM	2	7	4	18	13	11	19	169	12	4	230	18	507
8:30 AM	5	4	4	22	16	13	11	204	10	9	184	17	499
8:45 AM	3	4	5	22	2	5	7	138	5	4	179	21	395
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	55	40	35	219	108	115	109	1496	74	55	1904	157	4367

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	39	16	19	130	66	80	66	834	36	32	1141	92	2551
PEAK HR. FACTOR:		0.740			0.750			0.839			0.846		0.882

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (E)

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave

DAY: WEDNESDAY

PROJECT# 10-5032-026

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	2	0	1	2	0	
4:00 PM	11	1	6	27	12	7	17	292	7	7	223	22	632
4:15 PM	3	5	6	29	8	14	22	327	3	3	224	29	673
4:30 PM	2	3	2	38	18	17	24	335	12	5	208	27	691
4:45 PM	7	3	3	27	11	7	19	339	6	5	238	29	694
5:00 PM	4	4	9	25	16	8	25	317	13	5	231	24	681
5:15 PM	10	3	1	28	15	15	25	352	12	6	200	31	698
5:30 PM	9	2	3	33	10	16	30	331	13	7	204	26	684
5:45 PM	5	5	3	28	8	13	22	310	13	5	212	28	652
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	51	26	33	235	98	97	184	2603	79	43	1740	216	5405

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	23	13	15	118	60	47	93	1343	43	21	877	111	2764
PEAK HR. FACTOR:		0.750			0.771			0.951			0.927		0.990

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (W)

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: 119th St

DAY: TUESDAY

PROJECT# 10-5032-021

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	2	0	0	1	0	0	1	0	
7:00 AM	20		7	0	2	8		39	7	1	44		128
7:15 AM	29		5	1	3	9		44	6	2	75		174
7:30 AM	39		7	0	1	10		49	22	3	57		188
7:45 AM	37		8	1	5	7		60	11	1	90		220
8:00 AM	13		2	0	0	8		53	16	2	48		142
8:15 AM	18		5	1	1	9		37	15	2	45		133
8:30 AM	20		1	0	0	5		48	9	2	36		121
8:45 AM	13		4	0	0	5		27	3	1	31		84
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	189	0	39	3	12	61	0	357	89	14	426	0	1190

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	118	0	22	2	9	34	0	206	55	8	270	0	724
PEAK HR. FACTOR:		0.761			0.865			0.919			0.764		0.823

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (W) DATE: 02/02/2010 LOCATION: City of Los Angeles

E-W STREET: 119th St DAY: TUESDAY PROJECT# 10-5032-021

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	2	0	0	1	0	0	1	0	
4:00 PM	18		2	2	5	8		86	25	7	52		205
4:15 PM	25		5	0	4	7		71	15	4	50		181
4:30 PM	19		13	0	6	9		100	14	8	59		228
4:45 PM	20		3	2	6	11		70	21	4	63		200
5:00 PM	29		7	0	5	11		108	18	5	44		227
5:15 PM	33		3	0	4	9		93	12	5	70		229
5:30 PM	24		3	0	4	15		86	22	1	57		212
5:45 PM	23		7	0	7	13		76	14	2	36		178
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	191	0	43	4	41	83	0	690	141	36	431	0	1660

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	101	0	26	2	21	40	0	371	65	22	236	0	884
PEAK HR. FACTOR:		0.882			0.829			0.865			0.860		0.965

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (W)
DATE: 01/27/2010
LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd
DAY: WEDNESDAY
PROJECT# 10-5032-023

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	2	1	0	2	1	
7:00 AM	5	23	1	3	13	3	2	60	6		103	4	223
7:15 AM	13	37	2	5	26	4	2	93	14		125	7	328
7:30 AM	14	44	5	8	34	7	11	91	16		176	6	412
7:45 AM	20	52	2	12	45	16	14	135	34		190	21	541
8:00 AM	17	27	2	4	29	4	13	139	20		114	3	372
8:15 AM	13	19	2	6	24	8	6	94	10		91	7	280
8:30 AM	9	17	1	7	15	3	4	71	9		104	13	253
8:45 AM	2	20	5	4	13	1	2	77	14		65	5	208
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	93	239	20	49	199	46	54	760	123	0	968	66	2617

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	64	160	11	29	134	31	40	458	84	0	605	37	1653
PEAK HR. FACTOR:		0.794			0.664			0.795			0.761		0.764

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (W)

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd

DAY: WEDNESDAY

PROJECT# 10-5032-023

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	2	1	0	2	1	
4:00 PM	5	20	3	7	32	4	4	174	23		98	11	381
4:15 PM	9	35	3	4	19	6	5	198	10		114	6	409
4:30 PM	5	22	0	7	27	4	8	187	15		121	7	403
4:45 PM	10	18	1	7	33	12	5	210	16		108	9	429
5:00 PM	5	26	1	3	24	3	11	204	23		79	7	386
5:15 PM	15	35	3	4	22	5	10	230	13		134	7	478
5:30 PM	13	20	5	3	21	9	3	199	17		89	9	388
5:45 PM	10	30	1	6	28	2	5	232	20		121	13	468
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	72	206	17	41	206	45	51	1634	137	0	864	69	3342

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	43	111	10	16	95	19	29	865	73	0	423	36	1720
PEAK HR. FACTOR:		0.774			0.903			0.941			0.814		0.900

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (W)

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave

DAY: WEDNESDAY

PROJECT# 10-5032-025

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
7:00 AM	3	16	5	19	18	4	0	138	2	8	163	14	390
7:15 AM	1	21	5	21	23	11	0	154	0	11	214	31	492
7:30 AM	5	23	13	34	24	8	6	168	4	16	295	41	637
7:45 AM	6	26	22	20	33	11	6	208	8	9	314	48	711
8:00 AM	5	26	25	44	27	5	10	196	5	9	224	22	598
8:15 AM	6	25	23	19	21	5	7	176	5	8	220	19	534
8:30 AM	3	15	13	18	14	8	1	185	5	8	190	12	472
8:45 AM	4	15	9	18	22	7	8	127	7	13	157	11	398
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	33	167	115	193	182	59	38	1352	36	82	1777	198	4232

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	22	100	83	117	105	29	29	748	22	42	1053	130	2480
PEAK HR. FACTOR:		0.915			0.826			0.900			0.825		0.872

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Willowbrook Ave (W)

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave

DAY: WEDNESDAY

PROJECT# 10-5032-025

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
4:00 PM	4	23	24	21	13	15	9	284	9	8	221	14	645
4:15 PM	9	27	24	35	18	5	1	295	6	16	205	14	655
4:30 PM	5	18	29	31	19	4	1	314	5	9	215	9	659
4:45 PM	3	26	26	21	14	6	3	332	4	6	235	16	692
5:00 PM	9	29	25	33	18	9	4	285	7	8	235	11	673
5:15 PM	9	25	22	34	13	8	7	348	8	21	212	5	712
5:30 PM	3	37	27	20	16	7	7	309	6	5	191	18	646
5:45 PM	6	14	16	24	13	3	4	296	3	8	213	13	613
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	48	199	193	219	124	57	36	2463	48	81	1727	100	5295

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	26	98	102	119	64	27	15	1279	24	44	897	41	2736
PEAK HR. FACTOR:		0.897			0.875			0.908			0.955		0.961

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave
DATE: 04/13/2010
LOCATION: City of Los Angeles

E-W STREET: 103rd St
DAY: TUESDAY
PROJECT# 10-5148-010

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	1	0	1	1	0	
7:00 AM	19	82	9	12	78	8	9	39	11	10	37	9	323
7:15 AM	29	89	17	15	92	6	10	58	17	20	52	12	417
7:30 AM	48	112	20	24	94	20	13	54	23	22	81	9	520
7:45 AM	43	120	20	23	108	18	28	85	29	24	109	27	634
8:00 AM	43	92	35	21	71	11	13	79	24	31	81	26	527
8:15 AM	23	59	16	9	57	6	2	42	19	25	55	13	326
8:30 AM	26	63	16	7	45	8	6	38	17	16	52	9	303
8:45 AM	29	65	15	17	45	6	4	36	18	11	48	11	305

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	260	682	148	128	590	83	85	431	158	159	515	116	3355

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	163	413	92	83	365	55	64	276	93	97	323	74	2098
PEAK HR. FACTOR:		0.913			0.844			0.762			0.772		0.827

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: 103rd St

DAY: TUESDAY

PROJECT# 10-5148-010

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	1	0	1	1	0	
4:00 PM	38	78	27	13	74	8	13	63	29	16	78	14	451
4:15 PM	40	92	20	14	71	10	10	47	28	21	60	10	423
4:30 PM	32	75	23	26	75	10	9	72	44	16	55	7	444
4:45 PM	51	76	22	11	78	8	14	55	33	18	53	11	430
5:00 PM	37	89	24	17	72	11	10	67	31	15	60	10	443
5:15 PM	31	87	30	29	74	14	4	59	32	16	68	14	458
5:30 PM	29	96	18	15	72	10	6	74	42	17	49	9	437
5:45 PM	33	97	26	26	90	10	11	61	34	23	60	14	485

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	291	690	190	151	606	81	77	498	273	142	483	89	3571

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	130	369	98	87	308	45	31	261	139	71	237	47	1823
PEAK HR. FACTOR:		0.957			0.873			0.883			0.906		0.940

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: 111th St

DAY: TUESDAY

PROJECT# 10-5148-011

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	0	93	8	5	122	0		0	1	5	0	4	238
7:15 AM	3	98	7	8	193	0		3	1	12	5	11	341
7:30 AM	3	134	18	17	187	1		12	6	16	13	12	419
7:45 AM	4	145	19	13	148	1		11	4	20	7	13	385
8:00 AM	0	139	27	19	132	1		8	1	21	2	18	368
8:15 AM	8	97	10	1	100	0		2	2	8	1	9	238
8:30 AM	4	116	5	1	122	2		2	5	6	0	7	270
8:45 AM	4	114	3	2	100	0		0	0	10	2	4	239

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	26	936	97	66	1104	5	0	38	20	98	30	78	2498

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	10	516	71	57	660	3	0	34	12	69	27	54	1513
PEAK HR. FACTOR:		0.888			0.878			0.639			0.915		0.903

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: 111th St

DAY: TUESDAY

PROJECT# 10-5148-011

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
4:00 PM	6	169	5	5	125	0	3	4	15	8	3	13	356
4:15 PM	3	157	10	7	131	2	0	5	5	5	0	8	333
4:30 PM	4	157	13	5	121	1	1	1	6	8	0	5	322
4:45 PM	5	182	4	5	132	0	1	1	6	9	2	2	349
5:00 PM	4	175	15	3	125	1	0	3	4	6	3	4	343
5:15 PM	4	150	13	6	138	0	1	5	2	6	3	15	343
5:30 PM	2	163	10	8	127	1	1	3	3	8	5	11	342
5:45 PM	3	187	7	5	131	1	1	1	5	7	5	12	365

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	31	1340	77	44	1030	6	8	23	46	57	21	70	2753

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	13	675	45	22	521	3	3	12	14	27	16	42	1393
PEAK HR. FACTOR:		0.930			0.948			0.906			0.885		0.954

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave DATE: 02/02/2010 LOCATION: City of Los Angeles

E-W STREET: 118th St DAY: TUESDAY PROJECT# 10-5032-016

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	2	2	0	0	1	0	0	1	0	
7:00 AM	5	238	11	18	196	10	8	5	7	8	5	11	522
7:15 AM	8	223	8	17	211	19	15	6	13	9	5	7	541
7:30 AM	25	231	8	27	269	13	26	5	32	6	8	18	668
7:45 AM	47	222	11	24	304	22	26	5	38	8	8	17	732
8:00 AM	21	201	18	30	281	20	17	17	35	9	6	25	680
8:15 AM	8	173	14	25	227	19	4	8	10	14	7	27	536
8:30 AM	11	150	11	18	192	11	6	5	7	5	2	21	439
8:45 AM	6	144	18	28	176	17	2	8	2	9	7	15	432
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	131	1582	99	187	1856	131	104	59	144	68	48	141	4550

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	101	877	45	98	1065	74	84	33	118	32	27	67	2621
PEAK HR. FACTOR:		0.913			0.884			0.851			0.788		0.895

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: 118th St

DAY: TUESDAY

PROJECT# 10-5032-016

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	2	2	0	0	1	0	0	1	0	
4:00 PM	15	230	26	38	171	17	19	17	10	22	12	40	617
4:15 PM	7	224	28	48	159	11	19	20	17	13	10	35	591
4:30 PM	15	299	25	47	161	14	25	15	19	19	13	51	703
4:45 PM	14	279	42	40	188	9	25	24	14	20	15	45	715
5:00 PM	6	224	19	44	147	9	34	21	12	25	13	39	593
5:15 PM	12	276	31	46	157	4	9	12	9	15	15	53	639
5:30 PM	11	209	57	47	159	6	12	15	16	26	12	43	613
5:45 PM	4	214	32	37	186	2	14	14	9	17	10	41	580
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	84	1955	260	347	1328	72	157	138	106	157	100	347	5051

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	47	1078	117	177	653	36	93	72	54	79	56	188	2650
PEAK HR. FACTOR:		0.916			0.914			0.817			0.973		0.927

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: 120th St-119th St

DAY: TUESDAY

PROJECT# 10-5032-017

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	1	1	1	2	0	
7:00 AM	24	195	6	34	132	43	24	18	9	9	29	32	555
7:15 AM	32	168	8	27	149	59	27	23	19	16	52	46	626
7:30 AM	31	187	8	33	173	98	33	36	22	21	67	43	752
7:45 AM	38	213	8	35	216	101	31	37	26	24	70	38	837
8:00 AM	36	179	17	42	209	71	25	27	17	14	44	33	714
8:15 AM	15	145	10	28	175	51	18	23	27	19	32	35	578
8:30 AM	20	139	9	19	153	29	16	21	14	12	31	20	483
8:45 AM	16	123	8	15	130	45	20	20	21	16	30	28	472
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	212	1349	74	233	1337	497	194	205	155	131	355	275	5017

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	137	747	41	137	747	329	116	123	84	75	233	160	2929
PEAK HR. FACTOR:		0.893			0.862			0.859			0.886		0.875

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: 120th St-119th St

DAY: TUESDAY

PROJECT# 10-5032-017

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	1	1	1	2	0	
4:00 PM	21	172	29	19	148	30	67	57	38	25	35	25	666
4:15 PM	19	195	19	23	156	16	43	50	25	22	31	28	627
4:30 PM	37	222	29	21	153	18	76	71	46	23	43	34	773
4:45 PM	27	228	38	21	184	15	63	57	51	31	38	38	791
5:00 PM	17	171	33	27	138	16	51	81	39	19	49	32	673
5:15 PM	18	219	16	17	146	16	53	60	29	35	35	45	689
5:30 PM	17	204	20	31	145	23	49	62	25	24	49	27	676
5:45 PM	23	166	24	30	158	23	47	55	31	35	42	33	667
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	179	1577	208	189	1228	157	449	493	284	214	322	262	5562

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	99	840	116	86	621	65	243	269	165	108	165	149	2926
PEAK HR. FACTOR:		0.900			0.877			0.877			0.917		0.925

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: 124th St

DAY: WEDNESDAY

PROJECT# 10-5148-029

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	0	1	0	0	1	0	
7:00 AM	2	182	4	8	97	2	2	1	0	8	3	17	326
7:15 AM	3	195	3	13	155	1	3	7	1	8	6	15	410
7:30 AM	5	217	9	15	176	4	6	13	5	19	21	12	502
7:45 AM	9	243	14	13	197	7	1	9	15	13	30	22	573
8:00 AM	4	158	10	19	176	6	3	8	5	14	12	16	431
8:15 AM	7	160	7	15	157	5	3	5	5	6	4	15	389
8:30 AM	6	160	7	5	136	1	0	2	3	8	10	16	354
8:45 AM	3	129	3	14	145	4	3	7	3	7	5	11	334

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	39	1444	57	102	1239	30	21	52	37	83	91	124	3319

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	21	813	36	60	704	18	13	37	26	54	69	65	1916
PEAK HR. FACTOR:		0.818			0.901			0.760			0.723		0.836

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/14/2010

LOCATION: City of Los Angeles

E-W STREET: 124th St

DAY: WEDNESDAY

PROJECT# 10-5148-029

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	0	1	0	0	1	0	
4:00 PM	5	185	8	14	151	8	2	9	7	12	6	8	415
4:15 PM	3	195	5	13	153	4	4	11	6	8	3	18	423
4:30 PM	5	186	14	19	161	8	6	3	3	9	10	10	434
4:45 PM	5	188	11	15	173	3	3	11	6	7	5	6	433
5:00 PM	9	199	10	20	179	8	4	6	6	1	8	17	467
5:15 PM	8	203	8	17	149	2	3	9	4	7	6	12	428
5:30 PM	3	199	5	19	166	5	4	7	7	13	4	13	445
5:45 PM	5	176	8	10	165	7	5	11	4	9	6	11	417

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	43	1531	69	127	1297	45	31	67	43	66	48	95	3462

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	25	789	34	71	667	18	14	33	23	28	23	48	1773
PEAK HR. FACTOR:		0.968			0.913			0.875			0.825		0.949

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Alondra Blvd

DAY: TUESDAY

PROJECT# 10-5148-013

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	2	105	12	7	141	14	8	48	20	18	91	14	480
7:15 AM	9	127	9	11	175	12	12	79	14	17	83	17	565
7:30 AM	16	116	18	32	178	22	27	94	16	34	133	24	710
7:45 AM	15	166	14	21	200	17	17	121	11	26	110	19	737
8:00 AM	19	151	12	23	164	14	16	108	8	22	103	15	655
8:15 AM	14	125	8	21	132	24	10	87	9	17	98	12	557
8:30 AM	13	106	10	17	127	19	12	62	10	10	74	10	470
8:45 AM	11	118	16	10	110	17	11	55	13	8	56	9	434

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	99	1014	99	142	1227	139	113	654	101	152	748	120	4608

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	59	560	53	87	717	65	72	402	49	99	429	75	2667
PEAK HR. FACTOR:		0.862			0.913			0.878			0.789		0.905

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave DATE: 04/13/2010 LOCATION: City of Los Angeles

E-W STREET: Alondra Blvd DAY: TUESDAY PROJECT# 10-5148-013

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	16	173	20	36	127	20	31	132	19	33	76	29	712
4:15 PM	21	143	15	30	106	24	39	149	22	25	99	37	710
4:30 PM	15	164	28	27	136	22	27	134	23	22	85	17	700
4:45 PM	19	167	22	21	128	22	48	128	33	27	77	25	717
5:00 PM	22	185	17	21	145	25	31	111	22	19	104	31	733
5:15 PM	19	162	21	27	107	17	33	187	18	23	106	28	748
5:30 PM	19	174	17	22	122	20	24	136	19	18	80	26	677
5:45 PM	20	168	11	33	110	22	36	145	18	25	88	29	705

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	151	1336	151	217	981	172	269	1122	174	192	715	222	5702

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	75	678	88	96	516	86	139	560	96	91	372	101	2898
PEAK HR. FACTOR:		0.939			0.914			0.835			0.898		0.969

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Artesia Blvd (N)

DAY: TUESDAY

PROJECT# 10-5148-015

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	2	1	0	0	0	1.5	1	0.5	
7:00 AM	62	83			161	52				128	83	47	616
7:15 AM	59	115			217	77				143	74	75	760
7:30 AM	65	116			221	70				185	77	68	802
7:45 AM	63	116			214	55				188	81	101	818
8:00 AM	57	100			144	56				156	101	73	687
8:15 AM	50	102			130	27				188	77	66	640
8:30 AM	54	82			131	44				138	63	68	580
8:45 AM	61	79			126	28				183	63	72	612

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	471	793	0	0	1344	409	0	0	0	1309	619	570	5515

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	244	447	0	0	796	258	0	0	0	672	333	317	3067
PEAK HR. FACTOR:		0.954			0.896			0.000			0.893		0.937

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET:	Wilmington Ave	DATE:	04/13/2010	LOCATION:	City of Los Angeles
E-W STREET:	Artesia Blvd (N)	DAY:	TUESDAY	PROJECT#	10-5148-015

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	2	1	0	0	0	1.5	1	0.5	
4:00 PM	109	151			114	54				81	45	83	637
4:15 PM	92	129			119	51				101	31	95	618
4:30 PM	118	149			130	69				90	41	98	695
4:45 PM	101	149			136	65				132	38	89	710
5:00 PM	123	173			146	53				92	41	66	694
5:15 PM	130	209			130	59				117	48	87	780
5:30 PM	111	105			126	52				73	25	91	583
5:45 PM	89	106			140	61				101	44	116	657

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	873	1171	0	0	1041	464	0	0	0	787	313	725	5374

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	472	680	0	0	542	246	0	0	0	431	168	340	2879
PEAK HR. FACTOR:		0.850			0.980			0.000			0.906		0.923

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Artesia Blvd (S)

DAY: TUESDAY

PROJECT# 10-5148-016

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	2	2	2	0	1.5	1	0.5	0	0	0	
7:00 AM		88	108	124	168		62	27	102				679
7:15 AM		112	96	137	219		56	26	82				728
7:30 AM		107	83	133	275		79	21	100				798
7:45 AM		89	79	117	282		85	18	159				829
8:00 AM		89	98	94	207		72	18	125				703
8:15 AM		94	86	93	224		55	15	104				671
8:30 AM		91	82	91	181		50	12	69				576
8:45 AM		89	75	101	206		46	17	78				612

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	759	707	890	1762	0	505	154	819	0	0	0	5596

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	0	397	356	481	983	0	292	83	466	0	0	0	3058
PEAK HR. FACTOR:		0.905			0.897			0.802			0.000		0.922

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Artesia Blvd (S)

DAY: TUESDAY

PROJECT# 10-5148-016

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	2	2	2	0	1.5	1	0.5	0	0	0	
4:00 PM		210	187	64	128		49	99	48				785
4:15 PM		165	167	75	148		57	92	42				746
4:30 PM		200	162	80	137		66	130	69				844
4:45 PM		180	142	82	181		67	125	60				837
5:00 PM		230	232	87	156		69	126	72				972
5:15 PM		255	212	77	166		79	142	62				993
5:30 PM		180	178	55	148		41	103	47				752
5:45 PM		146	132	88	149		45	55	44				659

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	1566	1412	608	1213	0	473	872	444	0	0	0	6588

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	0	865	748	326	640	0	281	523	263	0	0	0	3646
PEAK HR. FACTOR:		0.863			0.918			0.943			0.000		0.918

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Compton Blvd

DAY: TUESDAY

PROJECT# 10-5148-012

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	0	1	2	0	1	2	1	
7:00 AM	17	105	14	14	95	17	16	66	27	22	70	21	484
7:15 AM	20	116	24	34	144	22	15	73	15	24	75	25	587
7:30 AM	15	134	27	39	147	35	27	129	18	46	97	35	749
7:45 AM	30	143	38	42	158	38	23	170	23	41	142	26	874
8:00 AM	23	120	45	41	126	25	16	118	21	38	113	46	732
8:15 AM	17	101	35	44	115	19	15	99	14	28	74	38	599
8:30 AM	15	81	24	36	99	22	14	75	24	32	73	30	525
8:45 AM	20	99	34	35	87	25	22	73	17	23	74	22	531

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	157	899	241	285	971	203	148	803	159	254	718	243	5081

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	85	498	145	166	546	117	81	516	76	153	426	145	2954
PEAK HR. FACTOR:		0.863			0.871			0.779			0.866		0.845

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Compton Blvd

DAY: TUESDAY

PROJECT# 10-5148-012

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	0	1	2	0	1	2	1	
4:00 PM	15	170	34	23	117	21	26	100	21	34	104	35	700
4:15 PM	26	139	35	44	97	15	17	124	24	34	144	42	741
4:30 PM	28	152	41	32	149	20	33	115	21	35	122	54	802
4:45 PM	35	164	28	31	117	23	25	155	30	37	125	42	812
5:00 PM	27	161	35	40	138	26	23	125	16	43	110	47	791
5:15 PM	27	171	36	37	109	20	27	146	29	37	133	43	815
5:30 PM	21	174	45	29	103	21	21	115	30	33	90	41	723
5:45 PM	29	167	25	31	112	33	13	131	25	24	99	26	715

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	208	1298	279	267	942	179	185	1011	196	277	927	330	6099

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	117	648	140	140	513	89	108	541	96	152	490	186	3220
PEAK HR. FACTOR:		0.967			0.909			0.887			0.972		0.988

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave DATE: 01/27/2010 LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd DAY: WEDNESDAY PROJECT# 10-5032-019

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND						
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB U-turns	SB U-turns	WB U-turns
LANES:	1	2	0	1	2	0	1	2	0	1	2	0				
7:00 AM	39	147	7	16	80	13	26	57	20	9	93	16	523	1	4	1
7:15 AM	47	157	13	35	115	17	30	58	40	10	139	25	686	3	1	1
7:30 AM	72	170	10	31	150	33	38	86	69	16	166	22	863	6	1	0
7:45 AM	73	180	23	32	146	33	45	135	106	19	146	40	978	1	0	0
8:00 AM	34	175	21	41	156	20	32	91	48	17	108	23	766	3	2	1
8:15 AM	47	145	15	22	128	20	30	69	23	12	96	22	629	0	2	6
8:30 AM	37	142	13	24	123	11	14	76	28	15	76	21	580	0	4	4
8:45 AM	21	93	11	18	96	21	21	62	23	6	48	19	439	2	2	1
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	WL	WT	WR
VOLUMES =	370	1209	113	219	994	168	236	634	357	104	872	188	5464	16	16	14

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	226	682	67	139	567	103	145	370	263	62	559	110	3293
PEAK HR. FACTOR:		0.883			0.932			0.680			0.891		0.842

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave DATE: 01/27/2010 LOCATION: City of Los Angeles

E-W STREET: El Segundo Blvd DAY: WEDNESDAY PROJECT# 10-5032-019

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	42	144	18	33	140	20	42	153	55	16	78	25	766
4:15 PM	35	155	19	26	140	32	44	148	42	19	57	14	731
4:30 PM	34	149	16	37	151	28	45	183	63	14	86	25	831
4:45 PM	38	176	23	28	149	17	43	206	65	21	75	23	864
5:00 PM	46	169	24	32	133	23	35	175	64	30	84	27	842
5:15 PM	39	179	20	31	135	21	37	203	68	13	93	14	853
5:30 PM	46	146	23	23	132	27	34	195	69	15	76	15	801
5:45 PM	39	147	14	26	128	25	37	145	82	14	70	9	736
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	319	1265	157	236	1108	193	317	1408	508	142	619	152	6424

NB U-turns	SB U-turns	WB U-turns
1	5	2
0	7	0
0	3	9
2	4	1
2	5	3
0	5	5
2	5	5
0	5	1
WL	WT	WR
7	39	26

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	157	673	83	128	568	89	160	767	260	78	338	89	3390
PEAK HR. FACTOR:		0.955			0.909			0.945			0.895		0.981

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Greenleaf Blvd

DAY: TUESDAY

PROJECT# 10-5148-014

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	0	1	1	0	1	1	0	
7:00 AM	11	97	11	16	171	2	1	17	11	29	31	11	408
7:15 AM	8	122	22	20	207	4	8	20	14	34	54	5	518
7:30 AM	9	110	27	27	220	9	12	58	26	65	69	18	650
7:45 AM	14	144	52	23	227	11	19	75	15	54	99	15	748
8:00 AM	6	148	17	27	172	2	7	29	8	35	58	20	529
8:15 AM	12	114	18	25	140	3	8	29	5	23	35	18	430
8:30 AM	10	109	17	19	137	2	4	32	11	31	28	18	418
8:45 AM	9	120	21	19	119	1	3	28	3	21	29	12	385

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	79	964	185	176	1393	34	62	288	93	292	403	117	4086

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	37	524	118	97	826	26	46	182	63	188	280	58	2445
PEAK HR. FACTOR:		0.808			0.909			0.667			0.783		0.817

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 04/13/2010

LOCATION: City of Los Angeles

E-W STREET: Greenleaf Blvd

DAY: TUESDAY

PROJECT# 10-5148-014

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	0	1	1	0	1	1	0	
4:00 PM	15	177	45	35	113	4	9	67	7	19	31	32	554
4:15 PM	21	153	40	31	129	4	15	63	4	23	52	36	571
4:30 PM	22	171	48	44	164	1	7	80	8	26	40	37	648
4:45 PM	12	173	50	46	164	5	8	67	0	24	54	34	637
5:00 PM	15	160	62	48	123	1	10	92	3	26	53	34	627
5:15 PM	17	176	64	42	157	9	10	88	7	30	51	41	692
5:30 PM	15	162	33	43	113	3	6	68	8	24	49	34	558
5:45 PM	17	154	43	33	140	2	7	70	5	31	51	42	595

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	134	1326	385	322	1103	29	72	595	42	203	381	290	4882

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	66	680	224	180	608	16	35	327	18	106	198	146	2604
PEAK HR. FACTOR:		0.944			0.935			0.905			0.922		0.941

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: I-105 EB Ramps

DAY: TUESDAY

PROJECT# 10-5032-015

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	0	2	2	1	0	1	0	0	0	
7:00 AM	80	180			108	107	97		117				689
7:15 AM	84	157			99	113	93		147				693
7:30 AM	66	210			152	123	100		152				803
7:45 AM	78	187			185	110	105		159				824
8:00 AM	77	169			178	86	89		156				755
8:15 AM	59	143			115	80	78		152				627
8:30 AM	51	130			96	82	104		127				590
8:45 AM	34	123			117	62	100		102				538
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	529	1299	0	0	1050	763	766	0	1112	0	0	0	5519

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	305	723	0	0	614	432	387	0	614	0	0	0	3075
PEAK HR. FACTOR:		0.931			0.886			0.948			0.000		0.933

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave DATE: 02/02/2010 LOCATION: City of Los Angeles

E-W STREET: I-105 EB Ramps DAY: TUESDAY PROJECT# 10-5032-015

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	0	2	2	1	0	1	0	0	0	
4:00 PM	52	237			154	76	97		78				694
4:15 PM	68	210			160	93	71		52				654
4:30 PM	109	266			161	83	63		66				748
4:45 PM	91	259			178	80	96		63				767
5:00 PM	74	222			148	95	93		48				680
5:15 PM	75	266			150	85	82		63				721
5:30 PM	70	191			161	97	81		45				645
5:45 PM	51	224			156	68	80		73				652
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	590	1875	0	0	1268	677	663	0	488	0	0	0	5561

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	349	1013	0	0	637	343	334	0	240	0	0	0	2916
PEAK HR. FACTOR:		0.908			0.950			0.903			0.000		0.950

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy-Willowbrook Ave

DAY: TUESDAY

PROJECT# 10-5032-014

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	1	1	0	0	0	
7:00 AM	16	68	27	9	173	25	9	7	36			2	372
7:15 AM	30	79	16	7	186	31	15	7	50			0	421
7:30 AM	37	112	15	5	221	27	28	6	57			1	509
7:45 AM	30	110	14	5	227	30	42	6	62			0	526
8:00 AM	35	82	8	6	182	30	23	3	43			0	412
8:15 AM	30	74	9	2	146	19	9	2	47			0	338
8:30 AM	19	71	2	2	139	23	10	2	40			0	308
8:45 AM	26	60	10	7	144	16	13	4	29			0	309
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	223	656	101	43	1418	201	149	37	364	0	0	3	3195

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	132	383	53	23	816	118	108	22	212	0	0	1	1868
PEAK HR. FACTOR:		0.866			0.913			0.777			0.250		0.888

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: Imperial Hwy-Willowbrook Ave

DAY: TUESDAY

PROJECT# 10-5032-014

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	1	1	0	0	0	
4:00 PM	35	114	11	4	158	20	23	6	53			2	426
4:15 PM	31	128	11	11	202	23	19	1	58			4	488
4:30 PM	37	110	14	8	161	25	41	5	76			1	478
4:45 PM	43	119	8	6	192	28	28	7	62			0	493
5:00 PM	45	115	10	9	173	28	25	9	78			0	492
5:15 PM	46	143	8	8	172	25	40	2	49			1	494
5:30 PM	40	105	9	4	165	21	28	7	76			2	457
5:45 PM	34	128	14	3	164	29	39	3	54			0	468
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	311	962	85	53	1387	199	243	40	506	0	0	10	3796

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	171	487	40	31	698	106	134	23	265	0	0	2	1957
PEAK HR. FACTOR:		0.886			0.924			0.865			0.500		0.990

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave DATE: 02/02/2010 LOCATION: City of Los Angeles

E-W STREET: MLK Hospital Dwy-120th St DAY: TUESDAY PROJECT# 10-5032-018

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	0	1	1	0	1	0	
7:00 AM	9	204	1	6	124	19	11	0	2	1	0	5	382
7:15 AM	6	187	1	2	156	24	10	0	2	2	1	11	402
7:30 AM	11	210	4	7	182	28	11	1	5	3	2	9	473
7:45 AM	13	227	2	8	225	31	9	0	2	4	2	16	539
8:00 AM	17	194	1	7	198	35	12	1	4	1	2	9	481
8:15 AM	9	157	1	11	184	26	11	1	12	2	1	8	423
8:30 AM	7	155	1	3	143	32	13	0	3	0	0	6	363
8:45 AM	7	122	4	7	133	28	12	0	7	1	2	5	328
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	79	1456	15	51	1345	223	89	3	37	14	10	69	3391

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	50	788	8	33	789	120	43	3	23	10	7	42	1916
PEAK HR. FACTOR:		0.874			0.892			0.719			0.670		0.889

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: MLK Hospital Dwy-120th St

DAY: TUESDAY

PROJECT# 10-5032-018

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	0	1	1	0	1	0	
4:00 PM	10	191	5	5	191	14	24	0	7	1	0	4	452
4:15 PM	2	202	4	7	187	10	14	0	4	1	1	5	437
4:30 PM	7	254	8	4	215	2	23	0	8	1	0	6	528
4:45 PM	3	264	5	13	240	12	15	0	9	3	0	11	575
5:00 PM	3	210	2	5	183	9	7	1	5	3	1	2	431
5:15 PM	5	238	6	7	195	7	7	0	4	1	0	8	478
5:30 PM	5	209	3	7	179	6	13	0	4	1	0	7	434
5:45 PM	0	193	4	4	214	5	9	0	4	1	0	9	443
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	35	1761	37	52	1604	65	112	1	45	12	2	52	3778

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	18	966	21	29	833	30	52	1	26	8	1	27	2012
PEAK HR. FACTOR:		0.924			0.842			0.637			0.643		0.875

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 3/23/2010

LOCATION: City of Los Angeles

E-W STREET: Driveway 6/120th St

DAY: TUESDAY

PROJECT# 10-5123-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	0	1	1	0	1	0	
7:00 AM	5	186	0	5	123	21	3	0	2	1	0	11	357
7:15 AM	9	236	3	6	156	21	6	0	4	4	3	7	455
7:30 AM	10	245	5	4	167	25	7	0	4	2	1	12	482
7:45 AM	14	234	7	6	203	33	8	0	4	2	0	13	524
8:00 AM	14	205	0	4	189	39	11	1	4	1	1	6	475
8:15 AM	8	164	1	4	161	37	16	0	5	0	1	11	408
8:30 AM	9	157	2	5	163	53	23	0	10	0	0	4	426
8:45 AM	6	123	3	4	148	29	17	0	5	1	0	2	338

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	75	1550	21	38	1310	258	91	1	38	11	6	66	3465

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	47	920	15	20	715	118	32	1	16	9	5	38	1936
PEAK HR. FACTOR:		0.944			0.881			0.766			0.867		0.924

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 3/23/2010

LOCATION: City of Los Angeles

E-W STREET: Driveway 6/120th St

DAY: TUESDAY

PROJECT# 10-5123-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	0	1	1	0	1	0	
4:00 PM	5	172	2	9	175	16	23	0	12	2	0	5	421
4:15 PM	6	195	4	13	179	15	18	0	4	2	0	6	442
4:30 PM	6	201	4	9	201	8	22	0	7	1	1	9	469
4:45 PM	4	200	3	6	187	8	14	1	5	1	0	7	436
5:00 PM	4	205	4	9	181	10	17	0	6	2	0	10	448
5:15 PM	4	195	3	10	194	4	5	0	4	1	0	11	431
5:30 PM	4	220	1	13	171	7	11	0	8	2	0	10	447
5:45 PM	2	183	5	11	178	5	11	0	7	2	0	9	413

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	35	1571	26	80	1466	73	121	1	53	13	1	67	3507

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	20	801	15	37	748	41	71	1	22	6	1	32	1795
PEAK HR. FACTOR:		0.981			0.947			0.810			0.813		0.957

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave

DAY: WEDNESDAY

PROJECT# 10-5032-020

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	1	1	2	0	
7:00 AM	25	115	13	22	92	16	11	83	20	16	162	22	597
7:15 AM	26	150	16	32	134	26	16	73	21	25	203	22	744
7:30 AM	32	193	26	39	210	42	18	114	30	27	216	25	972
7:45 AM	27	165	53	45	197	28	31	124	39	32	235	45	1021
8:00 AM	47	147	30	42	150	32	26	147	37	29	153	44	884
8:15 AM	28	122	18	29	127	25	37	93	20	35	199	29	762
8:30 AM	31	108	26	37	121	26	16	83	42	20	141	30	681
8:45 AM	22	96	28	30	103	20	21	92	27	18	116	19	592
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	238	1096	210	276	1134	215	176	809	236	202	1425	236	6253

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	134	627	127	155	684	127	112	478	126	123	803	143	3639
PEAK HR. FACTOR:		0.884			0.830			0.852			0.857		0.891

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 01/27/2010

LOCATION: City of Los Angeles

E-W STREET: Rosecrans Ave

DAY: WEDNESDAY

PROJECT# 10-5032-020

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	1	1	2	0	
4:00 PM	34	133	30	40	108	32	28	211	51	37	149	24	877
4:15 PM	37	169	39	27	138	31	49	246	39	30	131	42	978
4:30 PM	42	136	37	45	133	33	36	245	48	36	148	43	982
4:45 PM	32	153	33	37	143	33	40	242	43	32	150	29	967
5:00 PM	32	155	37	25	163	30	43	213	33	46	143	36	956
5:15 PM	47	189	52	45	139	39	34	263	40	22	128	41	1039
5:30 PM	34	136	43	36	113	39	53	218	54	27	142	39	934
5:45 PM	35	168	33	46	122	43	41	209	48	39	129	28	941
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	293	1239	304	301	1059	280	324	1847	356	269	1120	282	7674

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	153	633	159	152	578	135	153	963	164	136	569	149	3944
PEAK HR. FACTOR:		0.820			0.970			0.950			0.941		0.949

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: Santa Ana Blvd (N)

DAY: TUESDAY

PROJECT# 10-5032-012

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	1	0	0	1	0	0	1	1	
7:00 AM	0	82	4	5	100	0	1	2	3	11	2	14	224
7:15 AM	0	95	7	2	118	2	2	2	2	18	5	17	270
7:30 AM	2	127	5	4	132	2	2	2	3	32	7	30	348
7:45 AM	5	157	9	7	167	0	0	7	4	24	10	31	421
8:00 AM	2	111	7	4	111	1	3	3	3	16	6	16	283
8:15 AM	1	83	7	5	93	1	1	3	3	9	6	12	224
8:30 AM	1	77	2	4	70	2	0	0	2	10	2	9	179
8:45 AM	4	89	5	2	77	1	0	3	7	9	4	12	213
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	15	821	46	33	868	9	9	22	27	129	42	141	2162

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	9	490	28	17	528	5	7	14	12	90	28	94	1322
PEAK HR. FACTOR:		0.770			0.790			0.750			0.768		0.785

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: Santa Ana Blvd (N)

DAY: TUESDAY

PROJECT# 10-5032-012

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	1	0	0	1	0	0	1	1	
4:00 PM	4	153	7	5	104	0	0	2	2	9	2	15	303
4:15 PM	2	150	12	7	119	0	1	6	5	13	3	20	338
4:30 PM	4	113	6	10	104	1	2	3	5	10	2	20	280
4:45 PM	4	146	16	13	110	0	0	6	4	13	5	20	337
5:00 PM	3	128	11	7	120	0	0	4	0	14	3	18	308
5:15 PM	4	144	9	5	118	0	1	7	9	9	5	13	324
5:30 PM	2	154	14	7	111	3	0	7	2	12	3	24	339
5:45 PM	3	139	8	9	121	1	2	6	4	6	7	22	328
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	26	1127	83	63	907	5	6	41	31	86	30	152	2557

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	13	572	50	32	459	3	1	24	15	48	16	75	1308
PEAK HR. FACTOR:		0.934			0.972			0.588			0.891		0.965

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: Santa Ana Blvd (S)

DAY: TUESDAY

PROJECT# 10-5032-013

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0	1	0	0	1	0	
7:00 AM	1	79	7	2	104	6	4	10	3	16	5	2	239
7:15 AM	6	98	3	3	127	9	3	13	4	14	15	2	297
7:30 AM	4	119	7	8	139	19	10	22	7	11	20	4	370
7:45 AM	8	159	9	9	172	16	10	37	6	16	21	3	466
8:00 AM	8	110	6	7	112	9	7	13	4	14	13	1	304
8:15 AM	9	90	8	4	95	8	1	5	2	10	7	3	242
8:30 AM	2	73	3	2	75	6	4	13	5	7	15	2	207
8:45 AM	2	95	3	8	83	3	1	12	9	10	7	4	237
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	40	823	46	43	907	76	40	125	40	98	103	21	2362

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	26	486	25	27	550	53	30	85	21	55	69	10	1437
PEAK HR. FACTOR:		0.763			0.799			0.642			0.838		0.771

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Wilmington Ave

DATE: 02/02/2010

LOCATION: City of Los Angeles

E-W STREET: Santa Ana Blvd (S)

DAY: TUESDAY

PROJECT# 10-5032-013

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0	1	0	0	1	0	
4:00 PM	3	154	6	11	100	5	5	12	6	12	12	5	331
4:15 PM	4	159	5	6	123	9	2	17	13	9	8	4	359
4:30 PM	8	118	5	9	102	6	4	21	9	13	12	1	308
4:45 PM	7	151	6	10	111	6	11	19	7	18	7	5	358
5:00 PM	4	134	12	7	120	8	2	19	6	16	11	3	342
5:15 PM	9	143	6	11	121	3	11	22	10	14	10	3	363
5:30 PM	7	162	9	11	109	6	8	21	5	12	15	0	365
5:45 PM	4	145	10	7	122	2	4	28	7	10	11	0	350
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	46	1166	59	72	908	45	47	159	63	104	86	21	2776

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	27	590	33	39	461	23	32	81	28	60	43	11	1428
PEAK HR. FACTOR:		0.913			0.969			0.820			0.950		0.978

CONTROL: Signalized

APPENDIX D

ICU Worksheets - Existing (2010) Conditions

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: I-110 SOUTHBOUND RAMPS
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.72	702	2,760	0.254	N-S(1):	0.283 *
	TH	0.00	0	0	0.000	N-S(2):	0.254
	LT	1.28	519	1,836	0.283 *	E-W(1):	0.498 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.331
	TH	3.00	1,591	4,800	0.331		
	LT	1.00	350	1,600	0.219 *	V/C:	0.781
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	447	1,600	0.279 *	ICU:	0.781
	TH	3.00	585	3,200	0.183		
	LT	0.00	0	0	0.000	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.52	364	2,437	0.149	N-S(1):	0.166 *
	TH	0.00	0	0	0.000	N-S(2):	0.149
	LT	1.48	353	2,127	0.166 *	E-W(1):	0.495 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.199
	TH	3.00	954	4,800	0.199		
	LT	1.00	199	1,600	0.124 *	V/C:	0.661
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	562	0	0.000	ICU:	0.661
	TH	3.00	1,218	4,800	0.371 *		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: I-110 NORTHBOUND RAMPS
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.161
	TH	0.00	0	0	0.000 *	N-S(2):	0.370 *
	LT	0.00	0	0	0.000	E-W(1):	0.361 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.238
	TH	3.00	1,141	4,800	0.238		
	LT	1.00	135	1,600	0.084 *	V/C:	0.731
Northbound	RT	0.49	261	784	0.161	Lost Time:	0.100
	TH	0.00	0	0	0.000	ATSAC/ATCS:	-0.100
	LT	1.51	804	2,174	0.370 *		
Eastbound	RT	1.00	215	1,600	0.000	ICU:	0.731
	TH	2.00	886	3,200	0.277 *		
	LT	0.00	0	0	0.000	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.000
	TH	0.00	0	0	0.000 *	N-S(2):	0.255 *
	LT	0.00	0	0	0.000	E-W(1):	0.581 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.146
	TH	3.00	699	4,800	0.146		
	LT	1.00	336	1,600	0.210 *	V/C:	0.836
Northbound	RT	0.77	281	1,225	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000	ATSAC/ATCS:	-0.100
	LT	1.23	453	1,777	0.255 *		
Eastbound	RT	1.00	384	1,600	0.011	ICU:	0.836
	TH	2.00	1,186	3,200	0.371 *		
	LT	0.00	0	0	0.000	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **FIGUEROA STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	118	1,600	0.006	N-S(1):	0.156 *
	TH	2.00	279	3,200	0.087	N-S(2):	0.151
	LT	1.00	64	1,600	0.040 *	E-W(1):	0.281
Westbound	RT	0.00	78	0	0.000	E-W(2):	0.300 *
	TH	3.00	1,034	4,800	0.232 *		
	LT	1.00	58	1,600	0.036	V/C:	0.456
Northbound	RT	0.00	26	0	0.000	Lost Time:	0.100
	TH	2.00	345	3,200	0.116 *		
	LT	1.00	103	1,600	0.064		
Eastbound	RT	1.00	252	1,600	0.093	ICU:	0.556
	TH	2.00	785	3,200	0.245		
	LT	1.00	109	1,600	0.068 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	108	1,600	0.000	N-S(1):	0.207
	TH	2.00	321	3,200	0.100 *	N-S(2):	0.211 *
	LT	1.00	87	1,600	0.054	E-W(1):	0.406 *
Westbound	RT	0.00	103	0	0.000	E-W(2):	0.261
	TH	3.00	729	4,800	0.173		
	LT	1.00	44	1,600	0.028 *	V/C:	0.617
Northbound	RT	0.00	112	0	0.000	Lost Time:	0.100
	TH	2.00	378	3,200	0.153		
	LT	1.00	177	1,600	0.111 *		
Eastbound	RT	1.00	144	1,600	0.000	ICU:	0.717
	TH	2.00	1,209	3,200	0.378 *		
	LT	1.00	141	1,600	0.088	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: BROADWAY
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	85	0	0.000	N-S(1):	0.110 *
	TH	2.00	183	3,200	0.084	N-S(2):	0.105
	LT	1.00	53	1,600	0.033 *	E-W(1):	0.208
Westbound	RT	0.00	86	0	0.000	E-W(2):	0.279 *
	TH	3.00	1,059	4,800	0.239 *		
	LT	1.00	69	1,600	0.043	V/C:	0.389
Northbound	RT	0.00	21	0	0.000	Lost Time:	0.100
	TH	2.00	225	3,200	0.077 *		
	LT	1.00	34	1,600	0.021		
Eastbound	RT	0.00	117	0	0.000	ICU:	0.489
	TH	3.00	677	4,800	0.165		
	LT	1.00	64	1,600	0.040 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	64	0	0.000	N-S(1):	0.162 *
	TH	2.00	170	3,200	0.073	N-S(2):	0.150
	LT	1.00	79	1,600	0.049 *	E-W(1):	0.272 *
Westbound	RT	0.00	73	0	0.000	E-W(2):	0.226
	TH	3.00	696	4,800	0.160		
	LT	1.00	21	1,600	0.013 *	V/C:	0.434
Northbound	RT	0.00	87	0	0.000	Lost Time:	0.100
	TH	2.00	276	3,200	0.113 *		
	LT	1.00	123	1,600	0.077		
Eastbound	RT	0.00	59	0	0.000	ICU:	0.534
	TH	3.00	1,182	4,800	0.259 *		
	LT	1.00	106	1,600	0.066	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: MAIN STREET
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	88	0	0.000	N-S(1):	0.118
	TH	2.00	247	3,200	0.105 *	N-S(2):	0.142 *
	LT	1.00	77	1,600	0.048	E-W(1):	0.174
Westbound	RT	0.00	50	0	0.000	E-W(2):	0.287 *
	TH	3.00	1,067	4,800	0.233 *		
	LT	1.00	78	1,600	0.049	V/C:	0.429
Northbound	RT	0.00	25	0	0.000	Lost Time:	0.100
	TH	2.00	199	3,200	0.070		
	LT	1.00	59	1,600	0.037 *		
Eastbound	RT	0.00	101	0	0.000	ICU:	0.529
	TH	3.00	501	4,800	0.125		
	LT	1.00	86	1,600	0.054 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	53	0	0.000	N-S(1):	0.206 *
	TH	2.00	169	3,200	0.069	N-S(2):	0.126
	LT	1.00	114	1,600	0.071 *	E-W(1):	0.282 *
Westbound	RT	0.00	66	0	0.000	E-W(2):	0.215
	TH	3.00	625	4,800	0.144		
	LT	1.00	35	1,600	0.022 *	V/C:	0.488
Northbound	RT	0.00	106	0	0.000	Lost Time:	0.100
	TH	2.00	327	3,200	0.135 *		
	LT	1.00	91	1,600	0.057		
Eastbound	RT	0.00	51	0	0.000	ICU:	0.588
	TH	3.00	1,199	4,800	0.260 *		
	LT	1.00	113	1,600	0.071	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SAN PEDRO STREET
East/West Street: 120TH STREET

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.129
	TH	2.00	268	3,200	0.124 *	N-S(2):	0.160 *
	LT	0.00	37	1,600	0.023	E-W(1):	0.338 *
Westbound	RT	0.00	52	0	0.000	E-W(2):	0.221
	TH	1.00	276	1,600	0.205		
	LT	1.00	45	1,600	0.028 *	V/C:	0.498
Northbound	RT	0.00	63	0	0.000	Lost Time:	0.100
	TH	2.00	218	3,200	0.106		
	LT	0.00	57	1,600	0.036 *		
Eastbound	RT	0.00	66	0	0.000	ICU:	0.598
	TH	1.00	430	1,600	0.310 *		
	LT	1.00	25	1,600	0.016	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	108	0	0.000	N-S(1):	0.123
	TH	2.00	270	3,200	0.127 *	N-S(2):	0.168 *
	LT	0.00	27	1,600	0.017	E-W(1):	0.262
Westbound	RT	0.00	39	0	0.000	E-W(2):	0.326 *
	TH	1.00	442	1,600	0.301 *		
	LT	1.00	57	1,600	0.036	V/C:	0.494
Northbound	RT	0.00	38	0	0.000	Lost Time:	0.100
	TH	2.00	237	3,200	0.106		
	LT	0.00	65	1,600	0.041 *		
Eastbound	RT	0.00	68	0	0.000	ICU:	0.594
	TH	1.00	293	1,600	0.226		
	LT	1.00	40	1,600	0.025 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SAN PEDRO STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	129	0	0.000	N-S(1):	0.120
	TH	2.00	168	3,200	0.093 *	N-S(2):	0.159 *
	LT	1.00	71	1,600	0.044	E-W(1):	0.171
Westbound	RT	0.00	62	0	0.000	E-W(2):	0.263 *
	TH	3.00	965	4,800	0.214 *		
	LT	1.00	101	1,600	0.063	V/C:	0.422
Northbound	RT	0.00	63	0	0.000	Lost Time:	0.100
	TH	2.00	181	3,200	0.076		
	LT	1.00	105	1,600	0.066 *		
Eastbound	RT	0.00	61	0	0.000	ICU:	0.522
	TH	3.00	455	4,800	0.108		
	LT	1.00	79	1,600	0.049 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	94	0	0.000	N-S(1):	0.135 *
	TH	2.00	164	3,200	0.081	N-S(2):	0.132
	LT	1.00	85	1,600	0.053 *	E-W(1):	0.293 *
Westbound	RT	0.00	101	0	0.000	E-W(2):	0.204
	TH	3.00	568	4,800	0.139		
	LT	1.00	50	1,600	0.031 *	V/C:	0.428
Northbound	RT	0.00	46	0	0.000	Lost Time:	0.100
	TH	2.00	216	3,200	0.082 *		
	LT	1.00	81	1,600	0.051		
Eastbound	RT	0.00	74	0	0.000	ICU:	0.528
	TH	3.00	1,185	4,800	0.262 *		
	LT	1.00	104	1,600	0.065	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **CENTURY BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	86	0	0.000	N-S(1): 0.224
	TH	2.00	460	3,200	0.171 *	N-S(2): 0.267 *
	LT	1.00	50	1,600	0.031	E-W(1): 0.292 *
Westbound	RT	0.00	50	0	0.000	E-W(2): 0.262
	TH	2.00	647	3,200	0.218	
	LT	1.00	117	1,600	0.073 *	V/C: 0.559
Northbound	RT	0.00	52	0	0.000	Lost Time: 0.100
	TH	2.00	567	3,200	0.193	
	LT	1.00	154	1,600	0.096 *	
Eastbound	RT	0.00	113	0	0.000	ICU: 0.659
	TH	2.00	587	3,200	0.219 *	
	LT	1.00	70	1,600	0.044	LOS: B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	84	0	0.000	N-S(1): 0.227
	TH	2.00	525	3,200	0.190 *	N-S(2): 0.278 *
	LT	1.00	71	1,600	0.044	E-W(1): 0.350 *
Westbound	RT	0.00	66	0	0.000	E-W(2): 0.276
	TH	2.00	566	3,200	0.198	
	LT	1.00	95	1,600	0.059 *	V/C: 0.628
Northbound	RT	0.00	75	0	0.000	Lost Time: 0.100
	TH	2.00	510	3,200	0.183	
	LT	1.00	141	1,600	0.088 *	
Eastbound	RT	0.00	162	0	0.000	ICU: 0.728
	TH	2.00	769	3,200	0.291 *	
	LT	1.00	124	1,600	0.078	LOS: C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: AVALON BOULEVARD
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600	vph
Left-Turn Lane:	1600	vph
Dual LT Penalty:	10	%

N-S Split Phase :	N
E-W Split Phase :	N
Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	64	0	0.000	N-S(1):	0.307 *
	TH	2.00	547	3,200	0.191	N-S(2):	0.283
	LT	1.00	171	1,600	0.107 *	E-W(1):	0.210
Westbound	RT	0.00	245	0	0.000	E-W(2):	0.299 *
	TH	3.00	824	4,800	0.223 *		
	LT	1.00	126	1,600	0.079	V/C:	0.606
Northbound	RT	0.00	87	0	0.000	Lost Time:	0.100
	TH	2.00	552	3,200	0.200 *	ATSAC/ATCS:	-0.100
	LT	1.00	147	1,600	0.092		
Eastbound	RT	0.00	126	0	0.000	ICU:	0.606
	TH	3.00	504	4,800	0.131		
	LT	1.00	121	1,600	0.076 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	98	0	0.000	N-S(1):	0.338 *
	TH	2.00	523	3,200	0.194	N-S(2):	0.267
	LT	1.00	187	1,600	0.117 *	E-W(1):	0.375 *
Westbound	RT	0.00	176	0	0.000	E-W(2):	0.261
	TH	3.00	583	4,800	0.158		
	LT	1.00	107	1,600	0.067 *	V/C:	0.713
Northbound	RT	0.00	88	0	0.000	Lost Time:	0.100
	TH	2.00	618	3,200	0.221 *	ATSAC/ATCS:	-0.100
	LT	1.00	116	1,600	0.073		
Eastbound	RT	0.00	156	0	0.000	ICU:	0.713
	TH	3.00	1,323	4,800	0.308 *		
	LT	1.00	164	1,600	0.103	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **120TH STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	32	0	0.000	N-S(1):	0.240 *
	TH	2.00	563	3,200	0.186	N-S(2):	0.216
	LT	1.00	81	1,600	0.051 *	E-W(1):	0.301
Westbound	RT	0.00	113	0	0.000	E-W(2):	0.307 *
	TH	1.00	304	1,600	0.261 *		
	LT	1.00	144	1,600	0.090	V/C:	0.547
Northbound	RT	0.00	128	0	0.000	Lost Time:	0.100
	TH	2.00	476	3,200	0.189 *		
	LT	1.00	48	1,600	0.030		
Eastbound	RT	0.00	69	0	0.000	ICU:	0.647
	TH	1.00	269	1,600	0.211		
	LT	1.00	74	1,600	0.046 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	60	0	0.000	N-S(1):	0.326 *
	TH	2.00	543	3,200	0.188	N-S(2):	0.224
	LT	1.00	114	1,600	0.071 *	E-W(1):	0.324 *
Westbound	RT	0.00	81	0	0.000	E-W(2):	0.282
	TH	1.00	274	1,600	0.222		
	LT	1.00	120	1,600	0.075 *	V/C:	0.650
Northbound	RT	0.00	170	0	0.000	Lost Time:	0.100
	TH	2.00	647	3,200	0.255 *		
	LT	1.00	57	1,600	0.036		
Eastbound	RT	0.00	47	0	0.000	ICU:	0.750
	TH	1.00	352	1,600	0.249 *		
	LT	1.00	96	1,600	0.060	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: AVALON BOULEVARD
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	127	0	0.000	N-S(1):	0.221
	TH	2.00	467	3,200	0.186 *	N-S(2):	0.223 *
	LT	1.00	100	1,600	0.063	E-W(1):	0.152
Westbound	RT	0.00	136	0	0.000	E-W(2):	0.280 *
	TH	3.00	853	4,800	0.206 *		
	LT	1.00	79	1,600	0.049	V/C:	0.503
Northbound	RT	0.00	90	0	0.000	Lost Time:	0.100
	TH	2.00	414	3,200	0.158		
	LT	1.00	59	1,600	0.037 *		
Eastbound	RT	0.00	55	0	0.000	ICU:	0.603
	TH	3.00	437	4,800	0.103		
	LT	1.00	119	1,600	0.074 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	88	0	0.000	N-S(1):	0.324 *
	TH	2.00	460	3,200	0.171	N-S(2):	0.246
	LT	1.00	141	1,600	0.088 *	E-W(1):	0.314 *
Westbound	RT	0.00	112	0	0.000	E-W(2):	0.188
	TH	3.00	437	4,800	0.114		
	LT	1.00	94	1,600	0.059 *	V/C:	0.638
Northbound	RT	0.00	146	0	0.000	Lost Time:	0.100
	TH	2.00	610	3,200	0.236 *		
	LT	1.00	120	1,600	0.075		
Eastbound	RT	0.00	123	0	0.000	ICU:	0.738
	TH	3.00	1,100	4,800	0.255 *		
	LT	1.00	118	1,600	0.074	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	89	0	0.000	N-S(1):	0.247 *
	TH	2.00	359	3,200	0.140	N-S(2):	0.218
	LT	1.00	150	1,600	0.094 *	E-W(1):	0.178
Westbound	RT	0.00	141	0	0.000	E-W(2):	0.250 *
	TH	3.00	904	4,800	0.218 *		
	LT	1.00	112	1,600	0.070	V/C:	0.497
Northbound	RT	0.00	81	0	0.000	Lost Time:	0.100
	TH	2.00	409	3,200	0.153 *		
	LT	1.00	125	1,600	0.078		
Eastbound	RT	0.00	67	0	0.000	ICU:	0.597
	TH	3.00	453	4,800	0.108		
	LT	1.00	51	1,600	0.032 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	67	0	0.000	N-S(1):	0.338 *
	TH	2.00	383	3,200	0.141	N-S(2):	0.220
	LT	1.00	202	1,600	0.126 *	E-W(1):	0.269 *
Westbound	RT	0.00	139	0	0.000	E-W(2):	0.209
	TH	3.00	559	4,800	0.145		
	LT	1.00	74	1,600	0.046 *	V/C:	0.607
Northbound	RT	0.00	140	0	0.000	Lost Time:	0.100
	TH	2.00	538	3,200	0.212 *		
	LT	1.00	127	1,600	0.079		
Eastbound	RT	0.00	86	0	0.000	ICU:	0.707
	TH	3.00	986	4,800	0.223 *		
	LT	1.00	102	1,600	0.064	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: CENTURY BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	88	0	0.000	N-S(1):	0.322
	TH	2.00	761	3,200	0.265 *	N-S(2):	0.405 *
	LT	1.00	41	1,600	0.026	E-W(1):	0.243
Westbound	RT	0.00	42	0	0.000	E-W(2):	0.310 *
	TH	1.00	365	1,600	0.254 *		
	LT	1.00	54	1,600	0.034	V/C:	0.715
Northbound	RT	0.00	48	0	0.000	Lost Time:	0.100
	TH	2.00	900	3,200	0.296	ATSAC/ATCS:	-0.100
	LT	1.00	224	1,600	0.140 *		
Eastbound	RT	1.00	184	1,600	0.000	ICU:	0.715
	TH	1.00	334	1,600	0.209		
	LT	1.00	90	1,600	0.056 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	71	0	0.000	N-S(1):	0.355
	TH	2.00	835	3,200	0.283 *	N-S(2):	0.398 *
	LT	1.00	84	1,600	0.053	E-W(1):	0.354 *
Westbound	RT	0.00	52	0	0.000	E-W(2):	0.334
	TH	1.00	361	1,600	0.258		
	LT	1.00	76	1,600	0.048 *	V/C:	0.752
Northbound	RT	0.00	70	0	0.000	Lost Time:	0.100
	TH	2.00	897	3,200	0.302	ATSAC/ATCS:	-0.100
	LT	1.00	184	1,600	0.115 *		
Eastbound	RT	1.00	220	1,600	0.023	ICU:	0.752
	TH	1.00	490	1,600	0.306 *		
	LT	1.00	122	1,600	0.076	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: 103RD STREET

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	12	0	0.000	N-S(1):	0.433 *
	TH	2.00	872	3,200	0.276	N-S(2):	0.307
	LT	1.00	114	1,600	0.071 *	E-W(1):	0.251 *
Westbound	RT	0.00	136	0	0.000	E-W(2):	0.218
	TH	1.00	175	1,600	0.194		
	LT	1.00	173	1,600	0.108 *	V/C:	0.684
Northbound	RT	0.00	201	0	0.000	Lost Time:	0.100
	TH	2.00	958	3,200	0.362 *	ATSAC/ATCS:	-0.100
	LT	1.00	50	1,600	0.031		
Eastbound	RT	0.00	58	0	0.000	ICU:	0.684
	TH	1.00	171	1,600	0.143 *		
	LT	1.00	39	1,600	0.024	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	37	0	0.000	N-S(1):	0.468 *
	TH	2.00	959	3,200	0.311	N-S(2):	0.349
	LT	1.00	171	1,600	0.107 *	E-W(1):	0.248
Westbound	RT	0.00	165	0	0.000	E-W(2):	0.282 *
	TH	1.00	242	1,600	0.254 *		
	LT	1.00	157	1,600	0.098	V/C:	0.750
Northbound	RT	0.00	221	0	0.000	Lost Time:	0.100
	TH	2.00	935	3,200	0.361 *	ATSAC/ATCS:	-0.100
	LT	1.00	61	1,600	0.038		
Eastbound	RT	0.00	47	0	0.000	ICU:	0.750
	TH	1.00	193	1,600	0.150		
	LT	1.00	45	1,600	0.028 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	41	0	0.000	N-S(1):	0.353
	TH	2.00	941	3,200	0.307 *	N-S(2):	0.377 *
	LT	2.00	138	2,880	0.048	E-W(1):	0.279 *
Westbound	RT	0.00	221	0	0.000	E-W(2):	0.216
	TH	3.00	733	4,800	0.199		
	LT	2.00	283	2,880	0.098 *	V/C:	0.656
Northbound	RT	1.00	259	1,600	0.073	Lost Time:	0.100
	TH	2.00	976	3,200	0.305	ATSAC/ATCS:	-0.100
	LT	2.00	202	2,880	0.070 *		
Eastbound	RT	0.00	290	1,600	0.181 *	ICU:	0.656
	TH	3.00	451	3,200	0.141		
	LT	2.00	48	2,880	0.017	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	58	0	0.000	N-S(1):	0.328
	TH	2.00	906	3,200	0.301 *	N-S(2):	0.387 *
	LT	2.00	161	2,880	0.056	E-W(1):	0.360 *
Westbound	RT	0.00	136	0	0.000	E-W(2):	0.164
	TH	3.00	493	4,800	0.131		
	LT	2.00	227	2,880	0.079 *	V/C:	0.747
Northbound	RT	1.00	314	1,600	0.125	Lost Time:	0.100
	TH	2.00	871	3,200	0.272	ATSAC/ATCS:	-0.100
	LT	2.00	247	2,880	0.086 *		
Eastbound	RT	0.00	332	0	0.000	ICU:	0.747
	TH	3.00	1,018	4,800	0.281 *		
	LT	2.00	94	2,880	0.033	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: I-105 WESTBOUND ON/OFF RAMPS

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	692	1,600	0.433 *	N-S(1):	0.334
	TH	2.00	860	3,200	0.269	N-S(2):	0.577 *
	LT	0.00	0	0	0.000	E-W(1):	0.084
Westbound	RT	1.99	378	3,192	0.118	E-W(2):	0.118 *
	TH	0.01	1	8	0.118 *		
	LT	1.00	135	1,600	0.084	V/C:	0.695
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,070	3,200	0.334		
	LT	2.00	415	2,880	0.144 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.795
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	547	1,600	0.342 *	N-S(1):	0.288
	TH	2.00	966	3,200	0.302	N-S(2):	0.487 *
	LT	0.00	0	0	0.000	E-W(1):	0.175 *
Westbound	RT	1.80	452	2,877	0.157	E-W(2):	0.157
	TH	0.00	0	0	0.000		
	LT	1.20	302	1,730	0.175 *	V/C:	0.662
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	922	3,200	0.288		
	LT	2.00	418	2,880	0.145 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.762
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: I-105 EASTBOUND ON/OFF RAMPS

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.334 *
	TH	2.00	509	3,200	0.159	N-S(2):	0.159
	LT	2.00	493	2,880	0.171 *	E-W(1):	0.282
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.313 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.647
Northbound	RT	1.16	302	1,857	0.163	Lost Time:	0.100
	TH	2.84	739	4,543	0.163 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	1.32	598	2,120	0.282	ICU:	0.747
	TH	0.04	19	67	0.282		
	LT	1.63	737	2,351	0.313 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.357 *
	TH	2.00	783	3,200	0.245	N-S(2):	0.245
	LT	2.00	483	2,880	0.168 *	E-W(1):	0.213
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.237 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.594
Northbound	RT	1.22	369	1,957	0.189	Lost Time:	0.100
	TH	2.78	838	4,443	0.189 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	1.09	373	1,752	0.213	ICU:	0.694
	TH	0.45	154	723	0.213		
	LT	1.45	495	2,092	0.237 *	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	74	0	0.000	N-S(1):	0.363 *
	TH	2.00	778	3,200	0.266	N-S(2):	0.315
	LT	1.00	181	1,600	0.113 *	E-W(1):	0.202
Westbound	RT	0.00	173	0	0.000	E-W(2):	0.261 *
	TH	2.00	432	3,200	0.189 *		
	LT	1.00	131	1,600	0.082	V/C:	0.624
Northbound	RT	0.00	143	0	0.000	Lost Time:	0.100
	TH	2.00	658	3,200	0.250 *		
	LT	1.00	79	1,600	0.049		
Eastbound	RT	0.00	38	0	0.000	ICU:	0.724
	TH	2.00	345	3,200	0.120		
	LT	1.00	115	1,600	0.072 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	96	0	0.000	N-S(1):	0.366 *
	TH	2.00	882	3,200	0.306	N-S(2):	0.355
	LT	1.00	118	1,600	0.074 *	E-W(1):	0.188
Westbound	RT	0.00	174	0	0.000	E-W(2):	0.230 *
	TH	2.00	282	3,200	0.143 *		
	LT	1.00	80	1,600	0.050	V/C:	0.596
Northbound	RT	0.00	80	0	0.000	Lost Time:	0.100
	TH	2.00	853	3,200	0.292 *		
	LT	1.00	79	1,600	0.049		
Eastbound	RT	0.00	82	0	0.000	ICU:	0.696
	TH	2.00	359	3,200	0.138		
	LT	1.00	139	1,600	0.087 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	183	0	0.000	N-S(1):	0.339
	TH	2.00	608	3,200	0.247 *	N-S(2):	0.341 *
	LT	1.00	102	1,600	0.064	E-W(1):	0.211
Westbound	RT	0.00	70	0	0.000	E-W(2):	0.307 *
	TH	2.00	685	3,200	0.236 *		
	LT	1.00	155	1,600	0.097	V/C:	0.648
Northbound	RT	0.00	244	0	0.000	Lost Time:	0.100
	TH	2.00	637	3,200	0.275		
	LT	1.00	151	1,600	0.094 *		
Eastbound	RT	1.00	103	1,600	0.000	ICU:	0.748
	TH	2.00	365	3,200	0.114		
	LT	1.00	114	1,600	0.071 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	143	0	0.000	N-S(1):	0.357 *
	TH	2.00	695	3,200	0.262	N-S(2):	0.330
	LT	1.00	134	1,600	0.084 *	E-W(1):	0.364 *
Westbound	RT	0.00	107	0	0.000	E-W(2):	0.320
	TH	2.00	455	3,200	0.176		
	LT	1.00	118	1,600	0.074 *	V/C:	0.721
Northbound	RT	0.00	192	0	0.000	Lost Time:	0.100
	TH	2.00	682	3,200	0.273 *		
	LT	1.00	109	1,600	0.068		
Eastbound	RT	1.00	162	1,600	0.033	ICU:	0.821
	TH	2.00	927	3,200	0.290 *		
	LT	1.00	231	1,600	0.144	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	144	1,600	0.000	N-S(1):	0.272
	TH	2.00	613	3,200	0.192 *	N-S(2):	0.280 *
	LT	1.00	126	1,600	0.079	E-W(1):	0.212
Westbound	RT	0.00	145	0	0.000	E-W(2):	0.392 *
	TH	2.00	812	3,200	0.299 *		
	LT	1.00	148	1,600	0.093	V/C:	0.672
Northbound	RT	0.00	60	0	0.000	Lost Time:	0.100
	TH	2.00	556	3,200	0.193		
	LT	1.00	140	1,600	0.088 *		
Eastbound	RT	0.00	148	0	0.000	ICU:	0.772
	TH	3.00	421	4,800	0.119		
	LT	1.00	149	1,600	0.093 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	123	1,600	0.000	N-S(1):	0.427 *
	TH	2.00	683	3,200	0.213	N-S(2):	0.329
	LT	1.00	264	1,600	0.165 *	E-W(1):	0.346
Westbound	RT	0.00	143	0	0.000	E-W(2):	0.367 *
	TH	2.00	615	3,200	0.237 *		
	LT	1.00	158	1,600	0.099	V/C:	0.794
Northbound	RT	0.00	115	0	0.000	Lost Time:	0.100
	TH	2.00	724	3,200	0.262 *		
	LT	1.00	186	1,600	0.116		
Eastbound	RT	0.00	187	0	0.000	ICU:	0.894
	TH	3.00	999	4,800	0.247		
	LT	1.00	208	1,600	0.130 *	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **COMPTON BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	73	0	0.000	N-S(1):	0.330 *
	TH	2.00	628	3,200	0.219	N-S(2):	0.292
	LT	1.00	152	1,600	0.095 *	E-W(1):	0.220
Westbound	RT	0.00	113	0	0.000	E-W(2):	0.241 *
	TH	2.00	398	3,200	0.160 *		
	LT	1.00	95	1,600	0.059	V/C:	0.571
Northbound	RT	0.00	147	0	0.000	Lost Time:	0.100
	TH	2.00	605	3,200	0.235 *		
	LT	1.00	116	1,600	0.073		
Eastbound	RT	1.00	120	1,600	0.003	ICU:	0.671
	TH	2.00	516	3,200	0.161		
	LT	1.00	129	1,600	0.081 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	125	0	0.000	N-S(1):	0.343 *
	TH	2.00	732	3,200	0.268	N-S(2):	0.315
	LT	1.00	146	1,600	0.091 *	E-W(1):	0.211
Westbound	RT	0.00	167	0	0.000	E-W(2):	0.246 *
	TH	2.00	334	3,200	0.157 *		
	LT	1.00	80	1,600	0.050	V/C:	0.589
Northbound	RT	0.00	100	0	0.000	Lost Time:	0.100
	TH	2.00	705	3,200	0.252 *		
	LT	1.00	75	1,600	0.047		
Eastbound	RT	1.00	122	1,600	0.029	ICU:	0.689
	TH	2.00	515	3,200	0.161		
	LT	1.00	142	1,600	0.089 *	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: ALONDRA BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	119	0	0.000	N-S(1):	0.274
	TH	2.00	696	3,200	0.255 *	N-S(2):	0.333 *
	LT	1.00	128	1,600	0.080	E-W(1):	0.181
Westbound	RT	0.00	133	0	0.000	E-W(2):	0.206 *
	TH	2.00	391	3,200	0.164 *		
	LT	1.00	96	1,600	0.060	V/C:	0.539
Northbound	RT	0.00	71	0	0.000	Lost Time:	0.100
	TH	2.00	551	3,200	0.194		
	LT	1.00	125	1,600	0.078 *		
Eastbound	RT	0.00	100	0	0.000	ICU:	0.639
	TH	2.00	288	3,200	0.121		
	LT	1.00	67	1,600	0.042 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	88	0	0.000	N-S(1):	0.338 *
	TH	2.00	626	3,200	0.223	N-S(2):	0.284
	LT	1.00	168	1,600	0.105 *	E-W(1):	0.243 *
Westbound	RT	0.00	172	0	0.000	E-W(2):	0.218
	TH	2.00	263	3,200	0.136		
	LT	1.00	70	1,600	0.044 *	V/C:	0.581
Northbound	RT	0.00	101	0	0.000	Lost Time:	0.100
	TH	2.00	646	3,200	0.233 *		
	LT	1.00	98	1,600	0.061		
Eastbound	RT	0.00	123	0	0.000	ICU:	0.681
	TH	2.00	515	3,200	0.199 *		
	LT	1.00	131	1,600	0.082	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SUCCESS AVENUE-SLATER AVENUE**
East/West Street: **120TH STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	38	0	0.000	N-S(1):	0.076
	TH	1.00	30	1,600	0.066 *	N-S(2):	0.082 *
	LT	0.00	38	1,600	0.024	E-W(1):	0.143
Westbound	RT	0.00	38	0	0.000	E-W(2):	0.221 *
	TH	2.00	603	3,200	0.200 *		
	LT	1.00	19	1,600	0.012	V/C:	0.303
Northbound	RT	0.00	13	0	0.000	Lost Time:	0.100
	TH	1.00	45	1,600	0.052		
	LT	0.00	25	1,600	0.016 *		
Eastbound	RT	0.00	7	0	0.000	ICU:	0.403
	TH	2.00	411	3,200	0.131		
	LT	1.00	34	1,600	0.021 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	33	0	0.000	N-S(1):	0.032
	TH	1.00	12	1,600	0.039 *	N-S(2):	0.045 *
	LT	0.00	18	1,600	0.011	E-W(1):	0.171 *
Westbound	RT	0.00	8	0	0.000	E-W(2):	0.159
	TH	2.00	444	3,200	0.141		
	LT	1.00	11	1,600	0.007 *	V/C:	0.216
Northbound	RT	0.00	16	0	0.000	Lost Time:	0.100
	TH	1.00	8	1,600	0.021		
	LT	0.00	9	1,600	0.006 *		
Eastbound	RT	0.00	11	0	0.000	ICU:	0.316
	TH	2.00	514	3,200	0.164 *		
	LT	1.00	29	1,600	0.018	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **103RD AVENUE**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	77	0	0.000	N-S(1):	0.191
	TH	2.00	411	3,200	0.153 *	N-S(2):	0.206 *
	LT	1.00	52	1,600	0.033	E-W(1):	0.181
Westbound	RT	1.00	87	1,600	0.022	E-W(2):	0.249 *
	TH	1.00	300	1,600	0.188 *		
	LT	1.00	109	1,600	0.068	V/C:	0.455
Northbound	RT	0.00	111	0	0.000	Lost Time:	0.100
	TH	2.00	394	3,200	0.158	ATSAC/ATCS:	-0.100
	LT	1.00	84	1,600	0.053 *		
Eastbound	RT	0.00	106	0	0.000	ICU:	0.455
	TH	2.00	255	3,200	0.113		
	LT	1.00	98	1,600	0.061 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	77	0	0.000	N-S(1):	0.225 *
	TH	2.00	391	3,200	0.146	N-S(2):	0.224
	LT	1.00	83	1,600	0.052 *	E-W(1):	0.207
Westbound	RT	1.00	86	1,600	0.002	E-W(2):	0.301 *
	TH	1.00	401	1,600	0.251 *		
	LT	1.00	108	1,600	0.068	V/C:	0.526
Northbound	RT	0.00	113	0	0.000	Lost Time:	0.100
	TH	2.00	439	3,200	0.173 *	ATSAC/ATCS:	-0.100
	LT	1.00	124	1,600	0.078		
Eastbound	RT	0.00	87	0	0.000	ICU:	0.526
	TH	2.00	358	3,200	0.139		
	LT	1.00	80	1,600	0.050 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	119	0	0.000	N-S(1):	0.295
	TH	1.00	291	1,600	0.256 *	N-S(2):	0.330 *
	LT	1.00	151	1,600	0.094	E-W(1):	0.251
Westbound	RT	0.00	174	0	0.000	E-W(2):	0.465 *
	TH	2.00	1,106	3,200	0.400 *		
	LT	1.00	141	1,600	0.088	V/C:	0.795
Northbound	RT	1.00	149	1,600	0.005	Lost Time:	0.100
	TH	1.00	321	1,600	0.201	ATSAC/ATCS:	-0.100
	LT	1.00	119	1,600	0.074 *		
Eastbound	RT	0.00	141	0	0.000	ICU:	0.795
	TH	3.00	643	4,800	0.163		
	LT	1.00	104	1,600	0.065 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	148	0	0.000	N-S(1):	0.290
	TH	1.00	250	1,600	0.249 *	N-S(2):	0.306 *
	LT	1.00	194	1,600	0.121	E-W(1):	0.363 *
Westbound	RT	0.00	182	0	0.000	E-W(2):	0.335
	TH	2.00	677	3,200	0.268		
	LT	1.00	88	1,600	0.055 *	V/C:	0.669
Northbound	RT	1.00	113	1,600	0.016	Lost Time:	0.100
	TH	1.00	271	1,600	0.169	ATSAC/ATCS:	-0.100
	LT	1.00	91	1,600	0.057 *		
Eastbound	RT	0.00	93	0	0.000	ICU:	0.669
	TH	3.00	1,384	4,800	0.308 *		
	LT	1.00	107	1,600	0.067	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **118TH STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	10	0	0.000	N-S(1):	0.171 *
	TH	2.00	470	3,200	0.162	N-S(2):	0.167
	LT	0.00	37	1,600	0.023 *	E-W(1):	0.087
Westbound	RT	0.00	51	0	0.000	E-W(2):	0.094 *
	TH	1.00	15	1,600	0.078 *		
	LT	0.00	59	1,600	0.037	V/C:	0.265
Northbound	RT	0.00	68	0	0.000	Lost Time:	0.100
	TH	2.00	398	3,200	0.148 *		
	LT	0.00	8	1,600	0.005		
Eastbound	RT	0.00	39	0	0.000	ICU:	0.365
	TH	1.00	16	1,600	0.050		
	LT	0.00	25	1,600	0.016 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	6	0	0.000	N-S(1):	0.153 *
	TH	2.00	338	3,200	0.119	N-S(2):	0.122
	LT	0.00	37	1,600	0.023 *	E-W(1):	0.039
Westbound	RT	0.00	42	0	0.000	E-W(2):	0.061 *
	TH	1.00	21	1,600	0.056 *		
	LT	0.00	26	1,600	0.016	V/C:	0.214
Northbound	RT	0.00	39	0	0.000	Lost Time:	0.100
	TH	2.00	373	3,200	0.130 *		
	LT	0.00	5	1,600	0.003		
Eastbound	RT	0.00	8	0	0.000	ICU:	0.314
	TH	1.00	21	1,600	0.023		
	LT	0.00	8	1,600	0.005 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	134	0	0.000	N-S(1):	0.179
	TH	2.00	281	3,200	0.130 *	N-S(2):	0.199 *
	LT	1.00	114	1,600	0.071	E-W(1):	0.176
Westbound	RT	0.00	141	0	0.000	E-W(2):	0.248 *
	TH	2.00	344	3,200	0.152 *		
	LT	1.00	51	1,600	0.032	V/C:	0.447
Northbound	RT	0.00	52	0	0.000	Lost Time:	0.100
	TH	2.00	293	3,200	0.108		
	LT	1.00	111	1,600	0.069 *		
Eastbound	RT	0.00	90	0	0.000	ICU:	0.547
	TH	2.00	372	3,200	0.144		
	LT	1.00	154	1,600	0.096 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	69	0	0.000	N-S(1):	0.142
	TH	2.00	272	3,200	0.107 *	N-S(2):	0.166 *
	LT	1.00	84	1,600	0.053	E-W(1):	0.179
Westbound	RT	0.00	73	0	0.000	E-W(2):	0.205 *
	TH	2.00	359	3,200	0.135 *		
	LT	1.00	34	1,600	0.021	V/C:	0.371
Northbound	RT	0.00	34	0	0.000	Lost Time:	0.100
	TH	2.00	251	3,200	0.089		
	LT	1.00	94	1,600	0.059 *		
Eastbound	RT	0.00	127	0	0.000	ICU:	0.471
	TH	2.00	377	3,200	0.158		
	LT	1.00	112	1,600	0.070 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **124TH STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	11	0	0.000	N-S(1):	0.129
	TH	2.00	372	3,200	0.132 *	N-S(2):	0.133 *
	LT	0.00	38	1,600	0.024	E-W(1):	0.036
Westbound	RT	0.00	52	0	0.000	E-W(2):	0.076 *
	TH	1.00	27	1,600	0.072 *		
	LT	0.00	36	1,600	0.023	V/C:	0.209
Northbound	RT	0.00	17	0	0.000	Lost Time:	0.100
	TH	2.00	317	3,200	0.105		
	LT	0.00	2	1,600	0.001 *		
Eastbound	RT	0.00	2	0	0.000	ICU:	0.309
	TH	1.00	11	1,600	0.013		
	LT	0.00	7	1,600	0.004 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	8	0	0.000	N-S(1):	0.120 *
	TH	2.00	313	3,200	0.113	N-S(2):	0.114
	LT	0.00	40	1,600	0.025 *	E-W(1):	0.021
Westbound	RT	0.00	31	0	0.000	E-W(2):	0.037 *
	TH	1.00	10	1,600	0.036 *		
	LT	0.00	17	1,600	0.011	V/C:	0.157
Northbound	RT	0.00	16	0	0.000	Lost Time:	0.100
	TH	2.00	288	3,200	0.095 *		
	LT	0.00	1	1,600	0.001		
Eastbound	RT	0.00	5	0	0.000	ICU:	0.257
	TH	1.00	9	1,600	0.010		
	LT	0.00	2	1,600	0.001 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	218	1,600	0.136 *	N-S(1):	0.091
	TH	2.00	54	1,600	0.034	N-S(2):	0.216 *
	LT	1.00	108	1,600	0.068	E-W(1):	0.216
Westbound	RT	0.00	84	0	0.000	E-W(2):	0.408 *
	TH	2.00	907	3,200	0.310 *		
	LT	1.00	7	1,600	0.004	V/C:	0.624
Northbound	RT	0.00	15	0	0.000	Lost Time:	0.100
	TH	2.00	58	3,200	0.023		
	LT	1.00	128	1,600	0.080 *		
Eastbound	RT	0.00	65	0	0.000	ICU:	0.724
	TH	2.00	614	3,200	0.212		
	LT	1.00	157	1,600	0.098 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	101	1,600	0.063 *	N-S(1):	0.089
	TH	2.00	54	1,600	0.034	N-S(2):	0.106 *
	LT	1.00	116	1,600	0.073	E-W(1):	0.353 *
Westbound	RT	0.00	78	0	0.000	E-W(2):	0.264
	TH	2.00	416	3,200	0.154		
	LT	1.00	12	1,600	0.008 *	V/C:	0.459
Northbound	RT	0.00	18	0	0.000	Lost Time:	0.100
	TH	2.00	33	3,200	0.016		
	LT	1.00	69	1,600	0.043 *		
Eastbound	RT	0.00	116	0	0.000	ICU:	0.559
	TH	2.00	988	3,200	0.345 *		
	LT	1.00	176	1,600	0.110	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **103RD STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	55	0	0.000	N-S(1):	0.210
	TH	2.00	365	3,200	0.131 *	N-S(2):	0.233 *
	LT	1.00	83	1,600	0.052	E-W(1):	0.234
Westbound	RT	0.00	74	0	0.000	E-W(2):	0.288 *
	TH	1.00	323	1,600	0.248 *		
	LT	1.00	97	1,600	0.061	V/C:	0.521
Northbound	RT	0.00	92	0	0.000	Lost Time:	0.100
	TH	2.00	413	3,200	0.158		
	LT	1.00	163	1,600	0.102 *		
Eastbound	RT	1.00	93	1,600	0.000	ICU:	0.621
	TH	1.00	276	1,600	0.173		
	LT	1.00	64	1,600	0.040 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	45	0	0.000	N-S(1):	0.200 *
	TH	2.00	308	3,200	0.110	N-S(2):	0.191
	LT	1.00	87	1,600	0.054 *	E-W(1):	0.207 *
Westbound	RT	0.00	47	0	0.000	E-W(2):	0.197
	TH	1.00	237	1,600	0.178		
	LT	1.00	71	1,600	0.044 *	V/C:	0.407
Northbound	RT	0.00	98	0	0.000	Lost Time:	0.100
	TH	2.00	369	3,200	0.146 *		
	LT	1.00	130	1,600	0.081		
Eastbound	RT	1.00	139	1,600	0.006	ICU:	0.507
	TH	1.00	261	1,600	0.163 *		
	LT	1.00	31	1,600	0.019	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **SANTA ANA BOULEVARD(N)**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	5	0	0.000	N-S(1):	0.335
	TH	1.00	528	1,600	0.333 *	N-S(2):	0.339 *
	LT	1.00	17	1,600	0.011	E-W(1):	0.077
Westbound	RT	0.00	94	0	0.000	E-W(2):	0.137 *
	TH	1.00	28	1,600	0.133 *		
	LT	0.00	90	1,600	0.056	V/C:	0.476
Northbound	RT	0.00	28	0	0.000	Lost Time:	0.100
	TH	1.00	490	1,600	0.324		
	LT	1.00	9	1,600	0.006 *		
Eastbound	RT	0.00	12	0	0.000	ICU:	0.576
	TH	1.00	14	1,600	0.021		
	LT	0.00	7	1,600	0.004 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.409 *
	TH	1.00	459	1,600	0.289	N-S(2):	0.297
	LT	1.00	32	1,600	0.020 *	E-W(1):	0.055
Westbound	RT	0.00	75	0	0.000	E-W(2):	0.088 *
	TH	1.00	16	1,600	0.087 *		
	LT	0.00	48	1,600	0.030	V/C:	0.497
Northbound	RT	0.00	50	0	0.000	Lost Time:	0.100
	TH	1.00	572	1,600	0.389 *		
	LT	1.00	13	1,600	0.008		
Eastbound	RT	0.00	15	0	0.000	ICU:	0.597
	TH	1.00	24	1,600	0.025		
	LT	0.00	1	1,600	0.001 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **SANTA ANA BOULEVARD(S)**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	53	0	0.000	N-S(1):	0.336
	TH	1.00	550	1,600	0.377 *	N-S(2):	0.393 *
	LT	1.00	27	1,600	0.017	E-W(1):	0.119 *
Westbound	RT	0.00	10	0	0.000	E-W(2):	0.103
	TH	1.00	69	1,600	0.084		
	LT	0.00	55	1,600	0.034 *	V/C:	0.512
Northbound	RT	0.00	25	0	0.000	Lost Time:	0.100
	TH	1.00	486	1,600	0.319		
	LT	1.00	26	1,600	0.016 *		
Eastbound	RT	0.00	21	0	0.000	ICU:	0.612
	TH	1.00	85	1,600	0.085 *		
	LT	0.00	30	1,600	0.019	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	23	0	0.000	N-S(1):	0.413 *
	TH	1.00	461	1,600	0.303	N-S(2):	0.320
	LT	1.00	39	1,600	0.024 *	E-W(1):	0.126 *
Westbound	RT	0.00	11	0	0.000	E-W(2):	0.091
	TH	1.00	43	1,600	0.071		
	LT	0.00	60	1,600	0.038 *	V/C:	0.539
Northbound	RT	0.00	33	0	0.000	Lost Time:	0.100
	TH	1.00	590	1,600	0.389 *		
	LT	1.00	27	1,600	0.017		
Eastbound	RT	0.00	28	0	0.000	ICU:	0.639
	TH	1.00	81	1,600	0.088 *		
	LT	0.00	32	1,600	0.020	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: IMPERIAL HIGHWAY-WILLOWBROOK AVE

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	118	0	0.000	N-S(1):	0.150
	TH	2.00	816	3,200	0.292 *	N-S(2):	0.375 *
	LT	1.00	23	1,600	0.014	E-W(1):	0.050
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.068 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.443
Northbound	RT	0.00	53	0	0.000	Lost Time:	0.100
	TH	2.00	383	3,200	0.136	ATSAC/ATCS:	-0.100
	LT	1.00	132	1,600	0.083 *		
Eastbound	RT	1.00	212	1,600	0.050	ICU:	0.443
	TH	1.00	22	1,600	0.014		
	LT	1.00	108	1,600	0.068 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	106	0	0.000	N-S(1):	0.184
	TH	2.00	698	3,200	0.251 *	N-S(2):	0.358 *
	LT	1.00	31	1,600	0.019	E-W(1):	0.059
Westbound	RT	0.00	2	0	0.000	E-W(2):	0.084 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.442
Northbound	RT	0.00	40	0	0.000	Lost Time:	0.100
	TH	2.00	487	3,200	0.165	ATSAC/ATCS:	-0.100
	LT	1.00	171	1,600	0.107 *		
Eastbound	RT	1.00	265	1,600	0.059	ICU:	0.442
	TH	1.00	23	1,600	0.014		
	LT	1.00	134	1,600	0.084 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: I-105 EASTBOUND ON/OFF RAMPS

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	432	3,200	0.014	N-S(1):	0.151
	TH	2.00	614	3,200	0.192 *	N-S(2):	0.383 *
	LT	0.00	0	0	0.000	E-W(1):	0.193
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.242 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.625
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	723	4,800	0.151		
	LT	1.00	305	1,600	0.191 *		
Eastbound	RT	1.00	614	1,600	0.193	ICU:	0.725
	TH	0.00	0	0	0.000		
	LT	1.00	387	1,600	0.242 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	343	3,200	0.003	N-S(1):	0.211
	TH	2.00	637	3,200	0.199 *	N-S(2):	0.417 *
	LT	0.00	0	0	0.000	E-W(1):	0.000
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.209 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.626
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,013	4,800	0.211		
	LT	1.00	349	1,600	0.218 *		
Eastbound	RT	1.00	240	1,600	0.000	ICU:	0.726
	TH	0.00	0	0	0.000		
	LT	1.00	334	1,600	0.209 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 118TH STREET

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	74	0	0.000	N-S(1):	0.226
	TH	2.00	1,065	3,200	0.356 *	N-S(2):	0.419 *
	LT	2.00	98	2,880	0.034	E-W(1):	0.167 *
Westbound	RT	0.00	67	0	0.000	E-W(2):	0.132
	TH	1.00	27	1,600	0.079		
	LT	0.00	32	1,600	0.020 *	V/C:	0.586
Northbound	RT	0.00	45	0	0.000	Lost Time:	0.100
	TH	3.00	877	4,800	0.192		
	LT	1.00	101	1,600	0.063 *		
Eastbound	RT	0.00	118	0	0.000	ICU:	0.686
	TH	1.00	33	1,600	0.147 *		
	LT	0.00	84	1,600	0.053	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	36	0	0.000	N-S(1):	0.310 *
	TH	2.00	653	3,200	0.215	N-S(2):	0.244
	LT	2.00	177	2,880	0.061 *	E-W(1):	0.186
Westbound	RT	0.00	188	0	0.000	E-W(2):	0.260 *
	TH	1.00	56	1,600	0.202 *		
	LT	0.00	79	1,600	0.049	V/C:	0.570
Northbound	RT	0.00	117	0	0.000	Lost Time:	0.100
	TH	3.00	1,078	4,800	0.249 *		
	LT	1.00	47	1,600	0.029		
Eastbound	RT	0.00	54	0	0.000	ICU:	0.670
	TH	1.00	72	1,600	0.137		
	LT	0.00	93	1,600	0.058 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **120TH ST-119TH STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	329	0	0.000	N-S(1):	0.332
	TH	2.00	747	3,200	0.336 *	N-S(2):	0.422 *
	LT	1.00	137	1,600	0.086	E-W(1):	0.124
Westbound	RT	0.00	160	0	0.000	E-W(2):	0.196 *
	TH	2.00	233	3,200	0.123 *		
	LT	1.00	75	1,600	0.047	V/C:	0.618
Northbound	RT	0.00	41	0	0.000	Lost Time:	0.100
	TH	2.00	747	3,200	0.246		
	LT	1.00	137	1,600	0.086 *		
Eastbound	RT	1.00	84	1,600	0.000	ICU:	0.718
	TH	1.00	123	1,600	0.077		
	LT	1.00	116	1,600	0.073 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	65	0	0.000	N-S(1):	0.353 *
	TH	2.00	621	3,200	0.214	N-S(2):	0.276
	LT	1.00	86	1,600	0.054 *	E-W(1):	0.236
Westbound	RT	0.00	149	0	0.000	E-W(2):	0.250 *
	TH	2.00	165	3,200	0.098 *		
	LT	1.00	108	1,600	0.068	V/C:	0.603
Northbound	RT	0.00	116	0	0.000	Lost Time:	0.100
	TH	2.00	840	3,200	0.299 *		
	LT	1.00	99	1,600	0.062		
Eastbound	RT	1.00	165	1,600	0.041	ICU:	0.703
	TH	1.00	269	1,600	0.168		
	LT	1.00	243	1,600	0.152 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **MLK HOSPITAL DWY-120TH STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	120	0	0.000	N-S(1):	0.270
	TH	2.00	789	3,200	0.284 *	N-S(2):	0.315 *
	LT	1.00	33	1,600	0.021	E-W(1):	0.035
Westbound	RT	0.00	42	0	0.000	E-W(2):	0.064 *
	TH	1.00	7	1,600	0.037 *		
	LT	0.00	10	1,600	0.006	V/C:	0.379
Northbound	RT	0.00	8	0	0.000	Lost Time:	0.100
	TH	2.00	788	3,200	0.249		
	LT	1.00	50	1,600	0.031 *		
Eastbound	RT	1.00	23	1,600	0.000	ICU:	0.479
	TH	1.00	3	1,600	0.029		
	LT	0.00	43	1,600	0.027 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	30	0	0.000	N-S(1):	0.326 *
	TH	2.00	833	3,200	0.270	N-S(2):	0.281
	LT	1.00	29	1,600	0.018 *	E-W(1):	0.038
Westbound	RT	0.00	27	0	0.000	E-W(2):	0.056 *
	TH	1.00	1	1,600	0.023 *		
	LT	0.00	8	1,600	0.005	V/C:	0.382
Northbound	RT	0.00	21	0	0.000	Lost Time:	0.100
	TH	2.00	966	3,200	0.308 *		
	LT	1.00	18	1,600	0.011		
Eastbound	RT	1.00	26	1,600	0.005	ICU:	0.482
	TH	1.00	1	1,600	0.033		
	LT	0.00	52	1,600	0.033 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **124TH STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	18	0	0.000	N-S(1):	0.303 *
	TH	2.00	704	3,200	0.226	N-S(2):	0.239
	LT	1.00	60	1,600	0.038 *	E-W(1):	0.082
Westbound	RT	0.00	65	0	0.000	E-W(2):	0.126 *
	TH	1.00	69	1,600	0.118 *		
	LT	0.00	54	1,600	0.034	V/C:	0.429
Northbound	RT	0.00	36	0	0.000	Lost Time:	0.100
	TH	2.00	813	3,200	0.265 *		
	LT	1.00	21	1,600	0.013		
Eastbound	RT	0.00	26	0	0.000	ICU:	0.529
	TH	1.00	37	1,600	0.048		
	LT	0.00	13	1,600	0.008 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	18	0	0.000	N-S(1):	0.301 *
	TH	2.00	667	3,200	0.214	N-S(2):	0.230
	LT	1.00	71	1,600	0.044 *	E-W(1):	0.062
Westbound	RT	0.00	48	0	0.000	E-W(2):	0.071 *
	TH	1.00	23	1,600	0.062 *		
	LT	0.00	28	1,600	0.018	V/C:	0.372
Northbound	RT	0.00	34	0	0.000	Lost Time:	0.100
	TH	2.00	789	3,200	0.257 *		
	LT	1.00	25	1,600	0.016		
Eastbound	RT	0.00	23	0	0.000	ICU:	0.472
	TH	1.00	33	1,600	0.044		
	LT	0.00	14	1,600	0.009 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	103	0	0.000	N-S(1):	0.323
	TH	2.00	567	3,200	0.209 *	N-S(2):	0.358 *
	LT	1.00	143	1,600	0.089	E-W(1):	0.238
Westbound	RT	0.00	110	0	0.000	E-W(2):	0.300 *
	TH	2.00	559	3,200	0.209 *		
	LT	1.00	64	1,600	0.040	V/C:	0.658
Northbound	RT	0.00	67	0	0.000	Lost Time:	0.100
	TH	2.00	682	3,200	0.234		
	LT	1.00	239	1,600	0.149 *		
Eastbound	RT	0.00	263	0	0.000	ICU:	0.758
	TH	2.00	370	3,200	0.198		
	LT	1.00	145	1,600	0.091 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	89	0	0.000	N-S(1):	0.327 *
	TH	2.00	568	3,200	0.205	N-S(2):	0.306
	LT	1.00	145	1,600	0.091 *	E-W(1):	0.381 *
Westbound	RT	0.00	89	0	0.000	E-W(2):	0.233
	TH	2.00	338	3,200	0.133		
	LT	1.00	96	1,600	0.060 *	V/C:	0.708
Northbound	RT	0.00	83	0	0.000	Lost Time:	0.100
	TH	2.00	673	3,200	0.236 *		
	LT	1.00	161	1,600	0.101		
Eastbound	RT	0.00	260	0	0.000	ICU:	0.808
	TH	2.00	767	3,200	0.321 *		
	LT	1.00	160	1,600	0.100	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	127	0	0.000	N-S(1):	0.333
	TH	2.00	684	3,200	0.253 *	N-S(2):	0.337 *
	LT	1.00	155	1,600	0.097	E-W(1):	0.226
Westbound	RT	0.00	143	0	0.000	E-W(2):	0.366 *
	TH	2.00	803	3,200	0.296 *		
	LT	1.00	123	1,600	0.077	V/C:	0.703
Northbound	RT	0.00	127	0	0.000	Lost Time:	0.100
	TH	2.00	627	3,200	0.236		
	LT	1.00	134	1,600	0.084 *		
Eastbound	RT	1.00	126	1,600	0.000	ICU:	0.803
	TH	2.00	478	3,200	0.149		
	LT	1.00	112	1,600	0.070 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	135	0	0.000	N-S(1):	0.343 *
	TH	2.00	578	3,200	0.223	N-S(2):	0.319
	LT	1.00	152	1,600	0.095 *	E-W(1):	0.386 *
Westbound	RT	0.00	149	0	0.000	E-W(2):	0.320
	TH	2.00	569	3,200	0.224		
	LT	1.00	136	1,600	0.085 *	V/C:	0.729
Northbound	RT	0.00	159	0	0.000	Lost Time:	0.100
	TH	2.00	633	3,200	0.248 *		
	LT	1.00	153	1,600	0.096		
Eastbound	RT	1.00	164	1,600	0.007	ICU:	0.829
	TH	2.00	963	3,200	0.301 *		
	LT	1.00	153	1,600	0.096	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **COMPTON BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	117	0	0.000	N-S(1):	0.260 *
	TH	2.00	546	3,200	0.207 *	N-S(2):	0.260 *
	LT	1.00	166	1,600	0.104 *	E-W(1):	0.281 *
Westbound	RT	1.00	145	1,600	0.000	E-W(2):	0.184
	TH	2.00	426	3,200	0.133		
	LT	1.00	153	1,600	0.096 *	V/C:	0.541
Northbound	RT	1.00	145	1,600	0.000	Lost Time:	0.100
	TH	2.00	498	3,200	0.156 *		
	LT	1.00	85	1,600	0.053 *		
Eastbound	RT	0.00	76	0	0.000	ICU:	0.641
	TH	2.00	516	3,200	0.185 *		
	LT	1.00	81	1,600	0.051	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	89	0	0.000	N-S(1):	0.291 *
	TH	2.00	513	3,200	0.188	N-S(2):	0.261
	LT	1.00	140	1,600	0.088 *	E-W(1):	0.294 *
Westbound	RT	1.00	186	1,600	0.029	E-W(2):	0.221
	TH	2.00	490	3,200	0.153		
	LT	1.00	152	1,600	0.095 *	V/C:	0.585
Northbound	RT	1.00	140	1,600	0.000	Lost Time:	0.100
	TH	2.00	648	3,200	0.203 *		
	LT	1.00	117	1,600	0.073		
Eastbound	RT	0.00	96	0	0.000	ICU:	0.685
	TH	2.00	541	3,200	0.199 *		
	LT	1.00	108	1,600	0.068	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **ALONDRA BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	65	0	0.000	N-S(1):	0.246
	TH	2.00	717	3,200	0.244 *	N-S(2):	0.281 *
	LT	1.00	87	1,600	0.054	E-W(1):	0.203 *
Westbound	RT	0.00	75	0	0.000	E-W(2):	0.203 *
	TH	2.00	429	3,200	0.158 *		
	LT	1.00	99	1,600	0.062	V/C:	0.484
Northbound	RT	0.00	53	0	0.000	Lost Time:	0.100
	TH	2.00	560	3,200	0.192		
	LT	1.00	59	1,600	0.037 *		
Eastbound	RT	0.00	49	0	0.000	ICU:	0.584
	TH	2.00	402	3,200	0.141		
	LT	1.00	72	1,600	0.045 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	86	0	0.000	N-S(1):	0.299 *
	TH	2.00	516	3,200	0.188	N-S(2):	0.235
	LT	1.00	96	1,600	0.060 *	E-W(1):	0.262 *
Westbound	RT	0.00	101	0	0.000	E-W(2):	0.235
	TH	2.00	372	3,200	0.148		
	LT	1.00	91	1,600	0.057 *	V/C:	0.561
Northbound	RT	0.00	88	0	0.000	Lost Time:	0.100
	TH	2.00	678	3,200	0.239 *		
	LT	1.00	75	1,600	0.047		
Eastbound	RT	0.00	96	0	0.000	ICU:	0.661
	TH	2.00	560	3,200	0.205 *		
	LT	1.00	139	1,600	0.087	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **GREEN LEAF BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	26	0	0.000	N-S(1):	0.225
	TH	2.00	826	3,200	0.266 *	N-S(2):	0.289 *
	LT	1.00	97	1,600	0.061	E-W(1):	0.271 *
Westbound	RT	0.00	58	0	0.000	E-W(2):	0.240
	TH	1.00	280	1,600	0.211		
	LT	1.00	188	1,600	0.118 *	V/C:	0.560
Northbound	RT	1.00	118	1,600	0.000	Lost Time:	0.100
	TH	2.00	524	3,200	0.164		
	LT	1.00	37	1,600	0.023 *		
Eastbound	RT	0.00	63	0	0.000	ICU:	0.660
	TH	1.00	182	1,600	0.153 *		
	LT	1.00	46	1,600	0.029	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	16	0	0.000	N-S(1):	0.326 *
	TH	2.00	608	3,200	0.195	N-S(2):	0.236
	LT	1.00	180	1,600	0.113 *	E-W(1):	0.282 *
Westbound	RT	0.00	146	0	0.000	E-W(2):	0.237
	TH	1.00	198	1,600	0.215		
	LT	1.00	106	1,600	0.066 *	V/C:	0.608
Northbound	RT	1.00	224	1,600	0.074	Lost Time:	0.100
	TH	2.00	680	3,200	0.213 *		
	LT	1.00	66	1,600	0.041		
Eastbound	RT	0.00	18	0	0.000	ICU:	0.708
	TH	1.00	327	1,600	0.216 *		
	LT	1.00	35	1,600	0.022	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON BOULEVARD
East/West Street: ARTESIA BOULEVARD(NORTH)

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	258	0	0.000	N-S(1):	0.140
	TH	3.00	796	4,800	0.220 *	N-S(2):	0.373 *
	LT	0.00	0	0	0.000	E-W(1):	0.306 *
Westbound	RT	0.00	317	0	0.000	E-W(2):	0.275
	TH	1.48	333	2,360	0.275		
	LT	1.52	672	2,196	0.306 *	V/C:	0.679
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	447	3,200	0.140		
	LT	1.00	244	1,600	0.153 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.779
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	246	0	0.000	N-S(1):	0.213
	TH	3.00	542	4,800	0.164 *	N-S(2):	0.459 *
	LT	0.00	0	0	0.000	E-W(1):	0.208
Westbound	RT	0.00	340	1,600	0.213 *	E-W(2):	0.213 *
	TH	1.56	168	897	0.187		
	LT	1.44	431	2,072	0.208	V/C:	0.672
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	680	3,200	0.213		
	LT	1.00	472	1,600	0.295 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.772
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON BOULEVARD**
East/West Street: **ARTESIA BOULEVARD (SOUTH)**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.291
	TH	2.00	983	3,200	0.307 *	N-S(2):	0.307 *
	LT	2.00	481	2,880	0.167	E-W(1):	0.291 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.130
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.598
Northbound	RT	2.00	356	3,200	0.111	Lost Time:	0.100
	TH	2.00	397	3,200	0.124		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	0.00	466	1,600	0.291 *	ICU:	0.698
	TH	1.44	83	708	0.117		
	LT	1.56	292	2,243	0.130	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.383 *
	TH	2.00	640	3,200	0.200	N-S(2):	0.200
	LT	2.00	326	2,880	0.113 *	E-W(1):	0.246 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.176
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.629
Northbound	RT	2.00	748	3,200	0.234	Lost Time:	0.100
	TH	2.00	865	3,200	0.270 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	263	0	0.000	ICU:	0.729
	TH	2.00	523	3,200	0.246 *		
	LT	1.00	281	1,600	0.176	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **I-105 WESTBOUND ON/OFF RAMPS**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : Y
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	42	0	0.000	N-S(1):	0.269 *
	TH	1.00	66	1,600	0.075 *	N-S(2):	0.000
	LT	0.00	12	1,600	0.008	E-W(1):	0.445 *
Westbound	RT	0.00	24	0	0.000	E-W(2):	0.247
	TH	3.00	1,028	4,800	0.219		
	LT	2.00	858	2,880	0.298 *	V/C:	0.714
Northbound	RT	1.00	148	1,600	0.000	Lost Time:	0.100
	TH	0.01	3	17	0.175		
	LT	1.99	556	2,865	0.194 *		
Eastbound	RT	1.80	423	2,878	0.050	ICU:	0.814
	TH	3.20	753	5,122	0.147 *		
	LT	1.00	45	1,600	0.028	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	26	0	0.000	N-S(1):	0.247 *
	TH	1.00	27	1,600	0.044 *	N-S(2):	0.000
	LT	0.00	17	1,600	0.011	E-W(1):	0.443 *
Westbound	RT	0.00	13	0	0.000	E-W(2):	0.175
	TH	3.00	746	4,800	0.158		
	LT	2.00	564	2,880	0.196 *	V/C:	0.690
Northbound	RT	1.00	223	1,600	0.000	Lost Time:	0.100
	TH	0.06	18	99	0.183		
	LT	1.94	566	2,791	0.203 *		
Eastbound	RT	1.00	252	1,600	0.000	ICU:	0.790
	TH	4.00	1,578	6,400	0.247 *		
	LT	1.00	27	1,600	0.017	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MONA BOULEVARD**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : N
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	108	0	0.000	N-S(1):	0.143
	TH	1.00	91	1,600	0.140 *	N-S(2):	0.234 *
	LT	0.00	25	1,600	0.016	E-W(1):	0.319
Westbound	RT	0.00	29	0	0.000	E-W(2):	0.391 *
	TH	3.00	1,655	4,800	0.351 *		
	LT	1.00	185	1,600	0.116	V/C:	0.625
Northbound	RT	1.00	141	1,600	0.000	Lost Time:	0.100
	TH	1.00	53	1,600	0.127		
	LT	0.00	150	1,600	0.094 *		
Eastbound	RT	0.00	142	0	0.000	ICU:	0.725
	TH	3.00	831	4,800	0.203		
	LT	1.00	64	1,600	0.040 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	89	0	0.000	N-S(1):	0.150
	TH	1.00	54	1,600	0.108 *	N-S(2):	0.202 *
	LT	0.00	30	1,600	0.019	E-W(1):	0.478 *
Westbound	RT	0.00	32	0	0.000	E-W(2):	0.300
	TH	3.00	1,022	4,800	0.220		
	LT	1.00	148	1,600	0.093 *	V/C:	0.680
Northbound	RT	1.00	208	1,600	0.038	Lost Time:	0.100
	TH	1.00	59	1,600	0.131		
	LT	0.00	151	1,600	0.094 *		
Eastbound	RT	0.00	252	0	0.000	ICU:	0.780
	TH	3.00	1,597	4,800	0.385 *		
	LT	1.00	128	1,600	0.080	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MONA BOULEVARD**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	82	1,600	0.021	N-S(1):	0.210 *
	TH	1.00	127	1,600	0.126	N-S(2):	0.156
	LT	0.00	74	1,600	0.046 *	E-W(1):	0.172
Westbound	RT	0.00	38	0	0.000	E-W(2):	0.231 *
	TH	2.00	606	3,200	0.201 *		
	LT	1.00	28	1,600	0.018	V/C:	0.441
Northbound	RT	0.00	76	0	0.000	Lost Time:	0.100
	TH	1.00	138	1,600	0.164 *		
	LT	0.00	48	1,600	0.030		
Eastbound	RT	0.00	40	0	0.000	ICU:	0.541
	TH	2.00	452	3,200	0.154		
	LT	1.00	48	1,600	0.030 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	74	1,600	0.001	N-S(1):	0.156 *
	TH	1.00	124	1,600	0.119	N-S(2):	0.138
	LT	0.00	66	1,600	0.041 *	E-W(1):	0.304 *
Westbound	RT	0.00	51	0	0.000	E-W(2):	0.186
	TH	2.00	399	3,200	0.141		
	LT	1.00	38	1,600	0.024 *	V/C:	0.460
Northbound	RT	0.00	56	0	0.000	Lost Time:	0.100
	TH	1.00	98	1,600	0.115 *		
	LT	0.00	30	1,600	0.019		
Eastbound	RT	0.00	81	0	0.000	ICU:	0.560
	TH	2.00	816	3,200	0.280 *		
	LT	1.00	72	1,600	0.045	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **S ALAMEDA STREET**
East/West Street: **103RD STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	234	0	0.000	N-S(1):	0.340
	TH	2.00	1,002	3,200	0.386 *	N-S(2):	0.436 *
	LT	0.00	0	0	0.000	E-W(1):	0.031
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.224 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.660
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,087	3,200	0.340		
	LT	1.00	80	1,600	0.050 *		
Eastbound	RT	0.26	93	414	0.031	ICU:	0.760
	TH	0.00	0	0	0.000		
	LT	0.74	266	1,186	0.224 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	255	0	0.000	N-S(1):	0.352
	TH	2.00	1,122	3,200	0.430 *	N-S(2):	0.495 *
	LT	0.00	0	0	0.000	E-W(1):	0.000
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.229 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.724
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,125	3,200	0.352		
	LT	1.00	104	1,600	0.065 *		
Eastbound	RT	0.28	102	446	0.000	ICU:	0.824
	TH	0.00	0	0	0.000		
	LT	0.72	264	1,154	0.229 *	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	545	1,600	0.221 *	N-S(1):	0.271
	TH	2.00	581	3,200	0.182	N-S(2):	0.283 *
	LT	1.00	88	1,600	0.055	E-W(1):	0.188
Westbound	RT	1.00	55	1,600	0.034	E-W(2):	0.352 *
	TH	3.00	1,052	4,800	0.219 *		
	LT	1.00	121	1,600	0.076	V/C:	0.635
Northbound	RT	0.00	79	0	0.000	Lost Time:	0.100
	TH	2.00	612	3,200	0.216		
	LT	2.00	179	2,880	0.062 *		
Eastbound	RT	0.00	139	0	0.000	ICU:	0.735
	TH	3.00	400	4,800	0.112		
	LT	2.00	383	2,880	0.133 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	472	1,600	0.150	N-S(1):	0.366 *
	TH	2.00	694	3,200	0.217	N-S(2):	0.289
	LT	1.00	166	1,600	0.104 *	E-W(1):	0.353 *
Westbound	RT	1.00	46	1,600	0.029	E-W(2):	0.297
	TH	3.00	653	4,800	0.136		
	LT	1.00	99	1,600	0.062 *	V/C:	0.719
Northbound	RT	0.00	148	0	0.000	Lost Time:	0.100
	TH	2.00	691	3,200	0.262 *		
	LT	2.00	208	2,880	0.072		
Eastbound	RT	0.00	177	0	0.000	ICU:	0.819
	TH	3.00	1,221	4,800	0.291 *		
	LT	2.00	465	2,880	0.161	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	102	0	0.000	N-S(1):	0.217
	TH	2.00	537	3,200	0.200 *	N-S(2):	0.291 *
	LT	1.00	55	1,600	0.034	E-W(1):	0.116
Westbound	RT	1.00	81	1,600	0.016	E-W(2):	0.230 *
	TH	1.00	266	1,600	0.166 *		
	LT	1.00	53	1,600	0.033	V/C:	0.521
Northbound	RT	0.00	46	0	0.000	Lost Time:	0.100
	TH	2.00	538	3,200	0.183		
	LT	1.00	145	1,600	0.091 *		
Eastbound	RT	1.00	106	1,600	0.000	ICU:	0.621
	TH	2.00	267	3,200	0.083		
	LT	1.00	103	1,600	0.064 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	117	0	0.000	N-S(1):	0.288
	TH	2.00	714	3,200	0.260 *	N-S(2):	0.354 *
	LT	1.00	97	1,600	0.061	E-W(1):	0.209
Westbound	RT	1.00	74	1,600	0.000	E-W(2):	0.277 *
	TH	1.00	275	1,600	0.172 *		
	LT	1.00	42	1,600	0.026	V/C:	0.631
Northbound	RT	0.00	40	0	0.000	Lost Time:	0.100
	TH	2.00	685	3,200	0.227		
	LT	1.00	151	1,600	0.094 *		
Eastbound	RT	1.00	172	1,600	0.013	ICU:	0.731
	TH	2.00	586	3,200	0.183		
	LT	1.00	168	1,600	0.105 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: LONG BEACH BOULEVARD
East/West Street: MARTIN LUTHER KING JR BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	17	0	0.000	N-S(1):	0.314
	TH	2.00	817	3,200	0.261 *	N-S(2):	0.404 *
	LT	1.00	139	1,600	0.087	E-W(1):	0.242
Westbound	RT	0.00	150	0	0.000	E-W(2):	0.281 *
	TH	2.00	686	3,200	0.261 *		
	LT	1.00	121	1,600	0.076	V/C:	0.685
Northbound	RT	1.00	64	1,600	0.000	Lost Time:	0.100
	TH	2.00	725	3,200	0.227		
	LT	1.00	228	1,600	0.143 *		
Eastbound	RT	0.00	114	0	0.000	ICU:	0.785
	TH	2.00	417	3,200	0.166		
	LT	1.00	32	1,600	0.020 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	37	0	0.000	N-S(1):	0.432 *
	TH	2.00	944	3,200	0.307	N-S(2):	0.408
	LT	1.00	182	1,600	0.114 *	E-W(1):	0.292 *
Westbound	RT	0.00	175	0	0.000	E-W(2):	0.199
	TH	2.00	384	3,200	0.175		
	LT	1.00	102	1,600	0.064 *	V/C:	0.724
Northbound	RT	1.00	143	1,600	0.026	Lost Time:	0.100
	TH	2.00	1,017	3,200	0.318 *		
	LT	1.00	161	1,600	0.101		
Eastbound	RT	0.00	177	0	0.000	ICU:	0.824
	TH	2.00	553	3,200	0.228 *		
	LT	1.00	39	1,600	0.024	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	47	0	0.000	N-S(1):	0.252
	TH	3.00	969	4,800	0.212 *	N-S(2):	0.355 *
	LT	1.00	88	1,600	0.055	E-W(1):	0.475 *
Westbound	RT	0.00	47	0	0.000	E-W(2):	0.350
	TH	2.00	984	3,200	0.322		
	LT	1.00	368	1,600	0.230 *	V/C:	0.830
Northbound	RT	1.00	408	1,600	0.025	Lost Time:	0.100
	TH	3.00	947	4,800	0.197		
	LT	1.00	228	1,600	0.143 *		
Eastbound	RT	0.00	194	0	0.000	ICU:	0.930
	TH	2.00	590	3,200	0.245 *		
	LT	1.00	44	1,600	0.028	LOS:	E

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	81	0	0.000	N-S(1):	0.315
	TH	3.00	1,055	4,800	0.237 *	N-S(2):	0.359 *
	LT	1.00	111	1,600	0.069	E-W(1):	0.562 *
Westbound	RT	0.00	80	0	0.000	E-W(2):	0.343
	TH	2.00	751	3,200	0.260		
	LT	1.00	287	1,600	0.179 *	V/C:	0.921
Northbound	RT	1.00	412	1,600	0.078	Lost Time:	0.100
	TH	3.00	1,181	4,800	0.246		
	LT	1.00	195	1,600	0.122 *		
Eastbound	RT	0.00	257	0	0.000	ICU:	1.021
	TH	2.00	968	3,200	0.383 *		
	LT	1.00	133	1,600	0.083	LOS:	F

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **I-105 WESTBOUND RAMPS**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	9	0	0.000	N-S(1):	0.246
	TH	3.00	1,215	4,800	0.255 *	N-S(2):	0.259 *
	LT	0.00	0	0	0.000	E-W(1):	0.116 *
Westbound	RT	1.96	648	3,142	0.206	E-W(2):	0.000
	TH	0.04	12	58	0.206		
	LT	1.00	185	1,600	0.116 *	V/C:	0.375
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,180	4,800	0.246		
	LT	1.00	7	1,600	0.004 *		
Eastbound	RT	1.00	5	1,600	0.000	ICU:	0.475
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	7	0	0.000	N-S(1):	0.232
	TH	3.00	1,330	4,800	0.279 *	N-S(2):	0.281 *
	LT	0.00	0	0	0.000	E-W(1):	0.279 *
Westbound	RT	1.98	957	3,164	0.303	E-W(2):	0.000
	TH	0.02	11	36	0.303		
	LT	1.00	436	1,600	0.273 *	V/C:	0.560
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,113	4,800	0.232		
	LT	1.00	3	1,600	0.002 *		
Eastbound	RT	1.00	12	1,600	0.006 *	ICU:	0.660
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **I-105 EASTBOUND RAMPS**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.334 *
	TH	2.00	489	3,200	0.153	N-S(2):	0.153
	LT	1.00	24	1,600	0.015 *	E-W(1):	0.231 *
Westbound	RT	1.00	7	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.565
Northbound	RT	0.00	510	1,600	0.319 *	Lost Time:	0.100
	TH	3.00	1,007	3,200	0.315		
	LT	0.00	0	0	0.000		
Eastbound	RT	1.00	369	1,600	0.231 *	ICU:	0.665
	TH	0.01	2	10	0.202		
	LT	1.99	645	2,871	0.225	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.310
	TH	2.00	1,028	3,200	0.321 *	N-S(2):	0.321 *
	LT	1.00	15	1,600	0.009	E-W(1):	0.169 *
Westbound	RT	1.00	9	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.490
Northbound	RT	0.00	449	0	0.000	Lost Time:	0.100
	TH	3.00	997	4,800	0.301		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	1.00	271	1,600	0.169 *	ICU:	0.590
	TH	0.03	7	48	0.144		
	LT	1.97	455	2,836	0.160	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SLATER AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	98	1,600	0.024 *	N-S(1):	0.017
	TH	0.00	0	0	0.000	N-S(2):	0.024 *
	LT	1.00	27	1,600	0.017	E-W(1):	0.258
Westbound	RT	0.00	15	0	0.000	E-W(2):	0.429 *
	TH	2.00	1,238	3,200	0.392 *		
	LT	0.00	0	0	0.000	V/C:	0.453
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.553
	TH	2.00	824	3,200	0.258		
	LT	1.00	59	1,600	0.037 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	51	1,600	0.003	N-S(1):	0.009 *
	TH	0.00	0	0	0.000	N-S(2):	0.003
	LT	1.00	15	1,600	0.009 *	E-W(1):	0.390 *
Westbound	RT	0.00	15	0	0.000	E-W(2):	0.209
	TH	2.00	561	3,200	0.180		
	LT	0.00	0	0	0.000 *	V/C:	0.399
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.499
	TH	2.00	1,249	3,200	0.390 *		
	LT	1.00	46	1,600	0.029	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **108TH STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	46	0	0.000	N-S(1):	0.459 *
	TH	1.00	453	1,600	0.326	N-S(2):	0.346
	LT	0.00	23	1,600	0.014 *	E-W(1):	0.169
Westbound	RT	0.00	73	0	0.000	E-W(2):	0.204 *
	TH	1.00	83	1,600	0.163 *		
	LT	0.00	104	1,600	0.065	V/C:	0.663
Northbound	RT	0.00	67	0	0.000	Lost Time:	0.100
	TH	1.00	613	1,600	0.445 *		
	LT	0.00	32	1,600	0.020		
Eastbound	RT	0.00	30	0	0.000	ICU:	0.763
	TH	1.00	71	1,600	0.104		
	LT	0.00	65	1,600	0.041 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	47	0	0.000	N-S(1):	0.397
	TH	1.00	548	1,600	0.396 *	N-S(2):	0.414 *
	LT	0.00	39	1,600	0.024	E-W(1):	0.141 *
Westbound	RT	0.00	26	0	0.000	E-W(2):	0.103
	TH	1.00	59	1,600	0.086		
	LT	0.00	53	1,600	0.033 *	V/C:	0.555
Northbound	RT	0.00	64	0	0.000	Lost Time:	0.100
	TH	1.00	503	1,600	0.373		
	LT	0.00	29	1,600	0.018 *		
Eastbound	RT	0.00	52	0	0.000	ICU:	0.655
	TH	1.00	94	1,600	0.108 *		
	LT	0.00	27	1,600	0.017	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: 111TH STREET

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase : N
Left-Turn Lane:	1600 vph	E-W Split Phase : N
Dual LT Penalty:	10 %	Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	53	0	0.000	N-S(1):	0.409 *
	TH	1.00	472	1,600	0.378	N-S(2):	0.389
	LT	0.00	80	1,600	0.050 *	E-W(1):	0.111
Westbound	RT	0.00	81	0	0.000	E-W(2):	0.140 *
	TH	1.00	35	1,600	0.101 *		
	LT	0.00	45	1,600	0.028	V/C:	0.549
Northbound	RT	0.00	37	0	0.000	Lost Time:	0.100
	TH	1.00	521	1,600	0.359 *		
	LT	0.00	17	1,600	0.011		
Eastbound	RT	0.00	17	0	0.000	ICU:	0.649
	TH	1.00	52	1,600	0.083		
	LT	0.00	63	1,600	0.039 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	47	0	0.000	N-S(1):	0.370
	TH	1.00	577	1,600	0.423 *	N-S(2):	0.433 *
	LT	0.00	53	1,600	0.033	E-W(1):	0.050
Westbound	RT	0.00	65	0	0.000	E-W(2):	0.080 *
	TH	1.00	5	1,600	0.058 *		
	LT	0.00	22	1,600	0.014	V/C:	0.513
Northbound	RT	0.00	23	0	0.000	Lost Time:	0.100
	TH	1.00	500	1,600	0.337		
	LT	0.00	16	1,600	0.010 *		
Eastbound	RT	0.00	17	0	0.000	ICU:	0.613
	TH	1.00	6	1,600	0.036		
	LT	0.00	35	1,600	0.022 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **111TH STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.409
	TH	1.00	660	1,600	0.450 *	N-S(2):	0.456 *
	LT	0.00	57	1,600	0.036	E-W(1):	0.072
Westbound	RT	0.00	54	0	0.000	E-W(2):	0.094 *
	TH	1.00	27	1,600	0.094 *		
	LT	0.00	69	1,600	0.043	V/C:	0.550
Northbound	RT	0.00	71	0	0.000	Lost Time:	0.100
	TH	1.00	516	1,600	0.373		
	LT	0.00	10	1,600	0.006 *		
Eastbound	RT	0.00	12	0	0.000	ICU:	0.650
	TH	1.00	34	1,600	0.029		
	LT	0.00	0	0	0.000 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.472 *
	TH	1.00	521	1,600	0.341	N-S(2):	0.349
	LT	0.00	22	1,600	0.014 *	E-W(1):	0.035
Westbound	RT	0.00	42	0	0.000	E-W(2):	0.055 *
	TH	1.00	16	1,600	0.053 *		
	LT	0.00	27	1,600	0.017	V/C:	0.527
Northbound	RT	0.00	45	0	0.000	Lost Time:	0.100
	TH	1.00	675	1,600	0.458 *		
	LT	0.00	13	1,600	0.008		
Eastbound	RT	0.00	14	0	0.000	ICU:	0.627
	TH	1.00	12	1,600	0.018		
	LT	0.00	3	1,600	0.002 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **119TH STREET**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	34	0	0.000	N-S(1):	0.015
	TH	1.00	9	1,600	0.027 *	N-S(2):	0.101 *
	LT	1.00	2	1,120	0.002	E-W(1):	0.240
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.248 *
	TH	1.00	270	1,120	0.248 *		
	LT	0.00	8	1,120	0.007		
Northbound	RT	1.00	22	1,120	0.013		
	TH	0.00	0	0	0.000		
	LT	1.00	118	1,600	0.074 *		
Eastbound	RT	0.00	55	0	0.000		
	TH	1.00	206	1,120	0.233		
	LT	0.00	0	0	0.000 *		

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	56	0	0.000	N-S(1):	0.125
	TH	1.00	36	1,120	0.086 *	N-S(2):	0.139 *
	LT	0.00	4	1,120	0.004	E-W(1):	0.188 *
Westbound	RT	0.00	3	0	0.000	E-W(2):	0.181
	TH	1.00	162	1,120	0.147		
	LT	1.00	20	1,600	0.013 *		
Northbound	RT	0.00	35	0	0.000		
	TH	1.00	42	1,120	0.121		
	LT	0.00	59	1,120	0.053 *		
Eastbound	RT	0.00	90	0	0.000		
	TH	1.00	106	1,120	0.175 *		
	LT	1.00	38	1,120	0.034		

* = Critical Movement

Observed				N-S:	0.139
Gate Lost Time (sec)-	57	40	60	E-W:	0.248
	59	41	41		
Total Seconds-	298			V/C:	0.387
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.487
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project:	**MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**
North/South Street:	**WILLOWBROOK AVENUE(W)**
East/West Street:	**119TH STREET**
Scenario:	**EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	40	0	0.000	N-S(1):	0.006
	TH	1.00	21	1,600	0.038 *	N-S(2):	0.101 *
	LT	1.00	2	1,120	0.002	E-W(1):	0.409 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.230
	TH	1.00	236	1,120	0.230		
	LT	0.00	22	1,120	0.020 *		
Northbound	RT	1.00	26	1,120	0.004		
	TH	0.00	0	0	0.000		
	LT	1.00	101	1,600	0.063 *		
Eastbound	RT	0.00	65	0	0.000		
	TH	1.00	371	1,120	0.389 *		
	LT	0.00	0	0	0.000		

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	56	0	0.000	N-S(1):	0.121
	TH	1.00	25	1,120	0.076 *	N-S(2):	0.145 *
	LT	0.00	4	1,120	0.004	E-W(1):	0.304 *
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.160
	TH	1.00	122	1,120	0.110		
	LT	1.00	14	1,600	0.009 *		
Northbound	RT	0.00	25	0	0.000		
	TH	1.00	29	1,120	0.117		
	LT	0.00	77	1,120	0.069 *		
Eastbound	RT	0.00	110	0	0.000		
	TH	1.00	220	1,120	0.295 *		
	LT	1.00	56	1,120	0.050		

* = Critical Movement

Observed				N-S:	0.145
Gate Lost Time (sec)-	57	40	60	E-W:	0.409
	59	41	41		
Total Seconds-	298			V/C:	0.554
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.654
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	B
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	31	0	0.000	N-S(1):	0.163 *
	TH	1.00	134	1,600	0.103	N-S(2):	0.143
	LT	1.00	29	1,232	0.024 *	E-W(1):	0.186
Westbound	RT	1.00	37	1,232	0.006	E-W(2):	0.271 *
	TH	2.00	605	2,464	0.246 *		
	LT	0.00	0	0	0.000		
Northbound	RT	0.00	11	0	0.000		
	TH	1.00	160	1,232	0.139 *		
	LT	1.00	64	1,600	0.040		
Eastbound	RT	1.00	84	1,600	0.013		
	TH	2.00	458	2,464	0.186		
	LT	1.00	40	1,600	0.025 *		

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	26	0	0.000	N-S(1):	0.101
	TH	1.00	82	1,232	0.088 *	N-S(2):	0.104 *
	LT	1.00	44	1,600	0.028	E-W(1):	0.205
Westbound	RT	0.00	37	0	0.000	E-W(2):	0.258 *
	TH	2.00	597	2,464	0.257 *		
	LT	1.00	26	1,600	0.016		
Northbound	RT	0.00	35	0	0.000		
	TH	1.00	82	1,600	0.073		
	LT	1.00	20	1,232	0.016 *		
Eastbound	RT	1.00	21	1,232	0.001		
	TH	2.00	465	2,464	0.189		
	LT	0.00	1	1,232	0.001 *		

* = Critical Movement

Observed				N-S:	0.163
Gate Lost Time (sec)-	42	40	44	E-W:	0.271
	82	68	62		
Total Seconds-	338			V/C:	0.434
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.534
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.111 *
	TH	1.00	95	1,600	0.071	N-S(2):	0.098
	LT	1.00	16	1,232	0.013 *	E-W(1):	0.351 *
Westbound	RT	1.00	36	1,232	0.016	E-W(2):	0.190
	TH	2.00	423	2,464	0.172		
	LT	0.00	0	0	0.000 *		
Northbound	RT	0.00	10	0	0.000		
	TH	1.00	111	1,232	0.098 *		
	LT	1.00	43	1,600	0.027		
Eastbound	RT	1.00	73	1,600	0.019		
	TH	2.00	865	2,464	0.351 *		
	LT	1.00	29	1,600	0.018		

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	18	0	0.000	N-S(1):	0.108 *
	TH	1.00	74	1,232	0.075	N-S(2):	0.096
	LT	1.00	62	1,600	0.039 *	E-W(1):	0.388 *
Westbound	RT	0.00	38	0	0.000	E-W(2):	0.190
	TH	2.00	426	2,464	0.188		
	LT	1.00	61	1,600	0.038 *		
Northbound	RT	0.00	49	0	0.000		
	TH	1.00	62	1,600	0.069 *		
	LT	1.00	26	1,232	0.021		
Eastbound	RT	1.00	39	1,232	0.011		
	TH	2.00	861	2,464	0.350 *		
	LT	0.00	2	1,232	0.002		

* = Critical Movement

Observed				N-S:	0.111
Gate Lost Time (sec)-	42	40	44	E-W:	0.388
	82	68	62		
Total Seconds-	338			V/C:	0.499
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.599
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	29	0	0.000	N-S(1): 0.201 *
	TH	1.00	105	1,600	0.157	N-S(2): 0.171
	LT	0.00	117	1,600	0.073 *	E-W(1): 0.267
Westbound	RT	0.00	130	0	0.000	E-W(2): 0.388 *
	TH	2.00	1,053	3,200	0.370 *	
	LT	1.00	42	1,600	0.026	
Northbound	RT	0.00	83	0	0.000	
	TH	1.00	100	1,600	0.128 *	
	LT	0.00	22	1,600	0.014	
Eastbound	RT	0.00	22	0	0.000	
	TH	2.00	748	3,200	0.241	
	LT	1.00	29	1,600	0.018 *	

WILLOWBROOK AV (E)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	80	0	0.000	N-S(1): 0.103
	TH	1.00	66	1,600	0.091 *	N-S(2): 0.115 *
	LT	1.00	130	1,600	0.081	E-W(1): 0.301
Westbound	RT	0.00	92	0	0.000	E-W(2): 0.408 *
	TH	2.00	1,141	3,200	0.385 *	
	LT	1.00	32	1,600	0.020	
Northbound	RT	0.00	19	0	0.000	
	TH	1.00	16	1,600	0.022	
	LT	1.00	39	1,600	0.024 *	
Eastbound	RT	0.00	66	0	0.000	
	TH	2.00	834	3,200	0.281	
	LT	1.00	36	1,600	0.023 *	

* = Critical Movement

N-S:	0.201
E-W:	0.408
V/C:	0.609
Lost Time:	0.100
ICU:	0.709
LOS:	C

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	27	0	0.000	N-S(1): 0.215 *
	TH	1.00	64	1,600	0.131	N-S(2): 0.147
	LT	0.00	119	1,600	0.074 *	E-W(1): 0.435 *
Westbound	RT	0.00	41	0	0.000	E-W(2): 0.302
	TH	2.00	897	3,200	0.293	
	LT	1.00	44	1,600	0.028 *	
Northbound	RT	0.00	102	0	0.000	
	TH	1.00	98	1,600	0.141 *	
	LT	0.00	26	1,600	0.016	
Eastbound	RT	0.00	24	0	0.000	
	TH	2.00	1,279	3,200	0.407 *	
	LT	1.00	15	1,600	0.009	

WILLOWBROOK AV (E)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	47	0	0.000	N-S(1): 0.092 *
	TH	1.00	60	1,600	0.067	N-S(2): 0.081
	LT	1.00	118	1,600	0.074 *	E-W(1): 0.446 *
Westbound	RT	0.00	111	0	0.000	E-W(2): 0.367
	TH	2.00	877	3,200	0.309	
	LT	1.00	21	1,600	0.013 *	
Northbound	RT	0.00	15	0	0.000	
	TH	1.00	13	1,600	0.018 *	
	LT	1.00	23	1,600	0.014	
Eastbound	RT	0.00	43	0	0.000	
	TH	2.00	1,343	3,200	0.433 *	
	LT	1.00	93	1,600	0.058	

* = Critical Movement

N-S:	0.215
E-W:	0.446
V/C:	0.661
Lost Time:	0.100
ICU:	0.761
LOS:	C

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: S.ALAMEDA STREET
East/West Street: MARTIN LUTHER KING JR BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

S. ALAMEDA ST (W)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	2	0	0.000	N-S(1): 0.407
	TH	2.00	956	3,200	0.299	N-S(2): 0.299
	LT	1.00	124	1,600	0.078 *	E-W(1): 0.145
Westbound	RT	1.00	356	1,600	0.145 *	E-W(2): 0.006
	TH	0.04	8	64	0.124	
	LT	1.96	389	2,822	0.138	
Northbound	RT	0.00	175	0	0.000	
	TH	2.00	879	3,200	0.329 *	
	LT	0.00	0	0	0.000	
Eastbound	RT	0.00	4	0	0.000	
	TH	1.00	1	1,600	0.006 *	
	LT	0.00	5	1,600	0.003	

S. ALAMEDA ST (E)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	58	0	0.000	N-S(1): 0.167
	TH	1.00	65	1,600	0.099	N-S(2): 0.102
	LT	0.00	36	1,600	0.023 *	E-W(1): 0.241
Westbound	RT	0.00	81	0	0.000	E-W(2): 0.094
	TH	2.00	690	3,200	0.241 *	
	LT	1.00	12	1,600	0.008	
Northbound	RT	0.00	58	0	0.000	
	TH	1.00	168	1,600	0.144 *	
	LT	0.00	4	1,600	0.003	
Eastbound	RT	0.00	3	0	0.000	
	TH	2.00	207	3,200	0.094 *	
	LT	0.00	90	1,600	0.056	

* = Critical Movement

N-S:	0.407
E-W:	0.241
V/C:	0.648
Lost Time:	0.100
ICU:	0.748
LOS:	C

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: S.ALAMEDA STREET
East/West Street: MARTIN LUTHER KING JR BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

S. ALAMEDA ST (W)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.454
	TH	2.00	1,081	3,200	0.338	N-S(2):	0.338
	LT	1.00	161	1,600	0.101 *	E-W(1):	0.085
Westbound	RT	1.00	230	1,600	0.043	E-W(2):	0.014
	TH	0.03	4	52	0.077		
	LT	1.97	242	2,833	0.085 *		
Northbound	RT	0.00	173	0	0.000		
	TH	2.00	956	3,200	0.353 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	3	0	0.000		
	TH	1.00	13	1,600	0.014 *		
	LT	0.00	7	1,600	0.004		

S. ALAMEDA ST (E)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	68	0	0.000	N-S(1):	0.150
	TH	1.00	50	1,600	0.091	N-S(2):	0.094
	LT	0.00	27	1,600	0.017 *	E-W(1):	0.132
Westbound	RT	0.00	32	0	0.000	E-W(2):	0.114
	TH	2.00	391	3,200	0.132 *		
	LT	1.00	6	1,600	0.004		
Northbound	RT	0.00	93	0	0.000		
	TH	1.00	115	1,600	0.133 *		
	LT	0.00	4	1,600	0.003		
Eastbound	RT	0.00	9	0	0.000		
	TH	2.00	319	3,200	0.114 *		
	LT	0.00	37	1,600	0.023		

* = Critical Movement

N-S:	0.454
E-W:	0.132
V/C:	0.586
Lost Time:	0.100
ICU:	0.686
LOS:	B

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: ALAMEDA STREET
East/West Street: COMPTON BOULEVARD

Scenario: EXISTING (2010) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

S. ALAMEDA ST (W)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	73	0	0.000	N-S(1):	0.194
	TH	2.00	665	3,200	0.231 *	N-S(2):	0.277 *
	LT	1.00	100	1,600	0.063	E-W(1):	0.165
Westbound	RT	0.00	118	0	0.000	E-W(2):	0.262 *
	TH	2.00	571	3,200	0.215 *		
	LT	1.00	31	1,600	0.019		
Northbound	RT	0.00	33	0	0.000		
	TH	2.00	387	3,200	0.131		
	LT	1.00	74	1,600	0.046 *		
Eastbound	RT	0.00	54	0	0.000		
	TH	2.00	414	3,200	0.146		
	LT	1.00	75	1,600	0.047 *		

S. ALAMEDA ST (E)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	9	0	0.000	N-S(1):	0.131 *
	TH	1.00	147	1,600	0.098	N-S(2):	0.120
	LT	1.00	28	1,600	0.018 *	E-W(1):	0.176
Westbound	RT	1.00	53	1,600	0.016	E-W(2):	0.219 *
	TH	2.00	676	3,200	0.211 *		
	LT	1.00	15	1,600	0.009		
Northbound	RT	0.00	59	0	0.000		
	TH	1.00	121	1,600	0.113 *		
	LT	1.00	35	1,600	0.022		
Eastbound	RT	0.00	42	0	0.000		
	TH	2.00	493	3,200	0.167		
	LT	1.00	12	1,600	0.008 *	LOS:	A

* = Critical Movement

N-S:	0.277
E-W:	0.262
V/C:	0.539
Lost Time:	0.100
ICU:	0.639
LOS:	B

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **ALAMEDA STREET**
East/West Street: **COMPTON BOULEVARD**

Scenario: **EXISTING (2010) CONDITIONS**

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : N
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: **PM PEAK HOUR**

S. ALAMEDA ST (W)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	66	0	0.000	N-S(1): 0.272 *
	TH	2.00	606	3,200	0.210	N-S(2): 0.254
	LT	1.00	102	1,600	0.064 *	E-W(1): 0.239
Westbound	RT	0.00	88	0	0.000	E-W(2): 0.243 *
	TH	2.00	509	3,200	0.187 *	
	LT	1.00	35	1,600	0.022	
Northbound	RT	0.00	57	0	0.000	
	TH	2.00	609	3,200	0.208 *	
	LT	1.00	70	1,600	0.044	
Eastbound	RT	0.00	51	0	0.000	
	TH	2.00	644	3,200	0.217	
	LT	1.00	89	1,600	0.056 *	

S. ALAMEDA ST (E)/COMPTON BL

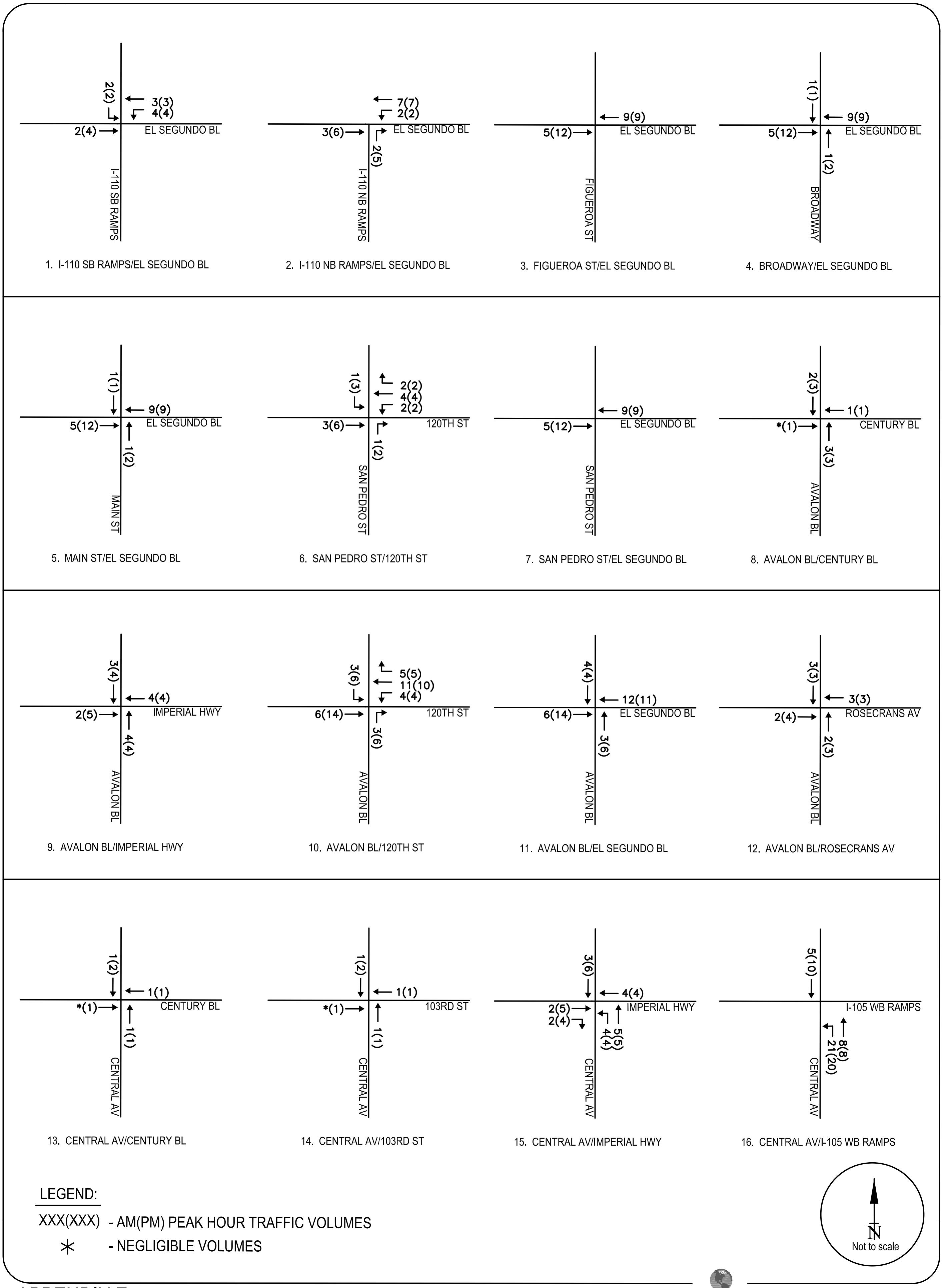
Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	14	0	0.000	N-S(1): 0.120 *
	TH	1.00	86	1,600	0.063	N-S(2): 0.076
	LT	1.00	26	1,600	0.016 *	E-W(1): 0.257 *
Westbound	RT	1.00	20	1,600	0.000	E-W(2): 0.198
	TH	2.00	600	3,200	0.188	
	LT	1.00	18	1,600	0.011 *	
Northbound	RT	0.00	46	0	0.000	
	TH	1.00	120	1,600	0.104 *	
	LT	1.00	20	1,600	0.013	
Eastbound	RT	0.00	22	0	0.000	
	TH	2.00	765	3,200	0.246 *	
	LT	1.00	16	1,600	0.010	

* = Critical Movement

N-S:	0.272
E-W:	0.257
V/C:	0.529
Lost Time:	0.100
ICU:	0.629
LOS:	B

APPENDIX E

Existing Baseline Peak Hour Traffic Volumes



1. I-110 SB RAMPS/EL SEGUNDO BL

2. I-110 NB RAMPS/EL SEGUNDO BL

3. FIGUEROA ST/EL SEGUNDO BL

4. BROADWAY/EL SEGUNDO BL

5. MAIN ST/EL SEGUNDO BL

6. SAN PEDRO ST/120TH ST

7. SAN PEDRO ST/EL SEGUNDO BL

8. AVALON BL/CENTURY BL

9. AVALON BL/IMPERIAL HWY

10. AVALON BL/120TH ST

11. AVALON BL/EL SEGUNDO BL

12. AVALON BL/ROSECRANS AV

13. CENTRAL AV/CENTURY BL

14. CENTRAL AV/103RD ST

15. CENTRAL AV/IMPERIAL HWY

16. CENTRAL AV/I-105 WB RAMPS

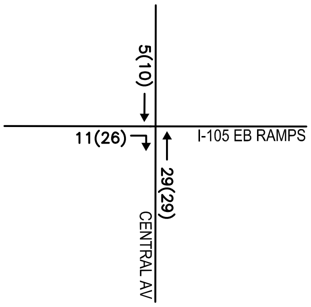
LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

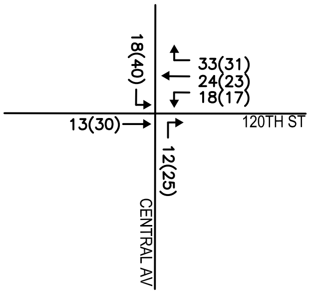
∗ - NEGLIGIBLE VOLUMES

APPENDIX E
EXISTING BASELINE PEAK HOUR TRAFFIC VOLUMES

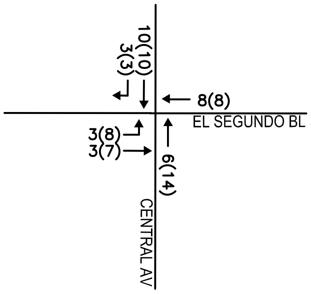
RAJU Associates, Inc.



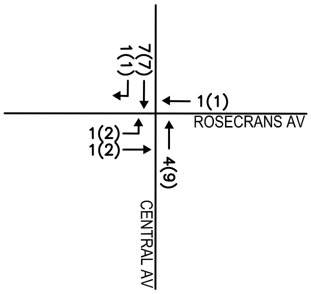
17. CENTRAL AV/I-105 EB RAMPS



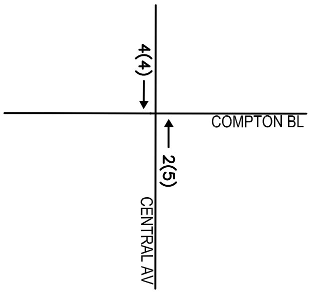
18. CENTRAL AV/120TH ST



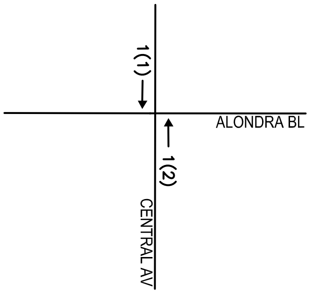
19. CENTRAL AV/EL SEGUNDO BL



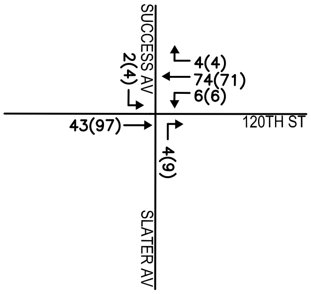
20. CENTRAL AV/ROSECRANS AV



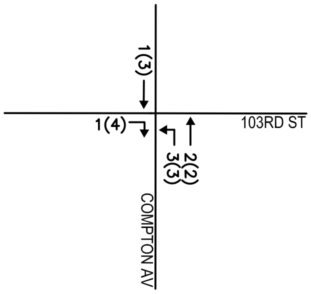
21. CENTRAL AV/COMPTON BL



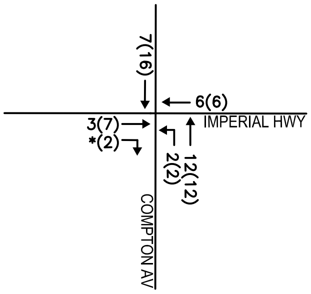
22. CENTRAL AV/ALONDRA BL



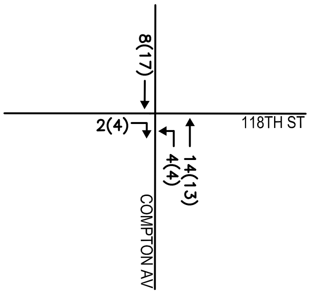
23. SUCCESS AV - SLATER AV/120TH ST



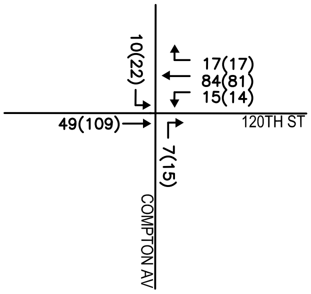
24. COMPTON AV/103RD ST



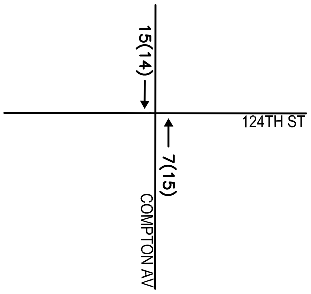
25. COMPTON AV/IMPERIAL HWY



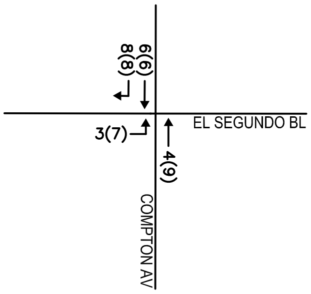
26. COMPTON AV/118TH ST



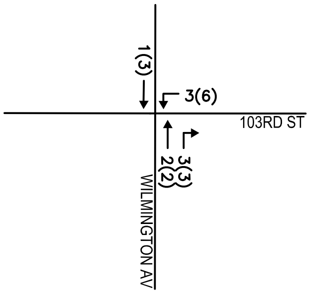
27. COMPTON AV/120TH ST



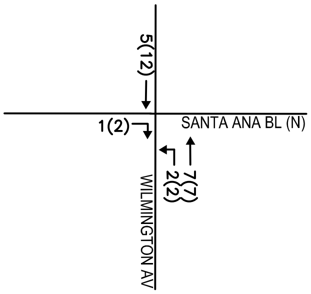
28. COMPTON AV/124TH ST



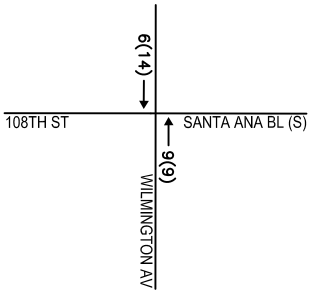
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

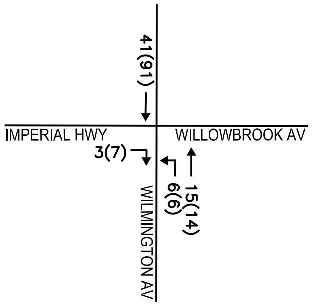
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

* - NEGLIGIBLE VOLUMES

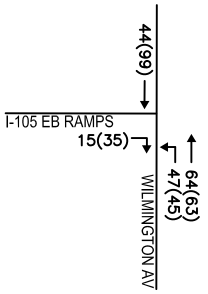
N
Not to scale

APPENDIX E
EXISTING BASELINE PEAK HOUR TRAFFIC VOLUMES

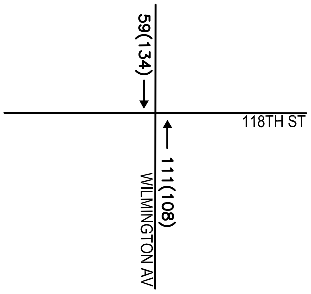
RAJU Associates, Inc.



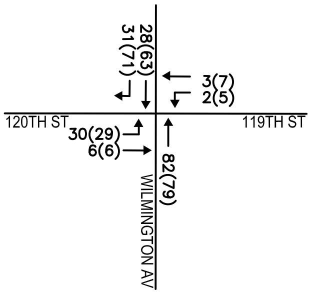
33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV



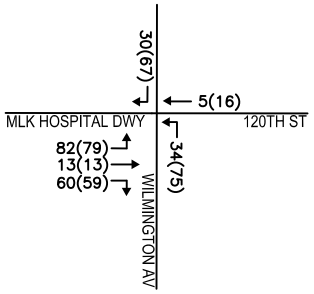
34. WILMINGTON AV/I-105 EB RAMPS



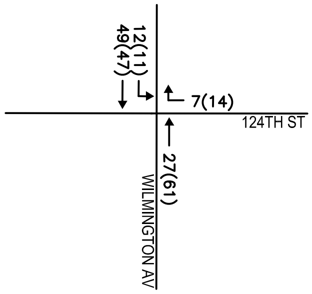
35. WILMINGTON AV/118TH ST



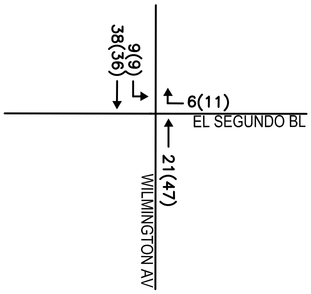
36. WILMINGTON AV/120TH ST - 119TH ST



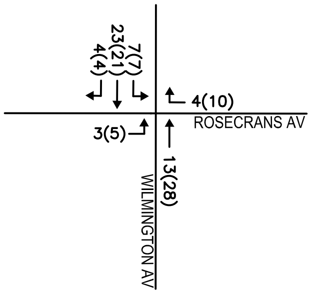
37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST



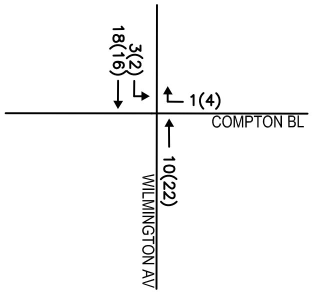
38. WILMINGTON AV/124TH ST



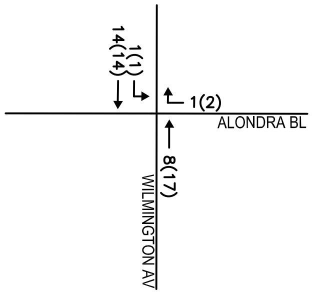
39. WILMINGTON AV/EL SEGUNDO BL



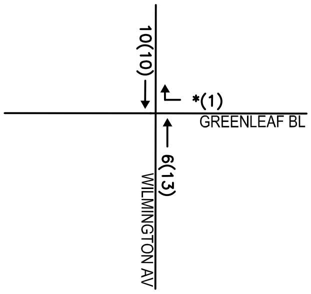
40. WILMINGTON AV/ROSECRANS AV



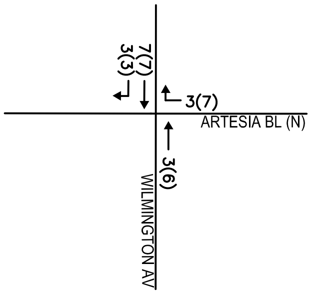
41. WILMINGTON AV/COMPTON BL



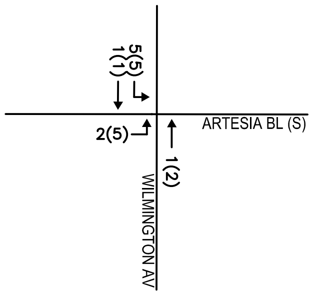
42. WILMINGTON AV/ALONDRA BL



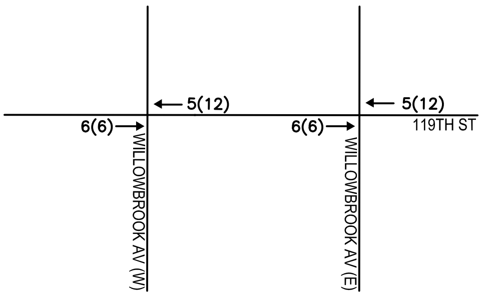
43. WILMINGTON AV/GREENLEAF BL



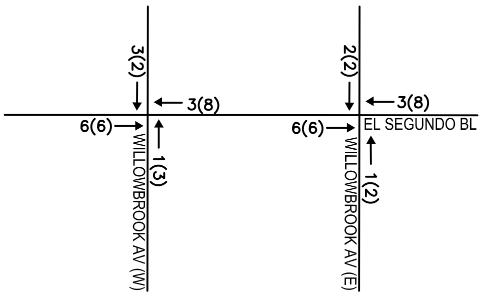
44. WILMINGTON AV/ARTESIA BL (N)



45. WILMINGTON AV/ARTESIA BL (S)



46. WILLOWBROOK AV/119TH ST



47. WILLOWBROOK AV/EL SEGUNDO BL

LEGEND:

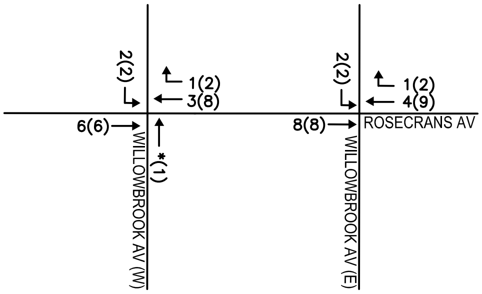
XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

* - NEGLIGIBLE VOLUMES

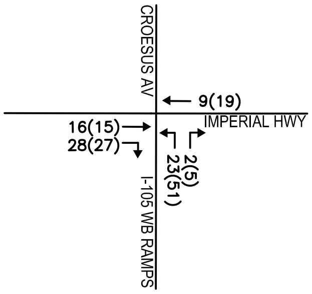
N
Not to scale

APPENDIX E
EXISTING BASELINE PEAK HOUR TRAFFIC VOLUMES

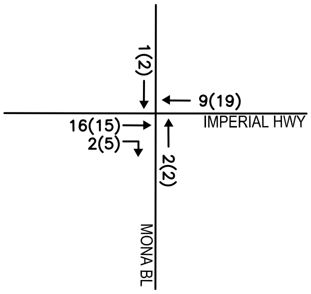
RAJU Associates, Inc.



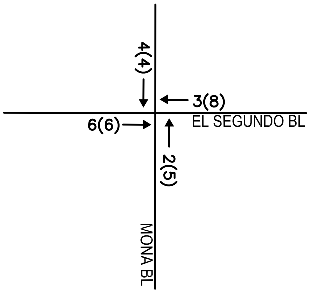
48. WILLOWBROOK AV/ROSECRANS AV



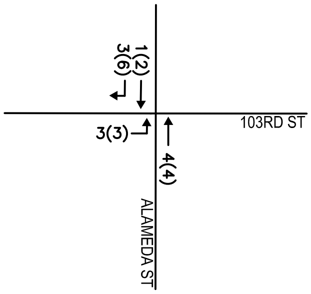
49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV



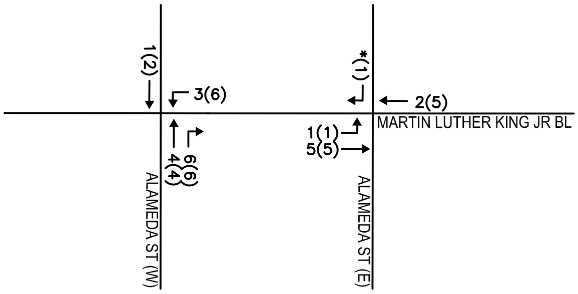
50. MONA BL/IMPERIAL HWY



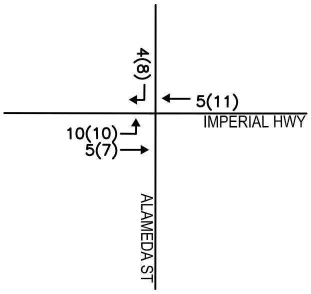
51. MONA BL/EL SEGUNDO BL



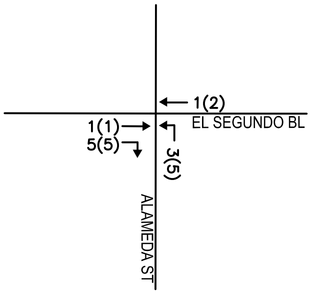
52. ALAMEDA ST/103RD ST



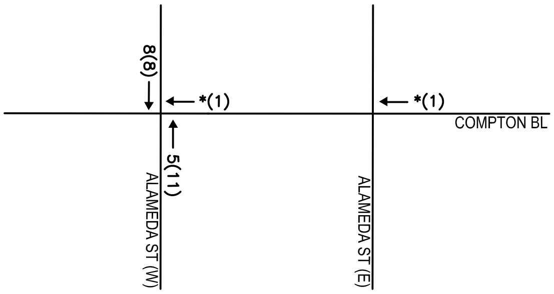
53. ALAMEDA ST/MARTIN LUTHER KING JR BL



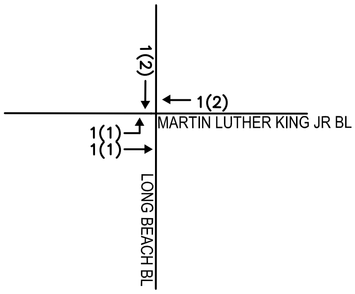
54. ALAMEDA ST/IMPERIAL HWY



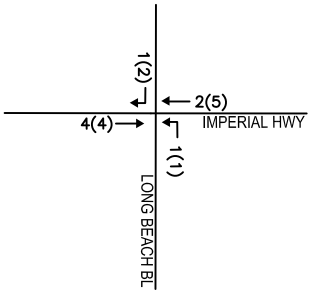
55. ALAMEDA ST/EL SEGUNDO BL



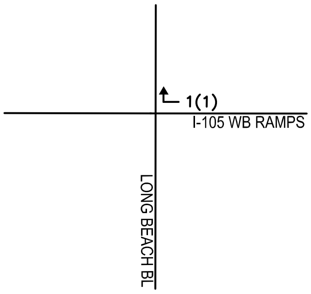
56. ALAMEDA ST/COMPTON BL



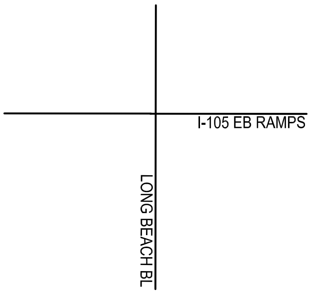
57. LONG BEACH BL/MARTIN LUTHER KING JR BL



58. LONG BEACH BL/IMPERIAL HWY



59. LONG BEACH BL/I-105 WB RAMPS

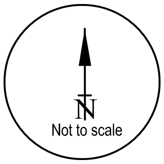


60. LONG BEACH BL/I-105 EB RAMPS

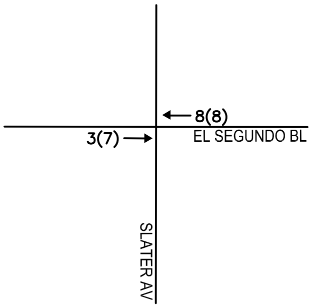
LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

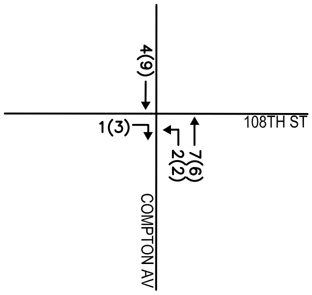
* - NEGLIGIBLE VOLUMES



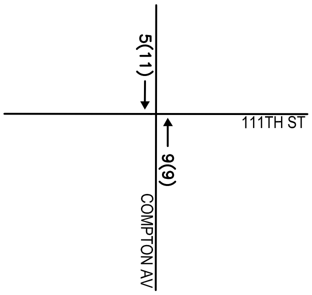
APPENDIX E
EXISTING BASELINE PEAK HOUR TRAFFIC VOLUMES



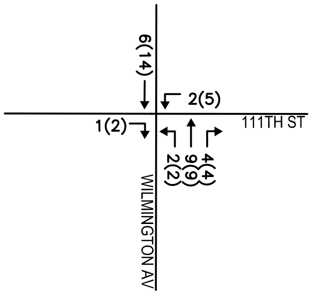
61. SLATER AV/EL SEGUNDO BL



62. COMPTON AV/108TH ST



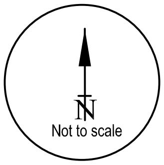
63. COMPTON AV/111TH ST



64. WILMINGTON AV/111TH ST

LEGEND:

XXX(XXX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES



APPENDIX E
EXISTING BASELINE PEAK HOUR TRAFFIC VOLUMES

RAJU Associates, Inc.

APPENDIX F

ICU Worksheets – Existing (Baseline) With Ambient Growth (2014) Conditions

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **BROADWAY**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	87	0	0.000	N-S(1):	0.113 *
	TH	2.00	189	3,200	0.086	N-S(2):	0.108
	LT	1.00	55	1,600	0.034 *	E-W(1):	0.215
Westbound	RT	0.00	88	0	0.000	E-W(2):	0.288 *
	TH	3.00	1,098	4,800	0.247 *		
	LT	1.00	71	1,600	0.044	V/C:	0.401
Northbound	RT	0.00	22	0	0.000	Lost Time:	0.100
	TH	2.00	232	3,200	0.079 *		
	LT	1.00	35	1,600	0.022		
Eastbound	RT	0.00	120	0	0.000	ICU:	0.501
	TH	3.00	701	4,800	0.171		
	LT	1.00	66	1,600	0.041 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	66	0	0.000	N-S(1):	0.169 *
	TH	2.00	176	3,200	0.076	N-S(2):	0.155
	LT	1.00	81	1,600	0.051 *	E-W(1):	0.283 *
Westbound	RT	0.00	75	0	0.000	E-W(2):	0.235
	TH	3.00	725	4,800	0.167		
	LT	1.00	22	1,600	0.014 *	V/C:	0.452
Northbound	RT	0.00	90	0	0.000	Lost Time:	0.100
	TH	2.00	286	3,200	0.118 *		
	LT	1.00	127	1,600	0.079		
Eastbound	RT	0.00	61	0	0.000	ICU:	0.552
	TH	3.00	1,228	4,800	0.269 *		
	LT	1.00	109	1,600	0.068	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MAIN STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.122
	TH	2.00	255	3,200	0.108 *	N-S(2):	0.146 *
	LT	1.00	79	1,600	0.049	E-W(1):	0.180
Westbound	RT	0.00	51	0	0.000	E-W(2):	0.296 *
	TH	3.00	1,107	4,800	0.241 *		
	LT	1.00	80	1,600	0.050	V/C:	0.442
Northbound	RT	0.00	26	0	0.000	Lost Time:	0.100
	TH	2.00	206	3,200	0.073		
	LT	1.00	61	1,600	0.038 *		
Eastbound	RT	0.00	104	0	0.000	ICU:	0.542
	TH	3.00	520	4,800	0.130		
	LT	1.00	88	1,600	0.055 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	55	0	0.000	N-S(1):	0.213 *
	TH	2.00	175	3,200	0.072	N-S(2):	0.131
	LT	1.00	117	1,600	0.073 *	E-W(1):	0.293 *
Westbound	RT	0.00	68	0	0.000	E-W(2):	0.223
	TH	3.00	652	4,800	0.150		
	LT	1.00	36	1,600	0.023 *	V/C:	0.506
Northbound	RT	0.00	109	0	0.000	Lost Time:	0.100
	TH	2.00	338	3,200	0.140 *		
	LT	1.00	94	1,600	0.059		
Eastbound	RT	0.00	52	0	0.000	ICU:	0.606
	TH	3.00	1,246	4,800	0.270 *		
	LT	1.00	116	1,600	0.073	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SAN PEDRO STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	133	0	0.000	N-S(1):	0.124
	TH	2.00	173	3,200	0.096 *	N-S(2):	0.164 *
	LT	1.00	73	1,600	0.046	E-W(1):	0.177
Westbound	RT	0.00	64	0	0.000	E-W(2):	0.273 *
	TH	3.00	1,002	4,800	0.222 *		
	LT	1.00	104	1,600	0.065	V/C:	0.437
Northbound	RT	0.00	65	0	0.000	Lost Time:	0.100
	TH	2.00	186	3,200	0.078		
	LT	1.00	108	1,600	0.068 *		
Eastbound	RT	0.00	63	0	0.000	ICU:	0.537
	TH	3.00	473	4,800	0.112		
	LT	1.00	81	1,600	0.051 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	97	0	0.000	N-S(1):	0.138 *
	TH	2.00	169	3,200	0.083	N-S(2):	0.135
	LT	1.00	87	1,600	0.054 *	E-W(1):	0.304 *
Westbound	RT	0.00	104	0	0.000	E-W(2):	0.212
	TH	3.00	593	4,800	0.145		
	LT	1.00	51	1,600	0.032 *	V/C:	0.442
Northbound	RT	0.00	47	0	0.000	Lost Time:	0.100
	TH	2.00	222	3,200	0.084 *		
	LT	1.00	83	1,600	0.052		
Eastbound	RT	0.00	76	0	0.000	ICU:	0.542
	TH	3.00	1,231	4,800	0.272 *		
	LT	1.00	107	1,600	0.067	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	131	0	0.000	N-S(1):	0.227
	TH	2.00	484	3,200	0.192 *	N-S(2):	0.230 *
	LT	1.00	103	1,600	0.064	E-W(1):	0.158
Westbound	RT	0.00	140	0	0.000	E-W(2):	0.291 *
	TH	3.00	890	4,800	0.215 *		
	LT	1.00	81	1,600	0.051	V/C:	0.521
Northbound	RT	0.00	93	0	0.000	Lost Time:	0.100
	TH	2.00	429	3,200	0.163		
	LT	1.00	61	1,600	0.038 *		
Eastbound	RT	0.00	57	0	0.000	ICU:	0.621
	TH	3.00	456	4,800	0.107		
	LT	1.00	122	1,600	0.076 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.336 *
	TH	2.00	477	3,200	0.178	N-S(2):	0.255
	LT	1.00	145	1,600	0.091 *	E-W(1):	0.326 *
Westbound	RT	0.00	115	0	0.000	E-W(2):	0.196
	TH	3.00	461	4,800	0.120		
	LT	1.00	97	1,600	0.061 *	V/C:	0.662
Northbound	RT	0.00	150	0	0.000	Lost Time:	0.100
	TH	2.00	634	3,200	0.245 *		
	LT	1.00	123	1,600	0.077		
Eastbound	RT	0.00	127	0	0.000	ICU:	0.762
	TH	3.00	1,146	4,800	0.265 *		
	LT	1.00	121	1,600	0.076	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	92	0	0.000	N-S(1):	0.254 *
	TH	2.00	372	3,200	0.145	N-S(2):	0.226
	LT	1.00	154	1,600	0.096 *	E-W(1):	0.184
Westbound	RT	0.00	145	0	0.000	E-W(2):	0.258 *
	TH	3.00	933	4,800	0.225 *		
	LT	1.00	115	1,600	0.072	V/C:	0.512
Northbound	RT	0.00	83	0	0.000	Lost Time:	0.100
	TH	2.00	423	3,200	0.158 *		
	LT	1.00	129	1,600	0.081		
Eastbound	RT	0.00	69	0	0.000	ICU:	0.612
	TH	3.00	468	4,800	0.112		
	LT	1.00	52	1,600	0.033 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	69	0	0.000	N-S(1):	0.349 *
	TH	2.00	397	3,200	0.146	N-S(2):	0.228
	LT	1.00	208	1,600	0.130 *	E-W(1):	0.278 *
Westbound	RT	0.00	143	0	0.000	E-W(2):	0.216
	TH	3.00	578	4,800	0.150		
	LT	1.00	76	1,600	0.048 *	V/C:	0.627
Northbound	RT	0.00	144	0	0.000	Lost Time:	0.100
	TH	2.00	556	3,200	0.219 *		
	LT	1.00	131	1,600	0.082		
Eastbound	RT	0.00	88	0	0.000	ICU:	0.727
	TH	3.00	1,018	4,800	0.230 *		
	LT	1.00	105	1,600	0.066	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	191	0	0.000	N-S(1):	0.351
	TH	2.00	636	3,200	0.258 *	N-S(2):	0.355 *
	LT	1.00	105	1,600	0.066	E-W(1):	0.217
Westbound	RT	0.00	72	0	0.000	E-W(2):	0.320 *
	TH	2.00	713	3,200	0.245 *		
	LT	1.00	159	1,600	0.099	V/C:	0.675
Northbound	RT	0.00	251	0	0.000	Lost Time:	0.100
	TH	2.00	661	3,200	0.285		
	LT	1.00	155	1,600	0.097 *		
Eastbound	RT	1.00	106	1,600	0.000	ICU:	0.775
	TH	2.00	379	3,200	0.118		
	LT	1.00	120	1,600	0.075 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	150	0	0.000	N-S(1):	0.372 *
	TH	2.00	725	3,200	0.273	N-S(2):	0.343
	LT	1.00	138	1,600	0.086 *	E-W(1):	0.376 *
Westbound	RT	0.00	110	0	0.000	E-W(2):	0.337
	TH	2.00	476	3,200	0.183		
	LT	1.00	121	1,600	0.076 *	V/C:	0.748
Northbound	RT	0.00	198	0	0.000	Lost Time:	0.100
	TH	2.00	716	3,200	0.286 *		
	LT	1.00	112	1,600	0.070		
Eastbound	RT	1.00	167	1,600	0.034	ICU:	0.848
	TH	2.00	961	3,200	0.300 *		
	LT	1.00	246	1,600	0.154	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	149	1,600	0.000	N-S(1):	0.280
	TH	2.00	638	3,200	0.199 *	N-S(2):	0.289 *
	LT	1.00	130	1,600	0.081	E-W(1):	0.217
Westbound	RT	0.00	149	0	0.000	E-W(2):	0.404 *
	TH	2.00	836	3,200	0.308 *		
	LT	1.00	152	1,600	0.095	V/C:	0.693
Northbound	RT	0.00	62	0	0.000	Lost Time:	0.100
	TH	2.00	576	3,200	0.199		
	LT	1.00	144	1,600	0.090 *		
Eastbound	RT	0.00	152	0	0.000	ICU:	0.793
	TH	3.00	434	4,800	0.122		
	LT	1.00	154	1,600	0.096 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	128	1,600	0.000	N-S(1):	0.443 *
	TH	2.00	710	3,200	0.222	N-S(2):	0.341
	LT	1.00	272	1,600	0.170 *	E-W(1):	0.357
Westbound	RT	0.00	147	0	0.000	E-W(2):	0.379 *
	TH	2.00	634	3,200	0.244 *		
	LT	1.00	163	1,600	0.102	V/C:	0.822
Northbound	RT	0.00	118	0	0.000	Lost Time:	0.100
	TH	2.00	754	3,200	0.273 *		
	LT	1.00	191	1,600	0.119		
Eastbound	RT	0.00	192	0	0.000	ICU:	0.922
	TH	3.00	1,030	4,800	0.255		
	LT	1.00	216	1,600	0.135 *	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SUCCESS AVENUE-SLATER AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	39	0	0.000	N-S(1):	0.082
	TH	1.00	31	1,600	0.069 *	N-S(2):	0.085 *
	LT	0.00	41	1,600	0.026	E-W(1):	0.164
Westbound	RT	0.00	43	0	0.000	E-W(2):	0.252 *
	TH	2.00	694	3,200	0.230 *		
	LT	1.00	26	1,600	0.016	V/C:	0.337
Northbound	RT	0.00	17	0	0.000	Lost Time:	0.100
	TH	1.00	46	1,600	0.056		
	LT	0.00	26	1,600	0.016 *		
Eastbound	RT	0.00	7	0	0.000	ICU:	0.437
	TH	2.00	466	3,200	0.148		
	LT	1.00	35	1,600	0.022 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	34	0	0.000	N-S(1):	0.040
	TH	1.00	12	1,600	0.043 *	N-S(2):	0.049 *
	LT	0.00	23	1,600	0.014	E-W(1):	0.210 *
Westbound	RT	0.00	12	0	0.000	E-W(2):	0.188
	TH	2.00	528	3,200	0.169		
	LT	1.00	17	1,600	0.011 *	V/C:	0.259
Northbound	RT	0.00	25	0	0.000	Lost Time:	0.100
	TH	1.00	8	1,600	0.026		
	LT	0.00	9	1,600	0.006 *		
Eastbound	RT	0.00	11	0	0.000	ICU:	0.359
	TH	2.00	626	3,200	0.199 *		
	LT	1.00	30	1,600	0.019	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	122	0	0.000	N-S(1):	0.311
	TH	1.00	306	1,600	0.268 *	N-S(2):	0.346 *
	LT	1.00	155	1,600	0.097	E-W(1):	0.260
Westbound	RT	0.00	179	0	0.000	E-W(2):	0.480 *
	TH	2.00	1,144	3,200	0.413 *		
	LT	1.00	145	1,600	0.091	V/C:	0.826
Northbound	RT	1.00	153	1,600	0.005	Lost Time:	0.100
	TH	1.00	342	1,600	0.214	ATSAC/ATCS:	-0.100
	LT	1.00	124	1,600	0.078 *		
Eastbound	RT	0.00	145	0	0.000	ICU:	0.826
	TH	3.00	665	4,800	0.169		
	LT	1.00	107	1,600	0.067 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	152	0	0.000	N-S(1):	0.307
	TH	1.00	273	1,600	0.266 *	N-S(2):	0.326 *
	LT	1.00	200	1,600	0.125	E-W(1):	0.376 *
Westbound	RT	0.00	187	0	0.000	E-W(2):	0.347
	TH	2.00	702	3,200	0.278		
	LT	1.00	91	1,600	0.057 *	V/C:	0.702
Northbound	RT	1.00	116	1,600	0.016	Lost Time:	0.100
	TH	1.00	291	1,600	0.182	ATSAC/ATCS:	-0.100
	LT	1.00	96	1,600	0.060 *		
Eastbound	RT	0.00	98	0	0.000	ICU:	0.702
	TH	3.00	1,431	4,800	0.319 *		
	LT	1.00	110	1,600	0.069	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **118TH STREET**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	10	0	0.000	N-S(1):	0.182 *
	TH	2.00	492	3,200	0.169	N-S(2):	0.177
	LT	0.00	38	1,600	0.024 *	E-W(1):	0.091
Westbound	RT	0.00	52	0	0.000	E-W(2):	0.096 *
	TH	1.00	15	1,600	0.080 *		
	LT	0.00	61	1,600	0.038	V/C:	0.278
Northbound	RT	0.00	70	0	0.000	Lost Time:	0.100
	TH	2.00	423	3,200	0.158 *		
	LT	0.00	12	1,600	0.008		
Eastbound	RT	0.00	42	0	0.000	ICU:	0.378
	TH	1.00	16	1,600	0.053		
	LT	0.00	26	1,600	0.016 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	6	0	0.000	N-S(1):	0.163 *
	TH	2.00	365	3,200	0.128	N-S(2):	0.134
	LT	0.00	38	1,600	0.024 *	E-W(1):	0.043
Westbound	RT	0.00	43	0	0.000	E-W(2):	0.063 *
	TH	1.00	22	1,600	0.058 *		
	LT	0.00	27	1,600	0.017	V/C:	0.226
Northbound	RT	0.00	40	0	0.000	Lost Time:	0.100
	TH	2.00	397	3,200	0.139 *		
	LT	0.00	9	1,600	0.006		
Eastbound	RT	0.00	12	0	0.000	ICU:	0.326
	TH	1.00	22	1,600	0.026		
	LT	0.00	8	1,600	0.005 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **120TH STREET**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	138	0	0.000	N-S(1):	0.192
	TH	2.00	289	3,200	0.133 *	N-S(2):	0.204 *
	LT	1.00	127	1,600	0.079	E-W(1):	0.206
Westbound	RT	0.00	162	0	0.000	E-W(2):	0.287 *
	TH	2.00	438	3,200	0.188 *		
	LT	1.00	67	1,600	0.042	V/C:	0.491
Northbound	RT	0.00	60	0	0.000	Lost Time:	0.100
	TH	2.00	301	3,200	0.113		
	LT	1.00	114	1,600	0.071 *		
Eastbound	RT	0.00	93	0	0.000	ICU:	0.591
	TH	2.00	432	3,200	0.164		
	LT	1.00	158	1,600	0.099 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	71	0	0.000	N-S(1):	0.164
	TH	2.00	280	3,200	0.110 *	N-S(2):	0.171 *
	LT	1.00	108	1,600	0.068	E-W(1):	0.227
Westbound	RT	0.00	92	0	0.000	E-W(2):	0.241 *
	TH	2.00	450	3,200	0.169 *		
	LT	1.00	49	1,600	0.031	V/C:	0.412
Northbound	RT	0.00	50	0	0.000	Lost Time:	0.100
	TH	2.00	258	3,200	0.096		
	LT	1.00	97	1,600	0.061 *		
Eastbound	RT	0.00	131	0	0.000	ICU:	0.512
	TH	2.00	497	3,200	0.196		
	LT	1.00	115	1,600	0.072 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **124TH STREET**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	11	0	0.000	N-S(1):	0.134
	TH	2.00	398	3,200	0.140 *	N-S(2):	0.141 *
	LT	0.00	39	1,600	0.024	E-W(1):	0.036
Westbound	RT	0.00	53	0	0.000	E-W(2):	0.078 *
	TH	1.00	28	1,600	0.074 *		
	LT	0.00	37	1,600	0.023	V/C:	0.219
Northbound	RT	0.00	17	0	0.000	Lost Time:	0.100
	TH	2.00	333	3,200	0.110		
	LT	0.00	2	1,600	0.001 *		
Eastbound	RT	0.00	2	0	0.000	ICU:	0.319
	TH	1.00	11	1,600	0.013		
	LT	0.00	7	1,600	0.004 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	8	0	0.000	N-S(1):	0.129 *
	TH	2.00	336	3,200	0.120	N-S(2):	0.121
	LT	0.00	41	1,600	0.026 *	E-W(1):	0.021
Westbound	RT	0.00	32	0	0.000	E-W(2):	0.038 *
	TH	1.00	10	1,600	0.037 *		
	LT	0.00	17	1,600	0.011	V/C:	0.167
Northbound	RT	0.00	16	0	0.000	Lost Time:	0.100
	TH	2.00	311	3,200	0.103 *		
	LT	0.00	1	1,600	0.001		
Eastbound	RT	0.00	5	0	0.000	ICU:	0.267
	TH	1.00	9	1,600	0.010		
	LT	0.00	2	1,600	0.001 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: IMPERIAL HIGHWAY-WILLOWBROOK AVE

Scenario: EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	121	0	0.000	N-S(1):	0.160
	TH	2.00	881	3,200	0.313 *	N-S(2):	0.402 *
	LT	1.00	24	1,600	0.015	E-W(1):	0.049
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.069 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.471
Northbound	RT	0.00	55	0	0.000	Lost Time:	0.100
	TH	2.00	409	3,200	0.145	ATSAC/ATCS:	-0.100
	LT	1.00	142	1,600	0.089 *		
Eastbound	RT	1.00	221	1,600	0.049	ICU:	0.471
	TH	1.00	23	1,600	0.014		
	LT	1.00	111	1,600	0.069 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	109	0	0.000	N-S(1):	0.194
	TH	2.00	809	3,200	0.287 *	N-S(2):	0.401 *
	LT	1.00	32	1,600	0.020	E-W(1):	0.061
Westbound	RT	0.00	2	0	0.000	E-W(2):	0.086 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.487
Northbound	RT	0.00	41	0	0.000	Lost Time:	0.100
	TH	2.00	515	3,200	0.174	ATSAC/ATCS:	-0.100
	LT	1.00	182	1,600	0.114 *		
Eastbound	RT	1.00	280	1,600	0.061	ICU:	0.487
	TH	1.00	24	1,600	0.015		
	LT	1.00	138	1,600	0.086 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: I-105 EASTBOUND ON/OFF RAMPS

Scenario: EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	444	3,200	0.014	N-S(1):	0.168
	TH	2.00	676	3,200	0.211 *	N-S(2):	0.437 *
	LT	0.00	0	0	0.000	E-W(1):	0.179
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.249 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.686
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	808	4,800	0.168		
	LT	1.00	361	1,600	0.226 *		
Eastbound	RT	1.00	647	1,600	0.179	ICU:	0.786
	TH	0.00	0	0	0.000		
	LT	1.00	398	1,600	0.249 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	353	3,200	0.003	N-S(1):	0.230
	TH	2.00	754	3,200	0.236 *	N-S(2):	0.489 *
	LT	0.00	0	0	0.000	E-W(1):	0.000
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.215 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.704
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,105	4,800	0.230		
	LT	1.00	404	1,600	0.253 *		
Eastbound	RT	1.00	282	1,600	0.000	ICU:	0.804
	TH	0.00	0	0	0.000		
	LT	1.00	344	1,600	0.215 *	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **118TH STREET**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	76	0	0.000	N-S(1):	0.256
	TH	2.00	1,155	3,200	0.385 *	N-S(2):	0.450 *
	LT	2.00	101	2,880	0.035	E-W(1):	0.172 *
Westbound	RT	0.00	69	0	0.000	E-W(2):	0.135
	TH	1.00	28	1,600	0.081		
	LT	0.00	33	1,600	0.021 *	V/C:	0.622
Northbound	RT	0.00	46	0	0.000	Lost Time:	0.100
	TH	3.00	1,013	4,800	0.221		
	LT	1.00	104	1,600	0.065 *		
Eastbound	RT	0.00	121	0	0.000	ICU:	0.722
	TH	1.00	34	1,600	0.151 *		
	LT	0.00	86	1,600	0.054	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	37	0	0.000	N-S(1):	0.342 *
	TH	2.00	806	3,200	0.263	N-S(2):	0.293
	LT	2.00	182	2,880	0.063 *	E-W(1):	0.192
Westbound	RT	0.00	193	0	0.000	E-W(2):	0.268 *
	TH	1.00	58	1,600	0.208 *		
	LT	0.00	81	1,600	0.051	V/C:	0.610
Northbound	RT	0.00	120	0	0.000	Lost Time:	0.100
	TH	3.00	1,217	4,800	0.279 *		
	LT	1.00	48	1,600	0.030		
Eastbound	RT	0.00	56	0	0.000	ICU:	0.710
	TH	1.00	74	1,600	0.141		
	LT	0.00	96	1,600	0.060 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 120TH ST-119TH STREET

Scenario: EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	369	0	0.000	N-S(1):	0.367
	TH	2.00	797	3,200	0.364 *	N-S(2):	0.452 *
	LT	1.00	141	1,600	0.088	E-W(1):	0.132
Westbound	RT	0.00	165	0	0.000	E-W(2):	0.221 *
	TH	2.00	243	3,200	0.128 *		
	LT	1.00	79	1,600	0.049	V/C:	0.673
Northbound	RT	0.00	42	0	0.000	Lost Time:	0.100
	TH	2.00	851	3,200	0.279		
	LT	1.00	141	1,600	0.088 *		
Eastbound	RT	1.00	86	1,600	0.000	ICU:	0.773
	TH	1.00	133	1,600	0.083		
	LT	1.00	149	1,600	0.093 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	138	0	0.000	N-S(1):	0.387 *
	TH	2.00	702	3,200	0.263	N-S(2):	0.327
	LT	1.00	88	1,600	0.055 *	E-W(1):	0.250
Westbound	RT	0.00	153	0	0.000	E-W(2):	0.277 *
	TH	2.00	177	3,200	0.103 *		
	LT	1.00	116	1,600	0.073	V/C:	0.664
Northbound	RT	0.00	119	0	0.000	Lost Time:	0.100
	TH	2.00	943	3,200	0.332 *		
	LT	1.00	102	1,600	0.064		
Eastbound	RT	1.00	170	1,600	0.043	ICU:	0.764
	TH	1.00	283	1,600	0.177		
	LT	1.00	279	1,600	0.174 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: MLK HOSPITAL DWY-120TH STREET

Scenario: EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	150	0	0.000	N-S(1):	0.277
	TH	2.00	812	3,200	0.301 *	N-S(2):	0.354 *
	LT	1.00	34	1,600	0.021	E-W(1):	0.094
Westbound	RT	0.00	43	0	0.000	E-W(2):	0.119 *
	TH	1.00	12	1,600	0.041 *		
	LT	0.00	10	1,600	0.006	V/C:	0.473
Northbound	RT	0.00	8	0	0.000	Lost Time:	0.100
	TH	2.00	811	3,200	0.256		
	LT	1.00	84	1,600	0.053 *		
Eastbound	RT	1.00	83	1,600	0.000	ICU:	0.573
	TH	1.00	16	1,600	0.088		
	LT	0.00	125	1,600	0.078 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	97	0	0.000	N-S(1):	0.337
	TH	2.00	857	3,200	0.298 *	N-S(2):	0.356 *
	LT	1.00	30	1,600	0.019	E-W(1):	0.096
Westbound	RT	0.00	28	0	0.000	E-W(2):	0.115 *
	TH	1.00	17	1,600	0.033 *		
	LT	0.00	8	1,600	0.005	V/C:	0.471
Northbound	RT	0.00	22	0	0.000	Lost Time:	0.100
	TH	2.00	994	3,200	0.318		
	LT	1.00	93	1,600	0.058 *		
Eastbound	RT	1.00	85	1,600	0.000	ICU:	0.571
	TH	1.00	14	1,600	0.091		
	LT	0.00	131	1,600	0.082 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **124TH STREET**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.327 *
	TH	2.00	773	3,200	0.248	N-S(2):	0.262
	LT	1.00	74	1,600	0.046 *	E-W(1):	0.084
Westbound	RT	0.00	74	0	0.000	E-W(2):	0.134 *
	TH	1.00	71	1,600	0.126 *		
	LT	0.00	56	1,600	0.035	V/C:	0.461
Northbound	RT	0.00	37	0	0.000	Lost Time:	0.100
	TH	2.00	863	3,200	0.281 *		
	LT	1.00	22	1,600	0.014		
Eastbound	RT	0.00	27	0	0.000	ICU:	0.561
	TH	1.00	38	1,600	0.049		
	LT	0.00	13	1,600	0.008 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.337 *
	TH	2.00	733	3,200	0.235	N-S(2):	0.251
	LT	1.00	84	1,600	0.053 *	E-W(1):	0.063
Westbound	RT	0.00	63	0	0.000	E-W(2):	0.082 *
	TH	1.00	24	1,600	0.073 *		
	LT	0.00	29	1,600	0.018	V/C:	0.419
Northbound	RT	0.00	35	0	0.000	Lost Time:	0.100
	TH	2.00	873	3,200	0.284 *		
	LT	1.00	26	1,600	0.016		
Eastbound	RT	0.00	24	0	0.000	ICU:	0.519
	TH	1.00	34	1,600	0.045		
	LT	0.00	14	1,600	0.009 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	106	0	0.000	N-S(1):	0.346
	TH	2.00	621	3,200	0.227 *	N-S(2):	0.381 *
	LT	1.00	156	1,600	0.098	E-W(1):	0.245
Westbound	RT	0.00	119	0	0.000	E-W(2):	0.310 *
	TH	2.00	575	3,200	0.217 *		
	LT	1.00	66	1,600	0.041	V/C:	0.691
Northbound	RT	0.00	69	0	0.000	Lost Time:	0.100
	TH	2.00	723	3,200	0.248		
	LT	1.00	246	1,600	0.154 *		
Eastbound	RT	0.00	271	0	0.000	ICU:	0.791
	TH	2.00	381	3,200	0.204		
	LT	1.00	149	1,600	0.093 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	92	0	0.000	N-S(1):	0.357 *
	TH	2.00	620	3,200	0.223	N-S(2):	0.327
	LT	1.00	158	1,600	0.099 *	E-W(1):	0.392 *
Westbound	RT	0.00	103	0	0.000	E-W(2):	0.244
	TH	2.00	348	3,200	0.141		
	LT	1.00	99	1,600	0.062 *	V/C:	0.749
Northbound	RT	0.00	85	0	0.000	Lost Time:	0.100
	TH	2.00	739	3,200	0.258 *		
	LT	1.00	166	1,600	0.104		
Eastbound	RT	0.00	267	0	0.000	ICU:	0.849
	TH	2.00	789	3,200	0.330 *		
	LT	1.00	165	1,600	0.103	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **I-105 WESTBOUND ON/OFF RAMPS**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : Y
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	43	0	0.000	N-S(1):	0.285 *
	TH	1.00	68	1,600	0.077 *	N-S(2):	0.000
	LT	0.00	12	1,600	0.008	E-W(1):	0.464 *
Westbound	RT	0.00	25	0	0.000	E-W(2):	0.257
	TH	3.00	1,067	4,800	0.228		
	LT	2.00	883	2,880	0.307 *	V/C:	0.749
Northbound	RT	1.00	154	1,600	0.000	Lost Time:	0.100
	TH	0.01	3	16	0.187	ATSAC/ATCS:	-0.100
	LT	1.99	595	2,866	0.208 *		
Eastbound	RT	1.85	463	2,954	0.056	ICU:	0.749
	TH	3.15	791	5,046	0.157 *		
	LT	1.00	46	1,600	0.029	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	27	0	0.000	N-S(1):	0.271 *
	TH	1.00	28	1,600	0.045 *	N-S(2):	0.000
	LT	0.00	17	1,600	0.011	E-W(1):	0.457 *
Westbound	RT	0.00	13	0	0.000	E-W(2):	0.184
	TH	3.00	786	4,800	0.166		
	LT	2.00	580	2,880	0.201 *	V/C:	0.728
Northbound	RT	1.00	234	1,600	0.000	Lost Time:	0.100
	TH	0.06	19	93	0.204	ATSAC/ATCS:	-0.100
	LT	1.94	633	2,796	0.226 *		
Eastbound	RT	1.00	286	1,600	0.000	ICU:	0.728
	TH	4.00	1,638	6,400	0.256 *		
	LT	1.00	28	1,600	0.018	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: MONA BOULEVARD
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	111	0	0.000	N-S(1):	0.148
	TH	1.00	95	1,600	0.145 *	N-S(2):	0.241 *
	LT	0.00	26	1,600	0.016	E-W(1):	0.331
Westbound	RT	0.00	30	0	0.000	E-W(2):	0.404 *
	TH	3.00	1,712	4,800	0.363 *		
	LT	1.00	190	1,600	0.119	V/C:	0.645
Northbound	RT	1.00	145	1,600	0.000	Lost Time:	0.100
	TH	1.00	57	1,600	0.132	ATSAC/ATCS:	-0.100
	LT	0.00	154	1,600	0.096 *		
Eastbound	RT	0.00	148	0	0.000	ICU:	0.645
	TH	3.00	871	4,800	0.212		
	LT	1.00	66	1,600	0.041 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	92	0	0.000	N-S(1):	0.155
	TH	1.00	58	1,600	0.113 *	N-S(2):	0.210 *
	LT	0.00	31	1,600	0.019	E-W(1):	0.495 *
Westbound	RT	0.00	33	0	0.000	E-W(2):	0.313
	TH	3.00	1,070	4,800	0.230		
	LT	1.00	152	1,600	0.095 *	V/C:	0.705
Northbound	RT	1.00	214	1,600	0.039	Lost Time:	0.100
	TH	1.00	63	1,600	0.136	ATSAC/ATCS:	-0.100
	LT	0.00	155	1,600	0.097 *		
Eastbound	RT	0.00	264	0	0.000	ICU:	0.705
	TH	3.00	1,658	4,800	0.400 *		
	LT	1.00	132	1,600	0.083	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MONA BOULEVARD**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	84	1,600	0.022	N-S(1):	0.217 *
	TH	1.00	135	1,600	0.132	N-S(2):	0.163
	LT	0.00	76	1,600	0.048 *	E-W(1):	0.178
Westbound	RT	0.00	39	0	0.000	E-W(2):	0.239 *
	TH	2.00	626	3,200	0.208 *		
	LT	1.00	29	1,600	0.018	V/C:	0.456
Northbound	RT	0.00	78	0	0.000	Lost Time:	0.100
	TH	1.00	144	1,600	0.169 *		
	LT	0.00	49	1,600	0.031		
Eastbound	RT	0.00	41	0	0.000	ICU:	0.556
	TH	2.00	471	3,200	0.160		
	LT	1.00	49	1,600	0.031 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	76	1,600	0.001	N-S(1):	0.165 *
	TH	1.00	132	1,600	0.125	N-S(2):	0.144
	LT	0.00	68	1,600	0.043 *	E-W(1):	0.314 *
Westbound	RT	0.00	52	0	0.000	E-W(2):	0.193
	TH	2.00	418	3,200	0.147		
	LT	1.00	39	1,600	0.024 *	V/C:	0.479
Northbound	RT	0.00	58	0	0.000	Lost Time:	0.100
	TH	1.00	106	1,600	0.122 *		
	LT	0.00	31	1,600	0.019		
Eastbound	RT	0.00	83	0	0.000	ICU:	0.579
	TH	2.00	846	3,200	0.290 *		
	LT	1.00	74	1,600	0.046	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: S ALAMEDA STREET
East/West Street: 103RD STREET

Scenario: EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	244	0	0.000	N-S(1): 0.351
	TH	2.00	1,032	3,200	0.399 *	N-S(2): 0.450 *
	LT	0.00	0	0	0.000	E-W(1): 0.233 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.173
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.683
Northbound	RT	0.00	0	0	0.000	Lost Time: 0.100
	TH	2.00	1,122	3,200	0.351	
	LT	1.00	82	1,600	0.051 *	
Eastbound	RT	0.00	96	0	0.000	ICU: 0.783
	TH	1.00	0	1,600	0.233 *	
	LT	0.00	277	1,600	0.173	LOS: C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	268	0	0.000	N-S(1): 0.363
	TH	2.00	1,156	3,200	0.445 *	N-S(2): 0.512 *
	LT	0.00	0	0	0.000	E-W(1): 0.238 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.172
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.750
Northbound	RT	0.00	0	0	0.000	Lost Time: 0.100
	TH	2.00	1,161	3,200	0.363	
	LT	1.00	107	1,600	0.067 *	
Eastbound	RT	0.00	105	0	0.000	ICU: 0.850
	TH	1.00	0	1,600	0.238 *	
	LT	0.00	275	1,600	0.172	LOS: D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	565	1,600	0.227 *	N-S(1):	0.279
	TH	2.00	598	3,200	0.187	N-S(2):	0.291 *
	LT	1.00	91	1,600	0.057	E-W(1):	0.195
Westbound	RT	1.00	57	1,600	0.036	E-W(2):	0.366 *
	TH	3.00	1,087	4,800	0.226 *		
	LT	1.00	124	1,600	0.078	V/C:	0.657
Northbound	RT	0.00	81	0	0.000	Lost Time:	0.100
	TH	2.00	630	3,200	0.222		
	LT	2.00	184	2,880	0.064 *		
Eastbound	RT	0.00	143	0	0.000	ICU:	0.757
	TH	3.00	417	4,800	0.117		
	LT	2.00	404	2,880	0.140 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	494	1,600	0.156	N-S(1):	0.377 *
	TH	2.00	714	3,200	0.223	N-S(2):	0.297
	LT	1.00	171	1,600	0.107 *	E-W(1):	0.365 *
Westbound	RT	1.00	47	1,600	0.029	E-W(2):	0.311
	TH	3.00	683	4,800	0.142		
	LT	1.00	102	1,600	0.064 *	V/C:	0.742
Northbound	RT	0.00	152	0	0.000	Lost Time:	0.100
	TH	2.00	711	3,200	0.270 *		
	LT	2.00	214	2,880	0.074		
Eastbound	RT	0.00	182	0	0.000	ICU:	0.842
	TH	3.00	1,263	4,800	0.301 *		
	LT	2.00	488	2,880	0.169	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	105	0	0.000	N-S(1):	0.224
	TH	2.00	552	3,200	0.205 *	N-S(2):	0.300 *
	LT	1.00	57	1,600	0.036	E-W(1):	0.120
Westbound	RT	1.00	83	1,600	0.016	E-W(2):	0.238 *
	TH	1.00	275	1,600	0.172 *		
	LT	1.00	55	1,600	0.034	V/C:	0.538
Northbound	RT	0.00	47	0	0.000	Lost Time:	0.100
	TH	2.00	553	3,200	0.188		
	LT	1.00	152	1,600	0.095 *		
Eastbound	RT	1.00	114	1,600	0.000	ICU:	0.638
	TH	2.00	276	3,200	0.086		
	LT	1.00	106	1,600	0.066 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	120	0	0.000	N-S(1):	0.296
	TH	2.00	735	3,200	0.267 *	N-S(2):	0.367 *
	LT	1.00	100	1,600	0.063	E-W(1):	0.216
Westbound	RT	1.00	76	1,600	0.000	E-W(2):	0.286 *
	TH	1.00	285	1,600	0.178 *		
	LT	1.00	43	1,600	0.027	V/C:	0.653
Northbound	RT	0.00	41	0	0.000	Lost Time:	0.100
	TH	2.00	705	3,200	0.233		
	LT	1.00	160	1,600	0.100 *		
Eastbound	RT	1.00	182	1,600	0.014	ICU:	0.753
	TH	2.00	604	3,200	0.189		
	LT	1.00	173	1,600	0.108 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **119TH STREET**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	35	0	0.000	N-S(1): 0.015
	TH	1.00	9	1,600	0.028 *	N-S(2): 0.104 *
	LT	1.00	2	1,120	0.002	E-W(1): 0.253
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.260 *
	TH	1.00	283	1,120	0.260 *	
	LT	0.00	8	1,120	0.007	
Northbound	RT	1.00	23	1,120	0.013	
	TH	0.00	0	0	0.000	
	LT	1.00	121	1,600	0.076 *	
Eastbound	RT	0.00	57	0	0.000	
	TH	1.00	218	1,120	0.246	
	LT	0.00	0	0	0.000 *	

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	58	0	0.000	N-S(1): 0.129
	TH	1.00	37	1,120	0.088 *	N-S(2): 0.142 *
	LT	0.00	4	1,120	0.004	E-W(1): 0.199 *
Westbound	RT	0.00	3	0	0.000	E-W(2): 0.191
	TH	1.00	172	1,120	0.156	
	LT	1.00	21	1,600	0.013 *	
Northbound	RT	0.00	36	0	0.000	
	TH	1.00	43	1,120	0.125	
	LT	0.00	61	1,120	0.054 *	
Eastbound	RT	0.00	93	0	0.000	
	TH	1.00	115	1,120	0.186 *	
	LT	1.00	39	1,120	0.035	

* = Critical Movement

Observed				N-S:	0.142
Gate Lost Time (sec)-	57	40	60	E-W:	0.260
	59	41	41		
Total Seconds-	298			V/C:	0.402
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.502
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **119TH STREET**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C		ICU ANALYSIS		
Southbound	RT	0.00	41	0	0.000		N-S(1):	0.006	
	TH	1.00	22	1,600	0.039	*	N-S(2):	0.104	*
	LT	1.00	2	1,120	0.002		E-W(1):	0.427	*
Westbound	RT	0.00	0	0	0.000		E-W(2):	0.248	
	TH	1.00	255	1,120	0.248				
	LT	0.00	23	1,120	0.021	*			
Northbound	RT	1.00	27	1,120	0.004				
	TH	0.00	0	0	0.000				
	LT	1.00	104	1,600	0.065	*			
Eastbound	RT	0.00	67	0	0.000				
	TH	1.00	388	1,120	0.406	*			
	LT	0.00	0	0	0.000				

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C		ICU ANALYSIS		
Southbound	RT	0.00	58	0	0.000		N-S(1):	0.125	
	TH	1.00	26	1,120	0.079	*	N-S(2):	0.150	*
	LT	0.00	4	1,120	0.004		E-W(1):	0.317	*
Westbound	RT	0.00	1	0	0.000		E-W(2):	0.176	
	TH	1.00	138	1,120	0.124				
	LT	1.00	14	1,600	0.009	*			
Northbound	RT	0.00	26	0	0.000				
	TH	1.00	30	1,120	0.121				
	LT	0.00	79	1,120	0.071	*			
Eastbound	RT	0.00	113	0	0.000				
	TH	1.00	232	1,120	0.308	*			
	LT	1.00	58	1,120	0.052				

* = Critical Movement

Observed				N-S:	0.150
Gate Lost Time (sec)-	57	40	60	E-W:	0.427
	59	41	41		
Total Seconds-	298			V/C:	0.577
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.677
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	B
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	32	0	0.000	N-S(1): 0.168 *
	TH	1.00	141	1,600	0.108	N-S(2): 0.149
	LT	1.00	30	1,232	0.024 *	E-W(1): 0.194
Westbound	RT	1.00	38	1,232	0.006	E-W(2): 0.280 *
	TH	2.00	625	2,464	0.254 *	
	LT	0.00	0	0	0.000	
Northbound	RT	0.00	11	0	0.000	
	TH	1.00	166	1,232	0.144 *	
	LT	1.00	66	1,600	0.041	
Eastbound	RT	1.00	86	1,600	0.013	
	TH	2.00	477	2,464	0.194	
	LT	1.00	41	1,600	0.026 *	

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	27	0	0.000	N-S(1): 0.104
	TH	1.00	86	1,232	0.092 *	N-S(2): 0.109 *
	LT	1.00	45	1,600	0.028	E-W(1): 0.214
Westbound	RT	0.00	38	0	0.000	E-W(2): 0.267 *
	TH	2.00	617	2,464	0.266 *	
	LT	1.00	27	1,600	0.017	
Northbound	RT	0.00	36	0	0.000	
	TH	1.00	85	1,600	0.076	
	LT	1.00	21	1,232	0.017 *	
Eastbound	RT	1.00	22	1,232	0.001	
	TH	2.00	484	2,464	0.197	
	LT	0.00	1	1,232	0.001 *	

* = Critical Movement

Observed				N-S:	0.168
Gate Lost Time (sec)-	42	40	44	E-W:	0.280
	82	68	62		
Total Seconds-	338			V/C:	0.448
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.548
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING(BASELINE) + AMBIENT(2014) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	20	0	0.000	N-S(1):	0.116 *
	TH	1.00	100	1,600	0.075	N-S(2):	0.103
	LT	1.00	16	1,232	0.013 *	E-W(1):	0.364 *
Westbound	RT	1.00	37	1,232	0.017	E-W(2):	0.199
	TH	2.00	443	2,464	0.180		
	LT	0.00	0	0	0.000 *		
Northbound	RT	0.00	10	0	0.000		
	TH	1.00	117	1,232	0.103 *		
	LT	1.00	44	1,600	0.028		
Eastbound	RT	1.00	75	1,600	0.019		
	TH	2.00	896	2,464	0.364 *		
	LT	1.00	30	1,600	0.019		

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.113 *
	TH	1.00	78	1,232	0.079	N-S(2):	0.101
	LT	1.00	64	1,600	0.040 *	E-W(1):	0.402 *
Westbound	RT	0.00	39	0	0.000	E-W(2):	0.199
	TH	2.00	446	2,464	0.197		
	LT	1.00	63	1,600	0.039 *		
Northbound	RT	0.00	50	0	0.000		
	TH	1.00	66	1,600	0.073 *		
	LT	1.00	27	1,232	0.022		
Eastbound	RT	1.00	40	1,232	0.011		
	TH	2.00	892	2,464	0.363 *		
	LT	0.00	2	1,232	0.002		

* = Critical Movement

Observed				N-S:	0.116
Gate Lost Time (sec)-	42	40	44	E-W:	0.402
	82	68	62		
Total Seconds-	338			V/C:	0.518
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.618
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	B
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

APPENDIX G

ICU Worksheets – Cumulative (2014) Base Conditions

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **I-110 SOUTHBOUND RAMPS**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.71	722	2,737	0.264	N-S(1):	0.293 *
	TH	0.00	0	0	0.000	N-S(2):	0.264
	LT	1.29	544	1,856	0.293 *	E-W(1):	0.520 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.346
	TH	3.00	1,659	4,800	0.346		
	LT	1.00	371	1,600	0.232 *	V/C:	0.813
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	460	1,600	0.288 *	ICU:	0.813
	TH	3.00	624	3,200	0.195		
	LT	0.00	0	0	0.000	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.50	374	2,403	0.156	N-S(1):	0.173 *
	TH	0.00	0	0	0.000	N-S(2):	0.156
	LT	1.50	373	2,157	0.173 *	E-W(1):	0.521 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.209
	TH	3.00	1,003	4,800	0.209		
	LT	1.00	214	1,600	0.134 *	V/C:	0.694
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	578	0	0.000	ICU:	0.694
	TH	3.00	1,278	4,800	0.387 *		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **I-110 NORTHBOUND RAMPS**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.166
	TH	0.00	0	0	0.000 *	N-S(2):	0.384 *
	LT	0.00	0	0	0.000	E-W(1):	0.386 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.252
	TH	3.00	1,211	4,800	0.252		
	LT	1.00	145	1,600	0.091 *	V/C:	0.770
Northbound	RT	0.50	279	807	0.166	Lost Time:	0.100
	TH	0.00	0	0	0.000	ATSAC/ATCS:	-0.100
	LT	1.50	827	2,153	0.384 *		
Eastbound	RT	1.00	221	1,600	0.000	ICU:	0.770
	TH	2.00	943	3,200	0.295 *		
	LT	0.00	0	0	0.000	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.000
	TH	0.00	0	0	0.000 *	N-S(2):	0.267 *
	LT	0.00	0	0	0.000	E-W(1):	0.610 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.157
	TH	3.00	754	4,800	0.157		
	LT	1.00	349	1,600	0.218 *	V/C:	0.877
Northbound	RT	0.79	302	1,258	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000	ATSAC/ATCS:	-0.100
	LT	1.21	466	1,748	0.267 *		
Eastbound	RT	1.00	395	1,600	0.007	ICU:	0.877
	TH	2.00	1,255	3,200	0.392 *		
	LT	0.00	0	0	0.000	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: FIGUEROA STREET
East/West Street: EL SEGUNDO BOULEVARD

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	1.00	121	1,600	0.006	N-S(1): 0.160 *
	TH	2.00	287	3,200	0.090	N-S(2): 0.156
	LT	1.00	66	1,600	0.041 *	E-W(1): 0.303
Westbound	RT	0.00	80	0	0.000	E-W(2): 0.317 *
	TH	3.00	1,107	4,800	0.247 *	
	LT	1.00	60	1,600	0.038	V/C: 0.477
Northbound	RT	0.00	27	0	0.000	Lost Time: 0.100
	TH	2.00	355	3,200	0.119 *	
	LT	1.00	106	1,600	0.066	
Eastbound	RT	1.00	259	1,600	0.096	ICU: 0.577
	TH	2.00	849	3,200	0.265	
	LT	1.00	112	1,600	0.070 *	LOS: A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	1.00	111	1,600	0.000	N-S(1): 0.214
	TH	2.00	330	3,200	0.103 *	N-S(2): 0.217 *
	LT	1.00	90	1,600	0.056	E-W(1): 0.432 *
Westbound	RT	0.00	106	0	0.000	E-W(2): 0.277
	TH	3.00	787	4,800	0.186	
	LT	1.00	45	1,600	0.028 *	V/C: 0.649
Northbound	RT	0.00	115	0	0.000	Lost Time: 0.100
	TH	2.00	389	3,200	0.158	
	LT	1.00	182	1,600	0.114 *	
Eastbound	RT	1.00	148	1,600	0.000	ICU: 0.749
	TH	2.00	1,293	3,200	0.404 *	
	LT	1.00	145	1,600	0.091	LOS: C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SAN PEDRO STREET**
East/West Street: **120TH STREET**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	94	0	0.000	N-S(1):	0.133
	TH	2.00	276	3,200	0.128 *	N-S(2):	0.165 *
	LT	0.00	39	1,600	0.024	E-W(1):	0.359 *
Westbound	RT	0.00	55	0	0.000	E-W(2):	0.233
	TH	1.00	292	1,600	0.217		
	LT	1.00	49	1,600	0.031 *	V/C:	0.524
Northbound	RT	0.00	67	0	0.000	Lost Time:	0.100
	TH	2.00	224	3,200	0.109		
	LT	0.00	59	1,600	0.037 *		
Eastbound	RT	0.00	68	0	0.000	ICU:	0.624
	TH	1.00	457	1,600	0.328 *		
	LT	1.00	26	1,600	0.016	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	111	0	0.000	N-S(1):	0.129
	TH	2.00	278	3,200	0.131 *	N-S(2):	0.173 *
	LT	0.00	31	1,600	0.019	E-W(1):	0.277
Westbound	RT	0.00	42	0	0.000	E-W(2):	0.344 *
	TH	1.00	467	1,600	0.318 *		
	LT	1.00	61	1,600	0.038	V/C:	0.517
Northbound	RT	0.00	41	0	0.000	Lost Time:	0.100
	TH	2.00	244	3,200	0.110		
	LT	0.00	67	1,600	0.042 *		
Eastbound	RT	0.00	70	0	0.000	ICU:	0.617
	TH	1.00	313	1,600	0.239		
	LT	1.00	41	1,600	0.026 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **CENTURY BOULEVARD**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	92	0	0.000	N-S(1):	0.236
	TH	2.00	488	3,200	0.181 *	N-S(2):	0.280 *
	LT	1.00	51	1,600	0.032	E-W(1):	0.305 *
Westbound	RT	0.00	51	0	0.000	E-W(2):	0.277
	TH	2.00	683	3,200	0.229		
	LT	1.00	120	1,600	0.075 *	V/C:	0.585
Northbound	RT	0.00	53	0	0.000	Lost Time:	0.100
	TH	2.00	599	3,200	0.204	ATSAC/ATCS:	-0.100
	LT	1.00	158	1,600	0.099 *		
Eastbound	RT	0.00	116	0	0.000	ICU:	0.585
	TH	2.00	621	3,200	0.230 *		
	LT	1.00	76	1,600	0.048	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	87	0	0.000	N-S(1):	0.239
	TH	2.00	557	3,200	0.201 *	N-S(2):	0.292 *
	LT	1.00	73	1,600	0.046	E-W(1):	0.363 *
Westbound	RT	0.00	68	0	0.000	E-W(2):	0.287
	TH	2.00	590	3,200	0.206		
	LT	1.00	98	1,600	0.061 *	V/C:	0.655
Northbound	RT	0.00	77	0	0.000	Lost Time:	0.100
	TH	2.00	540	3,200	0.193	ATSAC/ATCS:	-0.100
	LT	1.00	145	1,600	0.091 *		
Eastbound	RT	0.00	167	0	0.000	ICU:	0.655
	TH	2.00	799	3,200	0.302 *		
	LT	1.00	129	1,600	0.081	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	66	0	0.000	N-S(1):	0.324 *
	TH	2.00	578	3,200	0.201	N-S(2):	0.297
	LT	1.00	177	1,600	0.111 *	E-W(1):	0.223
Westbound	RT	0.00	252	0	0.000	E-W(2):	0.311 *
	TH	3.00	865	4,800	0.233 *		
	LT	1.00	135	1,600	0.084	V/C:	0.635
Northbound	RT	0.00	97	0	0.000	Lost Time:	0.100
	TH	2.00	584	3,200	0.213 *	ATSAC/ATCS:	-0.100
	LT	1.00	153	1,600	0.096		
Eastbound	RT	0.00	132	0	0.000	ICU:	0.635
	TH	3.00	534	4,800	0.139		
	LT	1.00	124	1,600	0.078 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	101	0	0.000	N-S(1):	0.353 *
	TH	2.00	554	3,200	0.205	N-S(2):	0.280
	LT	1.00	192	1,600	0.120 *	E-W(1):	0.392 *
Westbound	RT	0.00	183	0	0.000	E-W(2):	0.273
	TH	3.00	618	4,800	0.167		
	LT	1.00	114	1,600	0.071 *	V/C:	0.745
Northbound	RT	0.00	94	0	0.000	Lost Time:	0.100
	TH	2.00	651	3,200	0.233 *	ATSAC/ATCS:	-0.100
	LT	1.00	120	1,600	0.075		
Eastbound	RT	0.00	161	0	0.000	ICU:	0.745
	TH	3.00	1,381	4,800	0.321 *		
	LT	1.00	169	1,600	0.106	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **120TH STREET**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	34	0	0.000	N-S(1):	0.256 *
	TH	2.00	596	3,200	0.197	N-S(2):	0.229
	LT	1.00	87	1,600	0.054 *	E-W(1):	0.332 *
Westbound	RT	0.00	121	0	0.000	E-W(2):	0.329
	TH	1.00	327	1,600	0.280		
	LT	1.00	165	1,600	0.103 *	V/C:	0.588
Northbound	RT	0.00	141	0	0.000	Lost Time:	0.100
	TH	2.00	504	3,200	0.202 *	ATSAC/ATCS:	-0.100
	LT	1.00	51	1,600	0.032		
Eastbound	RT	0.00	77	0	0.000	ICU:	0.588
	TH	1.00	290	1,600	0.229 *		
	LT	1.00	78	1,600	0.049	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	64	0	0.000	N-S(1):	0.347 *
	TH	2.00	573	3,200	0.199	N-S(2):	0.238
	LT	1.00	123	1,600	0.077 *	E-W(1):	0.350 *
Westbound	RT	0.00	89	0	0.000	E-W(2):	0.304
	TH	1.00	297	1,600	0.241		
	LT	1.00	131	1,600	0.082 *	V/C:	0.697
Northbound	RT	0.00	184	0	0.000	Lost Time:	0.100
	TH	2.00	679	3,200	0.270 *	ATSAC/ATCS:	-0.100
	LT	1.00	62	1,600	0.039		
Eastbound	RT	0.00	50	0	0.000	ICU:	0.697
	TH	1.00	379	1,600	0.268 *		
	LT	1.00	100	1,600	0.063	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: CENTURY BOULEVARD

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.334
	TH	2.00	794	3,200	0.277 *	N-S(2):	0.421 *
	LT	1.00	42	1,600	0.026	E-W(1):	0.261
Westbound	RT	0.00	43	0	0.000	E-W(2):	0.331 *
	TH	1.00	393	1,600	0.273 *		
	LT	1.00	56	1,600	0.035	V/C:	0.752
Northbound	RT	0.00	49	0	0.000	Lost Time:	0.100
	TH	2.00	937	3,200	0.308	ATSAC/ATCS:	-0.100
	LT	1.00	230	1,600	0.144 *		
Eastbound	RT	1.00	189	1,600	0.000	ICU:	0.752
	TH	1.00	361	1,600	0.226		
	LT	1.00	93	1,600	0.058 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	73	0	0.000	N-S(1):	0.368
	TH	2.00	873	3,200	0.296 *	N-S(2):	0.414 *
	LT	1.00	86	1,600	0.054	E-W(1):	0.369 *
Westbound	RT	0.00	53	0	0.000	E-W(2):	0.349
	TH	1.00	379	1,600	0.270		
	LT	1.00	78	1,600	0.049 *	V/C:	0.783
Northbound	RT	0.00	72	0	0.000	Lost Time:	0.100
	TH	2.00	934	3,200	0.314	ATSAC/ATCS:	-0.100
	LT	1.00	189	1,600	0.118 *		
Eastbound	RT	1.00	226	1,600	0.023	ICU:	0.783
	TH	1.00	512	1,600	0.320 *		
	LT	1.00	126	1,600	0.079	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **103RD STREET**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	12	0	0.000	N-S(1):	0.451 *
	TH	2.00	908	3,200	0.288	N-S(2):	0.320
	LT	1.00	118	1,600	0.074 *	E-W(1):	0.260 *
Westbound	RT	0.00	141	0	0.000	E-W(2):	0.228
	TH	1.00	183	1,600	0.203		
	LT	1.00	178	1,600	0.111 *	V/C:	0.711
Northbound	RT	0.00	208	0	0.000	Lost Time:	0.100
	TH	2.00	997	3,200	0.377 *	ATSAC/ATCS:	-0.100
	LT	1.00	51	1,600	0.032		
Eastbound	RT	0.00	60	0	0.000	ICU:	0.711
	TH	1.00	178	1,600	0.149 *		
	LT	1.00	40	1,600	0.025	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	38	0	0.000	N-S(1):	0.488 *
	TH	2.00	998	3,200	0.324	N-S(2):	0.363
	LT	1.00	178	1,600	0.111 *	E-W(1):	0.259
Westbound	RT	0.00	171	0	0.000	E-W(2):	0.294 *
	TH	1.00	253	1,600	0.265 *		
	LT	1.00	163	1,600	0.102	V/C:	0.782
Northbound	RT	0.00	233	0	0.000	Lost Time:	0.100
	TH	2.00	972	3,200	0.377 *	ATSAC/ATCS:	-0.100
	LT	1.00	63	1,600	0.039		
Eastbound	RT	0.00	48	0	0.000	ICU:	0.782
	TH	1.00	203	1,600	0.157		
	LT	1.00	46	1,600	0.029 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	42	0	0.000	N-S(1):	0.369
	TH	2.00	981	3,200	0.320 *	N-S(2):	0.394 *
	LT	2.00	144	2,880	0.050	E-W(1):	0.291 *
Westbound	RT	0.00	228	0	0.000	E-W(2):	0.226
	TH	3.00	776	4,800	0.209		
	LT	2.00	298	2,880	0.103 *	V/C:	0.685
Northbound	RT	1.00	281	1,600	0.083	Lost Time:	0.100
	TH	2.00	1,020	3,200	0.319	ATSAC/ATCS:	-0.100
	LT	2.00	212	2,880	0.074 *		
Eastbound	RT	0.00	300	1,600	0.188 *	ICU:	0.685
	TH	3.00	486	3,200	0.152		
	LT	2.00	50	2,880	0.017	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	60	0	0.000	N-S(1):	0.345
	TH	2.00	947	3,200	0.315 *	N-S(2):	0.405 *
	LT	2.00	169	2,880	0.059	E-W(1):	0.378 *
Westbound	RT	0.00	144	0	0.000	E-W(2):	0.175
	TH	3.00	531	4,800	0.141		
	LT	2.00	238	2,880	0.083 *	V/C:	0.783
Northbound	RT	1.00	328	1,600	0.131	Lost Time:	0.100
	TH	2.00	915	3,200	0.286	ATSAC/ATCS:	-0.100
	LT	2.00	258	2,880	0.090 *		
Eastbound	RT	0.00	346	0	0.000	ICU:	0.783
	TH	3.00	1,072	4,800	0.295 *		
	LT	2.00	97	2,880	0.034	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: I-105 WESTBOUND ON/OFF RAMPS

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	717	1,600	0.448 *	N-S(1):	0.355
	TH	2.00	901	3,200	0.282	N-S(2):	0.604 *
	LT	0.00	0	0	0.000	E-W(1):	0.089
Westbound	RT	1.99	389	3,192	0.122	E-W(2):	0.122 *
	TH	0.01	1	8	0.122 *		
	LT	1.00	143	1,600	0.089	V/C:	0.726
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,136	3,200	0.355	ATSAC/ATCS:	-0.100
	LT	2.00	450	2,880	0.156 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.726
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	565	1,600	0.353 *	N-S(1):	0.305
	TH	2.00	1,014	3,200	0.317	N-S(2):	0.510 *
	LT	0.00	0	0	0.000	E-W(1):	0.180 *
Westbound	RT	1.79	465	2,865	0.162	E-W(2):	0.162
	TH	0.00	0	0	0.000		
	LT	1.21	314	1,741	0.180 *	V/C:	0.690
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	975	3,200	0.305	ATSAC/ATCS:	-0.100
	LT	2.00	453	2,880	0.157 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.690
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **I-105 EASTBOUND ON/OFF RAMPS**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.351 *
	TH	2.00	544	3,200	0.170	N-S(2):	0.170
	LT	2.00	507	2,880	0.176 *	E-W(1):	0.295
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.328 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.679
Northbound	RT	1.12	313	1,789	0.175	Lost Time:	0.100
	TH	2.88	807	4,611	0.175 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	1.33	627	2,125	0.295	ICU:	0.679
	TH	0.04	20	68	0.295		
	LT	1.63	769	2,346	0.328 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.374 *
	TH	2.00	829	3,200	0.259	N-S(2):	0.259
	LT	2.00	497	2,880	0.173 *	E-W(1):	0.227
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.252 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.626
Northbound	RT	1.19	383	1,903	0.201	Lost Time:	0.100
	TH	2.81	905	4,497	0.201 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	1.14	414	1,826	0.227	ICU:	0.626
	TH	0.44	158	697	0.227		
	LT	1.42	516	2,049	0.252 *	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: 120TH STREET

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	82	0	0.000	N-S(1):	0.395 *
	TH	2.00	809	3,200	0.278	N-S(2):	0.329
	LT	1.00	205	1,600	0.128 *	E-W(1):	0.227
Westbound	RT	0.00	211	0	0.000	E-W(2):	0.291 *
	TH	2.00	477	3,200	0.215 *		
	LT	1.00	154	1,600	0.096	V/C:	0.686
Northbound	RT	0.00	161	0	0.000	Lost Time:	0.100
	TH	2.00	692	3,200	0.267 *	ATSAC/ATCS:	-0.100
	LT	1.00	82	1,600	0.051		
Eastbound	RT	0.00	40	0	0.000	ICU:	0.686
	TH	2.00	380	3,200	0.131		
	LT	1.00	121	1,600	0.076 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	101	0	0.000	N-S(1):	0.414 *
	TH	2.00	922	3,200	0.320	N-S(2):	0.371
	LT	1.00	161	1,600	0.101 *	E-W(1):	0.216
Westbound	RT	0.00	211	0	0.000	E-W(2):	0.258 *
	TH	2.00	322	3,200	0.167 *		
	LT	1.00	101	1,600	0.063	V/C:	0.672
Northbound	RT	0.00	108	0	0.000	Lost Time:	0.100
	TH	2.00	892	3,200	0.313 *	ATSAC/ATCS:	-0.100
	LT	1.00	81	1,600	0.051		
Eastbound	RT	0.00	84	0	0.000	ICU:	0.672
	TH	2.00	404	3,200	0.153		
	LT	1.00	145	1,600	0.091 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **COMPTON BOULEVARD**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	76	0	0.000	N-S(1): 0.346 *
	TH	2.00	658	3,200	0.229	N-S(2): 0.303
	LT	1.00	157	1,600	0.098 *	E-W(1): 0.233
Westbound	RT	0.00	118	0	0.000	E-W(2): 0.257 *
	TH	2.00	430	3,200	0.171 *	
	LT	1.00	102	1,600	0.064	V/C: 0.603
Northbound	RT	0.00	152	0	0.000	Lost Time: 0.100
	TH	2.00	640	3,200	0.248 *	
	LT	1.00	119	1,600	0.074	
Eastbound	RT	1.00	123	1,600	0.003	ICU: 0.703
	TH	2.00	541	3,200	0.169	
	LT	1.00	137	1,600	0.086 *	LOS: C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	133	0	0.000	N-S(1): 0.365 *
	TH	2.00	779	3,200	0.285	N-S(2): 0.333
	LT	1.00	155	1,600	0.097 *	E-W(1): 0.226
Westbound	RT	0.00	177	0	0.000	E-W(2): 0.262 *
	TH	2.00	360	3,200	0.168 *	
	LT	1.00	84	1,600	0.053	V/C: 0.627
Northbound	RT	0.00	107	0	0.000	Lost Time: 0.100
	TH	2.00	749	3,200	0.268 *	
	LT	1.00	77	1,600	0.048	
Eastbound	RT	1.00	126	1,600	0.031	ICU: 0.727
	TH	2.00	552	3,200	0.173	
	LT	1.00	150	1,600	0.094 *	LOS: C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **ALONDRA BOULEVARD**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	124	0	0.000	N-S(1):	0.287
	TH	2.00	726	3,200	0.266 *	N-S(2):	0.347 *
	LT	1.00	134	1,600	0.084	E-W(1):	0.191
Westbound	RT	0.00	143	0	0.000	E-W(2):	0.221 *
	TH	2.00	424	3,200	0.177 *		
	LT	1.00	100	1,600	0.063	V/C:	0.568
Northbound	RT	0.00	73	0	0.000	Lost Time:	0.100
	TH	2.00	578	3,200	0.203		
	LT	1.00	129	1,600	0.081 *		
Eastbound	RT	0.00	103	0	0.000	ICU:	0.668
	TH	2.00	307	3,200	0.128		
	LT	1.00	70	1,600	0.044 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	94	0	0.000	N-S(1):	0.359 *
	TH	2.00	659	3,200	0.235	N-S(2):	0.298
	LT	1.00	180	1,600	0.113 *	E-W(1):	0.258 *
Westbound	RT	0.00	182	0	0.000	E-W(2):	0.233
	TH	2.00	289	3,200	0.147		
	LT	1.00	72	1,600	0.045 *	V/C:	0.617
Northbound	RT	0.00	105	0	0.000	Lost Time:	0.100
	TH	2.00	682	3,200	0.246 *		
	LT	1.00	101	1,600	0.063		
Eastbound	RT	0.00	127	0	0.000	ICU:	0.717
	TH	2.00	554	3,200	0.213 *		
	LT	1.00	138	1,600	0.086	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **103RD AVENUE**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	79	0	0.000	N-S(1):	0.199
	TH	2.00	434	3,200	0.160 *	N-S(2):	0.216 *
	LT	1.00	54	1,600	0.034	E-W(1):	0.189
Westbound	RT	1.00	92	1,600	0.024	E-W(2):	0.257 *
	TH	1.00	311	1,600	0.194 *		
	LT	1.00	114	1,600	0.071	V/C:	0.473
Northbound	RT	0.00	115	0	0.000	Lost Time:	0.100
	TH	2.00	414	3,200	0.165	ATSAC/ATCS:	-0.100
	LT	1.00	89	1,600	0.056 *		
Eastbound	RT	0.00	110	0	0.000	ICU:	0.473
	TH	2.00	266	3,200	0.118		
	LT	1.00	101	1,600	0.063 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	79	0	0.000	N-S(1):	0.235 *
	TH	2.00	409	3,200	0.153 *	N-S(2):	0.235 *
	LT	1.00	88	1,600	0.055 *	E-W(1):	0.218
Westbound	RT	1.00	90	1,600	0.001	E-W(2):	0.312 *
	TH	1.00	418	1,600	0.261 *		
	LT	1.00	112	1,600	0.070	V/C:	0.547
Northbound	RT	0.00	117	0	0.000	Lost Time:	0.100
	TH	2.00	459	3,200	0.180 *	ATSAC/ATCS:	-0.100
	LT	1.00	131	1,600	0.082 *		
Eastbound	RT	0.00	94	0	0.000	ICU:	0.547
	TH	2.00	379	3,200	0.148		
	LT	1.00	82	1,600	0.051 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	236	1,600	0.148 *	N-S(1):	0.097
	TH	2.00	65	1,600	0.041	N-S(2):	0.231 *
	LT	1.00	112	1,600	0.070	E-W(1):	0.229
Westbound	RT	0.00	87	0	0.000	E-W(2):	0.434 *
	TH	2.00	952	3,200	0.325 *		
	LT	1.00	7	1,600	0.004	V/C:	0.665
Northbound	RT	0.00	15	0	0.000	Lost Time:	0.100
	TH	2.00	72	3,200	0.027		
	LT	1.00	133	1,600	0.083 *		
Eastbound	RT	0.00	68	0	0.000	ICU:	0.765
	TH	2.00	651	3,200	0.225		
	LT	1.00	175	1,600	0.109 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	119	1,600	0.074 *	N-S(1):	0.095
	TH	2.00	66	1,600	0.041	N-S(2):	0.118 *
	LT	1.00	120	1,600	0.075	E-W(1):	0.368 *
Westbound	RT	0.00	81	0	0.000	E-W(2):	0.285
	TH	2.00	447	3,200	0.165		
	LT	1.00	12	1,600	0.008 *	V/C:	0.486
Northbound	RT	0.00	19	0	0.000	Lost Time:	0.100
	TH	2.00	45	3,200	0.020		
	LT	1.00	71	1,600	0.044 *		
Eastbound	RT	0.00	119	0	0.000	ICU:	0.586
	TH	2.00	1,032	3,200	0.360 *		
	LT	1.00	192	1,600	0.120	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **103RD STREET**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	57	0	0.000	N-S(1):	0.220
	TH	2.00	388	3,200	0.139 *	N-S(2):	0.244 *
	LT	1.00	85	1,600	0.053	E-W(1):	0.243
Westbound	RT	0.00	76	0	0.000	E-W(2):	0.297 *
	TH	1.00	334	1,600	0.256 *		
	LT	1.00	103	1,600	0.064	V/C:	0.541
Northbound	RT	0.00	98	0	0.000	Lost Time:	0.100
	TH	2.00	436	3,200	0.167		
	LT	1.00	168	1,600	0.105 *		
Eastbound	RT	1.00	98	1,600	0.000	ICU:	0.641
	TH	1.00	286	1,600	0.179		
	LT	1.00	66	1,600	0.041 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	46	0	0.000	N-S(1):	0.210 *
	TH	2.00	328	3,200	0.117	N-S(2):	0.202
	LT	1.00	90	1,600	0.056 *	E-W(1):	0.220 *
Westbound	RT	0.00	48	0	0.000	E-W(2):	0.207
	TH	1.00	251	1,600	0.187		
	LT	1.00	79	1,600	0.049 *	V/C:	0.430
Northbound	RT	0.00	104	0	0.000	Lost Time:	0.100
	TH	2.00	390	3,200	0.154 *		
	LT	1.00	136	1,600	0.085		
Eastbound	RT	1.00	144	1,600	0.005	ICU:	0.530
	TH	1.00	273	1,600	0.171 *		
	LT	1.00	32	1,600	0.020	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **SANTA ANA BOULEVARD(N)**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	5	0	0.000	N-S(1):	0.357
	TH	1.00	566	1,600	0.357 *	N-S(2):	0.364 *
	LT	1.00	18	1,600	0.011	E-W(1):	0.081
Westbound	RT	0.00	97	0	0.000	E-W(2):	0.142 *
	TH	1.00	30	1,600	0.138 *		
	LT	0.00	94	1,600	0.059	V/C:	0.506
Northbound	RT	0.00	29	0	0.000	Lost Time:	0.100
	TH	1.00	524	1,600	0.346		
	LT	1.00	11	1,600	0.007 *		
Eastbound	RT	0.00	13	0	0.000	ICU:	0.606
	TH	1.00	15	1,600	0.022		
	LT	0.00	7	1,600	0.004 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.440 *
	TH	1.00	500	1,600	0.314	N-S(2):	0.323
	LT	1.00	33	1,600	0.021 *	E-W(1):	0.059
Westbound	RT	0.00	78	0	0.000	E-W(2):	0.094 *
	TH	1.00	21	1,600	0.093 *		
	LT	0.00	49	1,600	0.031	V/C:	0.534
Northbound	RT	0.00	51	0	0.000	Lost Time:	0.100
	TH	1.00	619	1,600	0.419 *		
	LT	1.00	15	1,600	0.009		
Eastbound	RT	0.00	17	0	0.000	ICU:	0.634
	TH	1.00	26	1,600	0.028		
	LT	0.00	1	1,600	0.001 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **SANTA ANA BOULEVARD(S)**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	56	0	0.000	N-S(1):	0.361
	TH	1.00	590	1,600	0.404 *	N-S(2):	0.421 *
	LT	1.00	28	1,600	0.018	E-W(1):	0.124 *
Westbound	RT	0.00	10	0	0.000	E-W(2):	0.105
	TH	1.00	71	1,600	0.086		
	LT	0.00	57	1,600	0.036 *	V/C:	0.545
Northbound	RT	0.00	26	0	0.000	Lost Time:	0.100
	TH	1.00	522	1,600	0.343		
	LT	1.00	27	1,600	0.017 *		
Eastbound	RT	0.00	22	0	0.000	ICU:	0.645
	TH	1.00	88	1,600	0.088 *		
	LT	0.00	31	1,600	0.019	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	24	0	0.000	N-S(1):	0.446 *
	TH	1.00	504	1,600	0.330	N-S(2):	0.348
	LT	1.00	40	1,600	0.025 *	E-W(1):	0.130 *
Westbound	RT	0.00	11	0	0.000	E-W(2):	0.094
	TH	1.00	44	1,600	0.073		
	LT	0.00	62	1,600	0.039 *	V/C:	0.576
Northbound	RT	0.00	34	0	0.000	Lost Time:	0.100
	TH	1.00	640	1,600	0.421 *		
	LT	1.00	28	1,600	0.018		
Eastbound	RT	0.00	29	0	0.000	ICU:	0.676
	TH	1.00	84	1,600	0.091 *		
	LT	0.00	33	1,600	0.021	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	136	0	0.000	N-S(1):	0.362
	TH	2.00	745	3,200	0.275 *	N-S(2):	0.364 *
	LT	1.00	168	1,600	0.105	E-W(1):	0.237
Westbound	RT	0.00	156	0	0.000	E-W(2):	0.386 *
	TH	2.00	841	3,200	0.312 *		
	LT	1.00	128	1,600	0.080	V/C:	0.750
Northbound	RT	0.00	134	0	0.000	Lost Time:	0.100
	TH	2.00	687	3,200	0.257		
	LT	1.00	143	1,600	0.089 *		
Eastbound	RT	1.00	131	1,600	0.000	ICU:	0.850
	TH	2.00	503	3,200	0.157		
	LT	1.00	119	1,600	0.074 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	145	0	0.000	N-S(1):	0.374 *
	TH	2.00	640	3,200	0.245	N-S(2):	0.345
	LT	1.00	166	1,600	0.104 *	E-W(1):	0.405 *
Westbound	RT	0.00	167	0	0.000	E-W(2):	0.344
	TH	2.00	605	3,200	0.241		
	LT	1.00	143	1,600	0.089 *	V/C:	0.779
Northbound	RT	0.00	165	0	0.000	Lost Time:	0.100
	TH	2.00	699	3,200	0.270 *		
	LT	1.00	160	1,600	0.100		
Eastbound	RT	1.00	173	1,600	0.008	ICU:	0.879
	TH	2.00	1,012	3,200	0.316 *		
	LT	1.00	164	1,600	0.103	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **COMPTON BOULEVARD**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	123	0	0.000	N-S(1): 0.278 *
	TH	2.00	586	3,200	0.222 *	N-S(2): 0.278 *
	LT	1.00	176	1,600	0.110 *	E-W(1): 0.295 *
Westbound	RT	1.00	155	1,600	0.000	E-W(2): 0.203
	TH	2.00	460	3,200	0.144	
	LT	1.00	159	1,600	0.099 *	V/C: 0.573
Northbound	RT	1.00	150	1,600	0.000	Lost Time: 0.100
	TH	2.00	536	3,200	0.168 *	
	LT	1.00	89	1,600	0.056 *	
Eastbound	RT	0.00	85	0	0.000	ICU: 0.673
	TH	2.00	542	3,200	0.196 *	
	LT	1.00	95	1,600	0.059	LOS: B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	103	0	0.000	N-S(1): 0.311 *
	TH	2.00	557	3,200	0.206	N-S(2): 0.286
	LT	1.00	149	1,600	0.093 *	E-W(1): 0.312 *
Westbound	RT	1.00	197	1,600	0.030	E-W(2): 0.236
	TH	2.00	522	3,200	0.163	
	LT	1.00	157	1,600	0.098 *	V/C: 0.623
Northbound	RT	1.00	146	1,600	0.000	Lost Time: 0.100
	TH	2.00	699	3,200	0.218 *	
	LT	1.00	128	1,600	0.080	
Eastbound	RT	0.00	104	0	0.000	ICU: 0.723
	TH	2.00	582	3,200	0.214 *	
	LT	1.00	117	1,600	0.073	LOS: C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: ALONDRA BOULEVARD

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	68	0	0.000	N-S(1):	0.261
	TH	2.00	764	3,200	0.260 *	N-S(2):	0.299 *
	LT	1.00	92	1,600	0.058	E-W(1):	0.216
Westbound	RT	0.00	80	0	0.000	E-W(2):	0.219 *
	TH	2.00	464	3,200	0.170 *		
	LT	1.00	105	1,600	0.066	V/C:	0.518
Northbound	RT	0.00	55	0	0.000	Lost Time:	0.100
	TH	2.00	594	3,200	0.203		
	LT	1.00	62	1,600	0.039 *		
Eastbound	RT	0.00	53	0	0.000	ICU:	0.618
	TH	2.00	427	3,200	0.150		
	LT	1.00	79	1,600	0.049 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	93	0	0.000	N-S(1):	0.322 *
	TH	2.00	558	3,200	0.203	N-S(2):	0.252
	LT	1.00	102	1,600	0.064 *	E-W(1):	0.279 *
Westbound	RT	0.00	108	0	0.000	E-W(2):	0.251
	TH	2.00	404	3,200	0.160		
	LT	1.00	95	1,600	0.059 *	V/C:	0.601
Northbound	RT	0.00	93	0	0.000	Lost Time:	0.100
	TH	2.00	731	3,200	0.258 *		
	LT	1.00	79	1,600	0.049		
Eastbound	RT	0.00	100	0	0.000	ICU:	0.701
	TH	2.00	603	3,200	0.220 *		
	LT	1.00	145	1,600	0.091	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: GREEN LEAF BOULEVARD

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: AM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	27	0	0.000	N-S(1):	0.237
	TH	2.00	877	3,200	0.283 *	N-S(2):	0.307 *
	LT	1.00	101	1,600	0.063	E-W(1):	0.279 *
Westbound	RT	0.00	60	0	0.000	E-W(2):	0.247
	TH	1.00	288	1,600	0.218		
	LT	1.00	193	1,600	0.121 *	V/C:	0.586
Northbound	RT	1.00	121	1,600	0.000	Lost Time:	0.100
	TH	2.00	556	3,200	0.174		
	LT	1.00	38	1,600	0.024 *		
Eastbound	RT	0.00	65	0	0.000	ICU:	0.686
	TH	1.00	187	1,600	0.158 *		
	LT	1.00	47	1,600	0.029	LOS:	B

Peak Period: PM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	16	0	0.000	N-S(1):	0.345 *
	TH	2.00	651	3,200	0.208	N-S(2):	0.251
	LT	1.00	186	1,600	0.116 *	E-W(1):	0.290 *
Westbound	RT	0.00	152	0	0.000	E-W(2):	0.246
	TH	1.00	204	1,600	0.223		
	LT	1.00	109	1,600	0.068 *	V/C:	0.635
Northbound	RT	1.00	230	1,600	0.076	Lost Time:	0.100
	TH	2.00	733	3,200	0.229 *		
	LT	1.00	68	1,600	0.043		
Eastbound	RT	0.00	19	0	0.000	ICU:	0.735
	TH	1.00	336	1,600	0.222 *		
	LT	1.00	36	1,600	0.023	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON BOULEVARD**
East/West Street: **ARTESIA BOULEVARD(NORTH)**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	273	0	0.000	N-S(1):	0.148
	TH	3.00	838	4,800	0.231 *	N-S(2):	0.388 *
	LT	0.00	0	0	0.000	E-W(1):	0.316 *
Westbound	RT	0.00	329	0	0.000	E-W(2):	0.284
	TH	1.48	343	2,367	0.284		
	LT	1.52	691	2,190	0.316 *	V/C:	0.704
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	473	3,200	0.148		
	LT	1.00	251	1,600	0.157 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.804
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	258	0	0.000	N-S(1):	0.226
	TH	3.00	578	4,800	0.174 *	N-S(2):	0.478 *
	LT	0.00	0	0	0.000	E-W(1):	0.214
Westbound	RT	0.00	359	1,600	0.224 *	E-W(2):	0.224 *
	TH	1.56	173	899	0.193		
	LT	1.44	443	2,071	0.214	V/C:	0.702
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	724	3,200	0.226		
	LT	1.00	486	1,600	0.304 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.802
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON BOULEVARD**
East/West Street: **ARTESIA BOULEVARD (SOUTH)**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.305
	TH	2.00	1,022	3,200	0.319 *	N-S(2):	0.319 *
	LT	2.00	502	2,880	0.174	E-W(1):	0.299 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.135
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.618
Northbound	RT	2.00	366	3,200	0.114	Lost Time:	0.100
	TH	2.00	418	3,200	0.131		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	0.00	479	1,600	0.299 *	ICU:	0.718
	TH	1.44	85	701	0.121		
	LT	1.56	303	2,249	0.135	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.401 *
	TH	2.00	671	3,200	0.210	N-S(2):	0.210
	LT	2.00	341	2,880	0.118 *	E-W(1):	0.253 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.186
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.654
Northbound	RT	2.00	770	3,200	0.241	Lost Time:	0.100
	TH	2.00	906	3,200	0.283 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	271	0	0.000	ICU:	0.754
	TH	2.00	538	3,200	0.253 *		
	LT	1.00	298	1,600	0.186	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **MARTIN LUTHER KING JR BOULEVARD**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	17	0	0.000	N-S(1):	0.331
	TH	2.00	863	3,200	0.275 *	N-S(2):	0.423 *
	LT	1.00	145	1,600	0.091	E-W(1):	0.250
Westbound	RT	0.00	156	0	0.000	E-W(2):	0.291 *
	TH	2.00	708	3,200	0.270 *		
	LT	1.00	124	1,600	0.078	V/C:	0.714
Northbound	RT	1.00	66	1,600	0.000	Lost Time:	0.100
	TH	2.00	768	3,200	0.240		
	LT	1.00	236	1,600	0.148 *		
Eastbound	RT	0.00	118	0	0.000	ICU:	0.814
	TH	2.00	431	3,200	0.172		
	LT	1.00	34	1,600	0.021 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	39	0	0.000	N-S(1):	0.452 *
	TH	2.00	995	3,200	0.323	N-S(2):	0.428
	LT	1.00	189	1,600	0.118 *	E-W(1):	0.302 *
Westbound	RT	0.00	182	0	0.000	E-W(2):	0.208
	TH	2.00	399	3,200	0.182		
	LT	1.00	105	1,600	0.066 *	V/C:	0.754
Northbound	RT	1.00	147	1,600	0.026	Lost Time:	0.100
	TH	2.00	1,070	3,200	0.334 *		
	LT	1.00	168	1,600	0.105		
Eastbound	RT	0.00	183	0	0.000	ICU:	0.854
	TH	2.00	571	3,200	0.236 *		
	LT	1.00	42	1,600	0.026	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	49	0	0.000	N-S(1):	0.267
	TH	3.00	1,012	4,800	0.221 *	N-S(2):	0.370 *
	LT	1.00	98	1,600	0.061	E-W(1):	0.494 *
Westbound	RT	0.00	55	0	0.000	E-W(2):	0.366
	TH	2.00	1,027	3,200	0.338		
	LT	1.00	379	1,600	0.237 *	V/C:	0.864
Northbound	RT	1.00	422	1,600	0.027	Lost Time:	0.100
	TH	3.00	990	4,800	0.206		
	LT	1.00	238	1,600	0.149 *		
Eastbound	RT	0.00	202	0	0.000	ICU:	0.964
	TH	2.00	620	3,200	0.257 *		
	LT	1.00	45	1,600	0.028	LOS:	E

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	85	0	0.000	N-S(1):	0.332
	TH	3.00	1,105	4,800	0.248 *	N-S(2):	0.376 *
	LT	1.00	119	1,600	0.074	E-W(1):	0.584 *
Westbound	RT	0.00	88	0	0.000	E-W(2):	0.362
	TH	2.00	796	3,200	0.276		
	LT	1.00	295	1,600	0.184 *	V/C:	0.960
Northbound	RT	1.00	428	1,600	0.083	Lost Time:	0.100
	TH	3.00	1,237	4,800	0.258		
	LT	1.00	204	1,600	0.128 *		
Eastbound	RT	0.00	266	0	0.000	ICU:	1.060
	TH	2.00	1,013	3,200	0.400 *		
	LT	1.00	137	1,600	0.086	LOS:	F

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **I-105 WESTBOUND RAMPS**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	9	0	0.000	N-S(1):	0.255
	TH	3.00	1,260	4,800	0.264 *	N-S(2):	0.268 *
	LT	0.00	0	0	0.000	E-W(1):	0.125 *
Westbound	RT	1.97	676	3,144	0.215	E-W(2):	0.000
	TH	0.03	12	56	0.215		
	LT	1.00	200	1,600	0.125 *	V/C:	0.393
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,225	4,800	0.255		
	LT	1.00	7	1,600	0.004 *		
Eastbound	RT	1.00	5	1,600	0.000	ICU:	0.493
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	7	0	0.000	N-S(1):	0.241
	TH	3.00	1,382	4,800	0.289 *	N-S(2):	0.291 *
	LT	0.00	0	0	0.000	E-W(1):	0.294 *
Westbound	RT	1.98	996	3,165	0.315	E-W(2):	0.000
	TH	0.02	11	35	0.315		
	LT	1.00	461	1,600	0.288 *	V/C:	0.585
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,159	4,800	0.241		
	LT	1.00	3	1,600	0.002 *		
Eastbound	RT	1.00	12	1,600	0.006 *	ICU:	0.685
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **I-105 EASTBOUND RAMPS**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.352 *
	TH	2.00	515	3,200	0.161	N-S(2): 0.161
	LT	1.00	25	1,600	0.016 *	E-W(1): 0.238 *
Westbound	RT	1.00	7	1,600	0.000	E-W(2): 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.590
Northbound	RT	0.00	537	1,600	0.336 *	Lost Time: 0.100
	TH	3.00	1,040	3,200	0.325	
	LT	0.00	0	0	0.000	
Eastbound	RT	1.00	380	1,600	0.238 *	ICU: 0.690
	TH	0.01	2	10	0.210	
	LT	1.99	671	2,871	0.234	LOS: B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.322
	TH	2.00	1,075	3,200	0.336 *	N-S(2): 0.336 *
	LT	1.00	15	1,600	0.009	E-W(1): 0.174 *
Westbound	RT	1.00	9	1,600	0.000	E-W(2): 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.510
Northbound	RT	0.00	473	0	0.000	Lost Time: 0.100
	TH	3.00	1,031	4,800	0.313	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	1.00	279	1,600	0.174 *	ICU: 0.610
	TH	0.03	7	46	0.151	
	LT	1.97	477	2,838	0.168	LOS: B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SLATER AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	102	1,600	0.025 *	N-S(1):	0.018
	TH	0.00	0	0	0.000	N-S(2):	0.025 *
	LT	1.00	28	1,600	0.018	E-W(1):	0.275
Westbound	RT	0.00	15	0	0.000	E-W(2):	0.452 *
	TH	2.00	1,306	3,200	0.413 *		
	LT	0.00	0	0	0.000	V/C:	0.477
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.577
	TH	2.00	880	3,200	0.275		
	LT	1.00	62	1,600	0.039 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	52	1,600	0.003	N-S(1):	0.009 *
	TH	0.00	0	0	0.000	N-S(2):	0.003
	LT	1.00	15	1,600	0.009 *	E-W(1):	0.410 *
Westbound	RT	0.00	15	0	0.000	E-W(2):	0.225
	TH	2.00	611	3,200	0.196		
	LT	0.00	0	0	0.000 *	V/C:	0.419
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.519
	TH	2.00	1,312	3,200	0.410 *		
	LT	1.00	47	1,600	0.029	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **108TH STREET**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	47	0	0.000	N-S(1):	0.490 *
	TH	1.00	486	1,600	0.348	N-S(2):	0.376
	LT	0.00	24	1,600	0.015 *	E-W(1):	0.188
Westbound	RT	0.00	75	0	0.000	E-W(2):	0.211 *
	TH	1.00	87	1,600	0.169 *		
	LT	0.00	109	1,600	0.068	V/C:	0.701
Northbound	RT	0.00	70	0	0.000	Lost Time:	0.100
	TH	1.00	646	1,600	0.475 *	ATSAC/ATCS:	-0.100
	LT	0.00	44	1,600	0.028		
Eastbound	RT	0.00	51	0	0.000	ICU:	0.701
	TH	1.00	74	1,600	0.120		
	LT	0.00	67	1,600	0.042 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	48	0	0.000	N-S(1):	0.422
	TH	1.00	579	1,600	0.417 *	N-S(2):	0.440 *
	LT	0.00	40	1,600	0.025	E-W(1):	0.155 *
Westbound	RT	0.00	27	0	0.000	E-W(2):	0.111
	TH	1.00	64	1,600	0.093		
	LT	0.00	57	1,600	0.036 *	V/C:	0.595
Northbound	RT	0.00	69	0	0.000	Lost Time:	0.100
	TH	1.00	530	1,600	0.397	ATSAC/ATCS:	-0.100
	LT	0.00	36	1,600	0.023 *		
Eastbound	RT	0.00	61	0	0.000	ICU:	0.595
	TH	1.00	102	1,600	0.119 *		
	LT	0.00	28	1,600	0.018	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **111TH STREET**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	55	0	0.000	N-S(1):	0.437 *
	TH	1.00	528	1,600	0.416	N-S(2):	0.427
	LT	0.00	82	1,600	0.051 *	E-W(1):	0.113
Westbound	RT	0.00	83	0	0.000	E-W(2):	0.144 *
	TH	1.00	36	1,600	0.103 *		
	LT	0.00	46	1,600	0.029	V/C:	0.581
Northbound	RT	0.00	38	0	0.000	Lost Time:	0.100
	TH	1.00	563	1,600	0.386 *	ATSAC/ATCS:	-0.100
	LT	0.00	17	1,600	0.011		
Eastbound	RT	0.00	17	0	0.000	ICU:	0.581
	TH	1.00	53	1,600	0.084		
	LT	0.00	65	1,600	0.041 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	48	0	0.000	N-S(1):	0.395
	TH	1.00	618	1,600	0.451 *	N-S(2):	0.461 *
	LT	0.00	55	1,600	0.034	E-W(1):	0.051
Westbound	RT	0.00	67	0	0.000	E-W(2):	0.082 *
	TH	1.00	5	1,600	0.059 *		
	LT	0.00	23	1,600	0.014	V/C:	0.543
Northbound	RT	0.00	24	0	0.000	Lost Time:	0.100
	TH	1.00	537	1,600	0.361	ATSAC/ATCS:	-0.100
	LT	0.00	16	1,600	0.010 *		
Eastbound	RT	0.00	17	0	0.000	ICU:	0.543
	TH	1.00	6	1,600	0.037		
	LT	0.00	36	1,600	0.023 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **111TH STREET**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.440
	TH	1.00	702	1,600	0.478 *	N-S(2):	0.486 *
	LT	0.00	60	1,600	0.038	E-W(1):	0.079
Westbound	RT	0.00	57	0	0.000	E-W(2):	0.102 *
	TH	1.00	28	1,600	0.102 *		
	LT	0.00	78	1,600	0.049	V/C:	0.588
Northbound	RT	0.00	79	0	0.000	Lost Time:	0.100
	TH	1.00	552	1,600	0.402		
	LT	0.00	12	1,600	0.008 *		
Eastbound	RT	0.00	13	0	0.000	ICU:	0.688
	TH	1.00	35	1,600	0.030		
	LT	0.00	0	0	0.000 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.510 *
	TH	1.00	566	1,600	0.370	N-S(2):	0.379
	LT	0.00	23	1,600	0.014 *	E-W(1):	0.040
Westbound	RT	0.00	43	0	0.000	E-W(2):	0.060 *
	TH	1.00	16	1,600	0.058 *		
	LT	0.00	34	1,600	0.021	V/C:	0.570
Northbound	RT	0.00	52	0	0.000	Lost Time:	0.100
	TH	1.00	727	1,600	0.496 *		
	LT	0.00	15	1,600	0.009		
Eastbound	RT	0.00	16	0	0.000	ICU:	0.670
	TH	1.00	12	1,600	0.019		
	LT	0.00	3	1,600	0.002 *	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	30	0	0.000	N-S(1): 0.221 *
	TH	1.00	116	1,600	0.168	N-S(2): 0.184
	LT	0.00	122	1,600	0.076 *	E-W(1): 0.283
Westbound	RT	0.00	135	0	0.000	E-W(2): 0.406 *
	TH	2.00	1,104	3,200	0.387 *	
	LT	1.00	45	1,600	0.028	
Northbound	RT	0.00	86	0	0.000	
	TH	1.00	121	1,600	0.145 *	
	LT	0.00	25	1,600	0.016	
Eastbound	RT	0.00	24	0	0.000	
	TH	2.00	791	3,200	0.255	
	LT	1.00	30	1,600	0.019 *	

WILLOWBROOK AV (E)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	82	0	0.000	N-S(1): 0.113
	TH	1.00	68	1,600	0.094 *	N-S(2): 0.122 *
	LT	1.00	136	1,600	0.085	E-W(1): 0.309
Westbound	RT	0.00	96	0	0.000	E-W(2): 0.446 *
	TH	2.00	1,193	3,200	0.403 *	
	LT	1.00	35	1,600	0.022	
Northbound	RT	0.00	25	0	0.000	
	TH	1.00	20	1,600	0.028	
	LT	1.00	45	1,600	0.028 *	
Eastbound	RT	0.00	39	0	0.000	
	TH	2.00	880	3,200	0.287	
	LT	1.00	68	1,600	0.043 *	

* = Critical Movement

N-S:	0.221
E-W:	0.446
V/C:	0.667
Lost Time:	0.100
ICU:	0.767
LOS:	C

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	28	0	0.000	N-S(1): 0.234 *
	TH	1.00	88	1,600	0.150	N-S(2): 0.168
	LT	0.00	124	1,600	0.078 *	E-W(1): 0.458 *
Westbound	RT	0.00	44	0	0.000	E-W(2): 0.321
	TH	2.00	955	3,200	0.312	
	LT	1.00	46	1,600	0.029 *	
Northbound	RT	0.00	106	0	0.000	
	TH	1.00	114	1,600	0.156 *	
	LT	0.00	29	1,600	0.018	
Eastbound	RT	0.00	27	0	0.000	
	TH	2.00	1,346	3,200	0.429 *	
	LT	1.00	15	1,600	0.009	

WILLOWBROOK AV (E)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	48	0	0.000	N-S(1): 0.099 *
	TH	1.00	62	1,600	0.069	N-S(2): 0.087
	LT	1.00	123	1,600	0.077 *	E-W(1): 0.472 *
Westbound	RT	0.00	116	0	0.000	E-W(2): 0.388
	TH	2.00	933	3,200	0.328	
	LT	1.00	26	1,600	0.016 *	
Northbound	RT	0.00	19	0	0.000	
	TH	1.00	16	1,600	0.022 *	
	LT	1.00	28	1,600	0.018	
Eastbound	RT	0.00	50	0	0.000	
	TH	2.00	1,409	3,200	0.456 *	
	LT	1.00	96	1,600	0.060	

* = Critical Movement

N-S:	0.234
E-W:	0.472
V/C:	0.706
Lost Time:	0.100
ICU:	0.806
LOS:	D

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: ALAMEDA STREET
East/West Street: MARTIN LUTHER KING JR BOULEVARD

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

S. ALAMEDA ST (W)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	2	0	0.000	N-S(1):	0.434
	TH	2.00	1,020	3,200	0.319	N-S(2):	0.319
	LT	1.00	130	1,600	0.081 *	E-W(1):	0.149
Westbound	RT	1.00	368	1,600	0.149 *	E-W(2):	0.006
	TH	0.04	8	62	0.129		
	LT	1.96	404	2,824	0.143		
Northbound	RT	0.00	186	0	0.000		
	TH	2.00	943	3,200	0.353 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	4	0	0.000		
	TH	1.00	1	1,600	0.006 *		
	LT	0.00	5	1,600	0.003		

S. ALAMEDA ST (E)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	60	0	0.000	N-S(1):	0.171
	TH	1.00	68	1,600	0.103	N-S(2):	0.106
	LT	0.00	37	1,600	0.023 *	E-W(1):	0.249
Westbound	RT	0.00	83	0	0.000	E-W(2):	0.099
	TH	2.00	715	3,200	0.249 *		
	LT	1.00	12	1,600	0.008		
Northbound	RT	0.00	60	0	0.000		
	TH	1.00	173	1,600	0.148 *		
	LT	0.00	4	1,600	0.003		
Eastbound	RT	0.00	3	0	0.000		
	TH	2.00	220	3,200	0.099 *		
	LT	0.00	94	1,600	0.059		

* = Critical Movement

N-S:	0.434
E-W:	0.249
V/C:	0.683
Lost Time:	0.100
ICU:	0.783
LOS:	C

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: ALAMEDA STREET
East/West Street: MARTIN LUTHER KING JR BOULEVARD

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

S. ALAMEDA ST (W)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.484
	TH	2.00	1,149	3,200	0.359	N-S(2): 0.359
	LT	1.00	169	1,600	0.106 *	E-W(1): 0.090
Westbound	RT	1.00	242	1,600	0.046	E-W(2): 0.014
	TH	0.03	4	49	0.081	
	LT	1.97	255	2,836	0.090 *	
Northbound	RT	0.00	184	0	0.000	
	TH	2.00	1,024	3,200	0.378 *	
	LT	0.00	0	0	0.000	
Eastbound	RT	0.00	3	0	0.000	
	TH	1.00	13	1,600	0.014 *	
	LT	0.00	7	1,600	0.004	

S. ALAMEDA ST (E)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	71	0	0.000	N-S(1): 0.154
	TH	1.00	51	1,600	0.094	N-S(2): 0.097
	LT	0.00	28	1,600	0.018 *	E-W(1): 0.139
Westbound	RT	0.00	33	0	0.000	E-W(2): 0.120
	TH	2.00	412	3,200	0.139 *	
	LT	1.00	6	1,600	0.004	
Northbound	RT	0.00	96	0	0.000	
	TH	1.00	118	1,600	0.136 *	
	LT	0.00	4	1,600	0.003	
Eastbound	RT	0.00	9	0	0.000	
	TH	2.00	336	3,200	0.120 *	
	LT	0.00	39	1,600	0.024	

* = Critical Movement

N-S:	0.484
E-W:	0.139
V/C:	0.623
Lost Time:	0.100
ICU:	0.723
LOS:	C

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **ALAMEDA STREET**
East/West Street: **COMPTON BOULEVARD**

Scenario: **CUMULATIVE (2014) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

S. ALAMEDA ST (W)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	77	0	0.000	N-S(1):	0.209
	TH	2.00	718	3,200	0.248 *	N-S(2):	0.302 *
	LT	1.00	103	1,600	0.064	E-W(1):	0.182
Westbound	RT	0.00	121	0	0.000	E-W(2):	0.273 *
	TH	2.00	596	3,200	0.224 *		
	LT	1.00	33	1,600	0.021		
Northbound	RT	0.00	37	0	0.000		
	TH	2.00	427	3,200	0.145		
	LT	1.00	87	1,600	0.054 *		
Eastbound	RT	0.00	74	0	0.000		
	TH	2.00	442	3,200	0.161		
	LT	1.00	79	1,600	0.049 *		

S. ALAMEDA ST (E)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	9	0	0.000	N-S(1):	0.135 *
	TH	1.00	151	1,600	0.100	N-S(2):	0.123
	LT	1.00	29	1,600	0.018 *	E-W(1):	0.187
Westbound	RT	1.00	55	1,600	0.016	E-W(2):	0.228 *
	TH	2.00	705	3,200	0.220 *		
	LT	1.00	15	1,600	0.009		
Northbound	RT	0.00	63	0	0.000		
	TH	1.00	124	1,600	0.117 *		
	LT	1.00	36	1,600	0.023		
Eastbound	RT	0.00	43	0	0.000		
	TH	2.00	526	3,200	0.178		
	LT	1.00	12	1,600	0.008 *		

* = Critical Movement

N-S:	0.302
E-W:	0.273
V/C:	0.575
Lost Time:	0.100
ICU:	0.675
LOS:	B

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: ALAMEDA STREET
East/West Street: COMPTON BOULEVARD

Scenario: CUMULATIVE (2014) BASE CONDITIONS

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

S. ALAMEDA ST (W)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	70	0	0.000	N-S(1):	0.294 *
	TH	2.00	659	3,200	0.228	N-S(2):	0.286
	LT	1.00	105	1,600	0.066 *	E-W(1):	0.258 *
Westbound	RT	0.00	91	0	0.000	E-W(2):	0.257
	TH	2.00	544	3,200	0.198		
	LT	1.00	40	1,600	0.025 *		
Northbound	RT	0.00	60	0	0.000		
	TH	2.00	670	3,200	0.228 *		
	LT	1.00	92	1,600	0.058		
Eastbound	RT	0.00	67	0	0.000		
	TH	2.00	677	3,200	0.233 *		
	LT	1.00	94	1,600	0.059		

S. ALAMEDA ST (E)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	14	0	0.000	N-S(1):	0.124 *
	TH	1.00	88	1,600	0.064	N-S(2):	0.077
	LT	1.00	27	1,600	0.017 *	E-W(1):	0.270 *
Westbound	RT	1.00	21	1,600	0.000	E-W(2):	0.210
	TH	2.00	641	3,200	0.200		
	LT	1.00	19	1,600	0.012 *		
Northbound	RT	0.00	48	0	0.000		
	TH	1.00	123	1,600	0.107 *		
	LT	1.00	21	1,600	0.013		
Eastbound	RT	0.00	23	0	0.000		
	TH	2.00	803	3,200	0.258 *		
	LT	1.00	16	1,600	0.010		

* = Critical Movement

N-S:	0.294
E-W:	0.270
V/C:	0.564
Lost Time:	0.100
ICU:	0.664
LOS:	B

APPENDIX H

Project Trip Distribution

APPENDIX H
WORK TRIPS VS. NON-WORK TRIPS

	AM		PM	
Existing Baseline	IN	OUT	IN	OUT
Hospital				
Trip Generation Less Transit Reduction	171	307	383	296
Work	51	92	115	89
Non-Work	120	215	268	207

	AM		PM	
Proposed Tier I Project	IN	OUT	IN	OUT
Hospital				
Trip Generation Less Transit Reduction	-196	-136	-142	-196
Work	-59	-41	-43	-59
Non-Work	-137	-95	-99	-137

	AM		PM	
Proposed Tier II Project	IN	OUT	IN	OUT
Hospital (Additional Campus Support)				
Trip Generation Less Transit Reduction	638	443	462	638
Internal Capture	-81	-81	-83	-82
Sub-total	557	362	379	556
Existing + Tier I Internal Capture	-64	-63	-65	-64
Net Total	493	299	314	492
Work	148	90	94	148
Non-Work	345	209	220	344
Commercial/Retail				
Trip Generation Less Transit Reduction	70	45	229	237
Internal Capture	-9	-8	-35	-35
Pass-By	-6	-4	-19	-20
Net Total	55	33	175	182
Work	11	7	35	36
Non-Work	44	26	140	146
Medical Office				
Trip Generation Less Transit Reduction	463	123	238	644
Internal Capture	-44	-44	-66	-66
Pass-By	-39	-11	-20	-55
Net Total	380	68	152	523
Work	114	20	46	157
Non-Work	266	48	106	366
General Office				
Trip Generation Less Transit Reduction	194	26	36	174
Internal Capture	-17	-16	-16	-16
Net Total	177	10	20	158
Work	115	7	13	103
Non-Work	62	3	7	55
Single-Family Residential				
Trip Generation Less Transit Reduction	17	51	56	33
Internal Capture	-5	-5	-7	-6
Net Total	12	46	49	27
Work	3	12	12	7
Non-Work	9	34	37	20
Proposed Tier II Project - Total				
Work Total	391	136	200	451
Non-Work Total	726	320	510	931

Exhibit B-2

Daily Trip Purpose Breakdown by Land Use Type

Land Use	Work	Non-Work	Total
Single-family Residential	25%	75%	100%
Multi-family Residential	30%	70%	100%
Shopping Center	20%	80%	100%
Office	65%	35%	100%
Government Office	37%	63%	100%
Medical Office	30%	70%	100%
Hotel	25%	75%	100%
Industrial/Manufacturing	75%	25%	100%
College	30%	70%	100%
Restaurant	15%	85%	100%

PROJECT RSA: 21 Area Generally Bounded By: Boyle Heights, Montebello, Compton, Willowbrook

2001 TRIP DISTRIBUTION PERCENTAGES

10/31/03

Project Type	Purpose	Agoura 7	SClarita 8	Lancstr 9	Palmdle 10	AngFrst 11	W.SFV 12	Burbank 13	Sylmar 14	Malibu 15	SMonica 16	WCntlLA 17	Bch.LAX 18	PVerdes 19
Residential														
	Work	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.9%	0.2%	0.0%	1.9%	10.6%	8.0%	6.0%
	NonWork	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.3%	7.0%	4.9%	2.5%
Non-Residential														
	Work	0.1%	0.5%	0.6%	0.7%	0.0%	1.8%	1.5%	1.1%	0.0%	2.6%	14.0%	7.4%	4.6%
	NonWork	0.0%	0.2%	0.1%	0.2%	0.0%	0.2%	0.3%	0.2%	0.0%	0.3%	6.2%	4.1%	2.4%

	Purpose	LongBch 20	Vernon 21	Downey 22	DntnLA 23	Glendle 24	Pasadna 25	WCovina 26	Pomona 27	Ven	Ora	SB	Riv	Ker	TOTAL
Residential															
	Work	4.2%	35.2%	9.3%	7.0%	3.5%	6.4%	2.1%	0.1%	3.5%	0.0%	0.1%	0.0%	0.1%	100.0%
	NonWork	1.8%	63.6%	5.7%	5.3%	3.3%	4.6%	0.4%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	100.0%
Non-Residential															
	Work	5.1%	25.2%	9.2%	1.8%	5.8%	7.7%	3.0%	0.4%	3.9%	1.8%	0.8%	0.3%	0.0%	100.0%
	NonWork	3.3%	50.4%	9.0%	2.8%	3.6%	5.3%	1.2%	0.2%	6.2%	1.7%	1.5%	0.5%	0.0%	100.0%

2025 TRIP DISTRIBUTION PERCENTAGES

Project Type RSA	Purpose	Agoura 7	SClarita 8	Lancstr 9	Palmdle 10	AngFrst 11	W.SFV 12	Burbank 13	Sylmar 14	Malibu 15	SMonica 16	WCntlLA 17	Bch.LAX 18	PVerdes 19
Residential														
21	Work	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	1.0%	0.1%	0.0%	1.5%	9.0%	8.1%	5.9%
	NonWork	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.2%	6.0%	4.6%	2.3%
Non-Residential														
	Work	0.1%	1.5%	0.9%	0.9%	0.1%	1.9%	1.5%	1.1%	0.1%	2.6%	13.8%	6.5%	4.0%
	NonWork	0.0%	0.6%	0.2%	0.1%	0.1%	0.3%	0.3%	0.4%	0.0%	0.4%	6.8%	3.9%	2.2%

	Purpose	LongBch 20	Vernon 21	Downey 22	DntnLA 23	Glendle 24	Pasadna 25	WCovina 26	Pomona 27	Ven	Ora	SB	Riv	Ker	TOTAL
Residential															
	Work	4.6%	37.9%	8.6%	6.3%	3.8%	5.9%	1.9%	0.1%	0.0%	4.1%	0.2%	0.0%	0.1%	100.0%
	NonWork	1.8%	65.3%	5.5%	5.2%	3.5%	3.8%	0.3%	0.0%	0.0%	1.0%	0.0%	0.0%	0.1%	100.0%
Non-Residential															
	Work	4.2%	27.4%	9.0%	2.4%	6.0%	7.7%	2.5%	0.5%	0.3%	2.4%	1.3%	1.4%	0.1%	100.0%
	NonWork	2.6%	55.3%	8.1%	3.2%	4.1%	5.3%	1.0%	0.2%	0.1%	2.2%	1.5%	0.7%	0.1%	100.0%

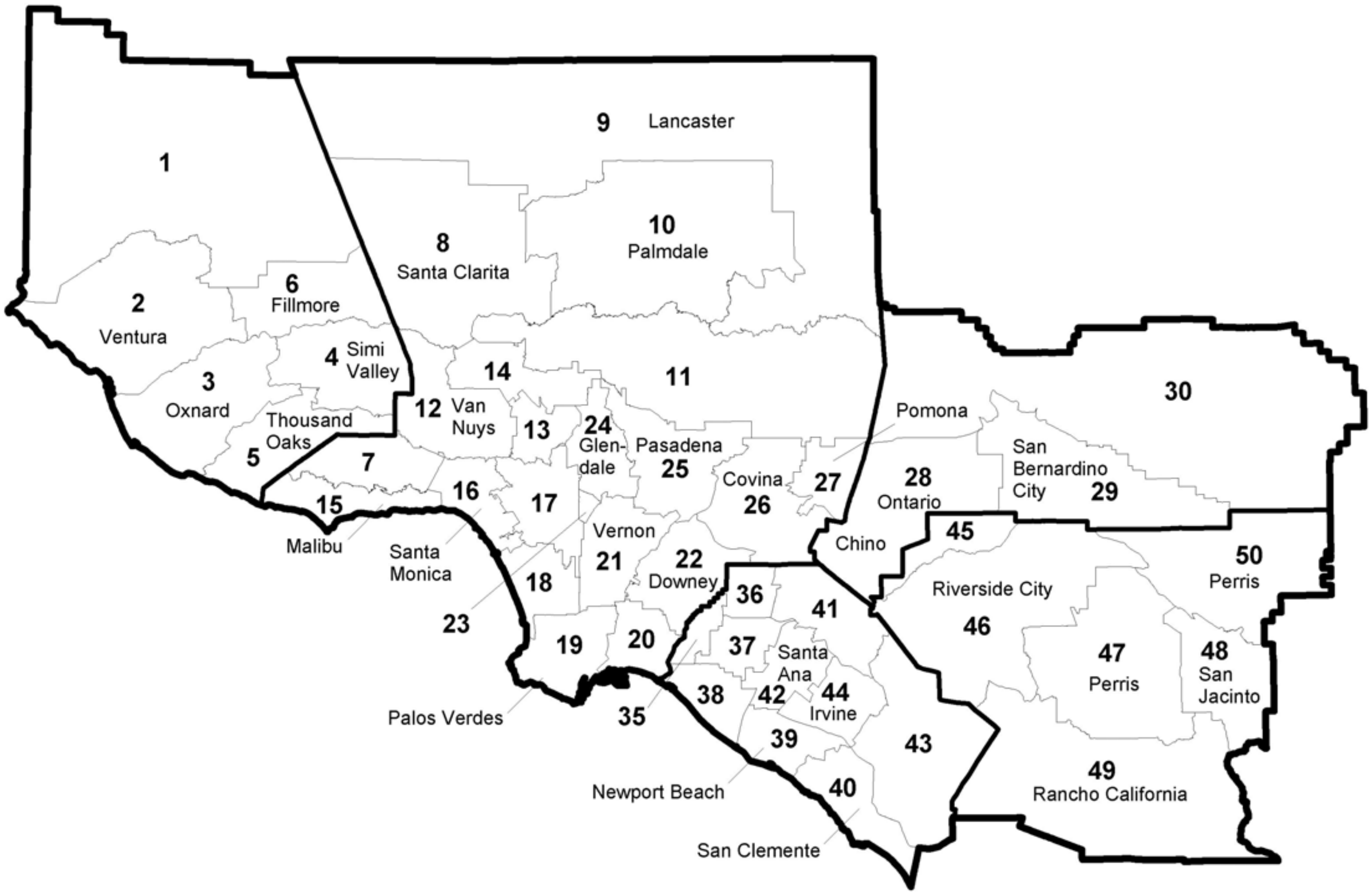
Exhibit B-4

Regional Statistical Areas

RSA	AREA GENERALLY BOUNDED BY
7	Agoura Hills, Calabasas, Hidden Hills
8	Santa Clarita, Castaic
9	Lancaster, Gorman
10	Palmdale, Agua Dulce
11	Angeles National Forest
12	Woodland Hills, Sherman Oaks, Sepulveda, Porter Ranch
13	Burbank, Sun Valley, North Hollywood
14	San Fernando, Granada Hills, Sylmar, Tujunga
15	Malibu
16	Santa Monica, Bel Air, Palisades, Marina Del Rey
17	Westwood, Beverly Glen, Los Feliz, Hyde Park, Culver City
18	Westchester, Redondo Beach, Gardena, Inglewood
19	Torrance, Palos Verdes, Carson
20	Long Beach, Lakewood
21	Boyle Heights, Montebello, Compton, Willowbrook
22	Paramount, Hawaiian Gardens, Pico Rivera, La Habra Heights
23	Downtown Los Angeles, Exposition Park, MacArthur Park
24	Glendale, Echo Park, El Sereno
25	La Canada-Flintridge, Pasadena, Monterey Park, South El Monte, Duarte
26	Azusa, Glendora, Diamond Bar, Hacienda Heights
27	San Dimas, Pomona, Claremont

Regional Statistical Areas (RSA's)

LARTS Modeling Region



Regional Statistical Areas (RSA's)

Central, Gateway

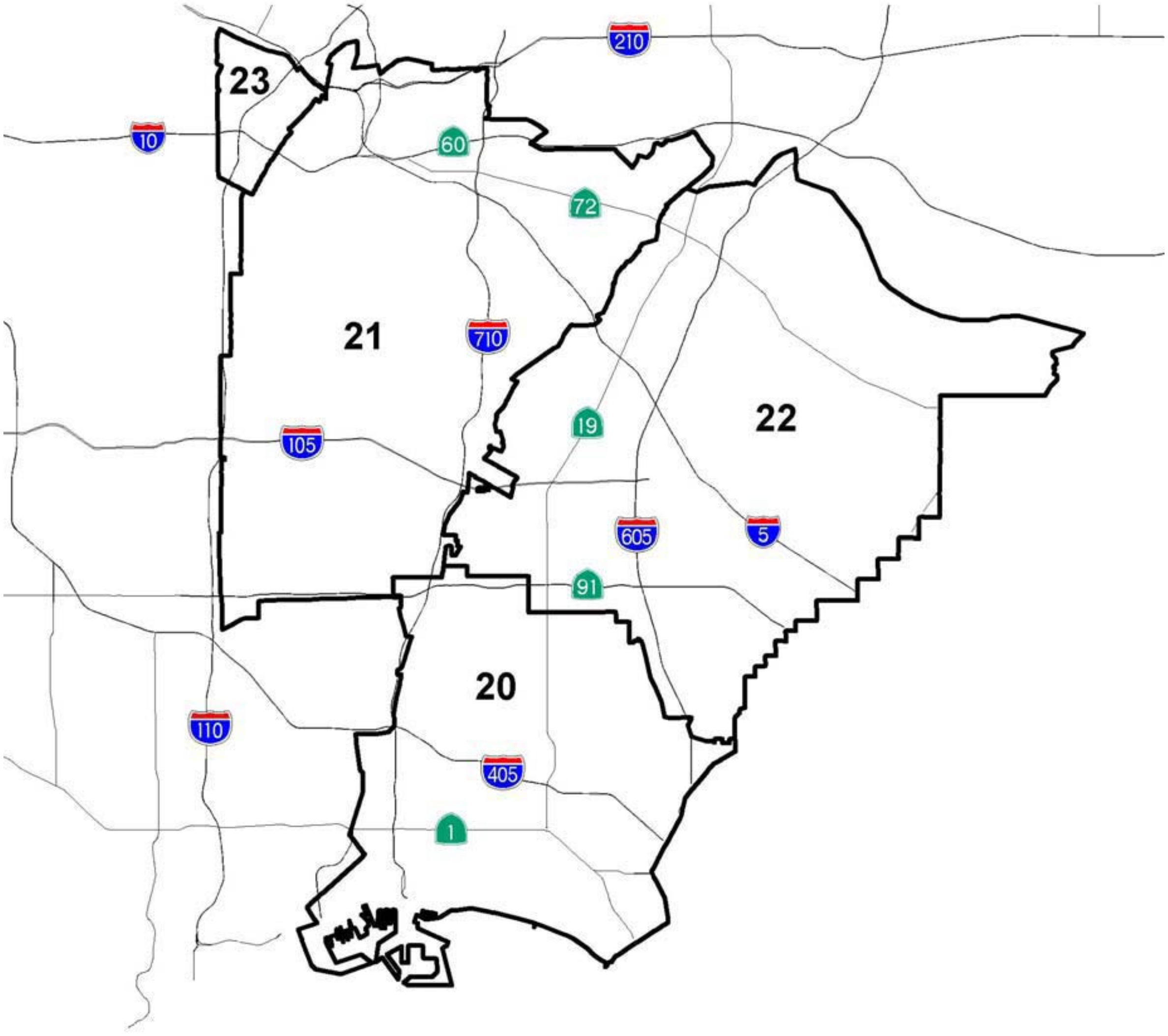


EXHIBIT B-5

GENERAL PROCEDURE FOR CALCULATING TRIP DISTRIBUTION

1. Using Exhibit B-2 as guidance, determine the proportion of project trip generation which is work versus non-work. Assumptions and sources for land uses not listed in Exhibit B-2 must be documented.

2. Using Exhibit B-4, determine the RSA in which the project is located (the "project RSA").

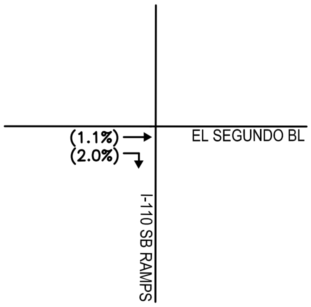
3. Using Exhibit B-3, determine the RSA-level work and non-work trip distributions for the project. Any basis for variation from these travel patterns must be documented.

4. While specific characteristics of the project and study area must be considered, traffic assignment should be conducted according to the following guidelines:

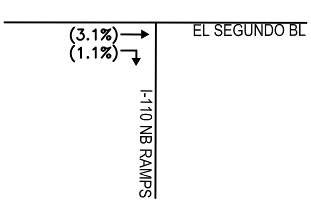
    a. Trips internal to the project RSA may be primarily assigned to non-CMP routes;

    b. Trips from the project RSA to adjacent RSAs should be primarily assigned to CMP arterials or freeways, if present; and

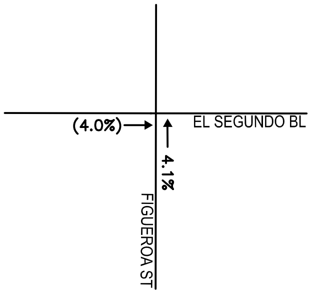
    c. Trips from the project RSA to RSAs not adjacent to the project RSA should be primarily assigned to freeways, if present.



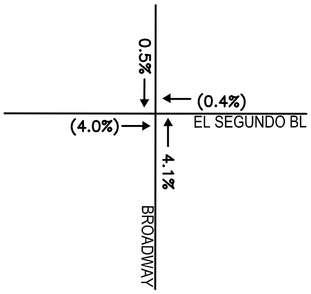
1. I-110 SB RAMPS/EL SEGUNDO BL



2. I-110 NB RAMPS/EL SEGUNDO BL

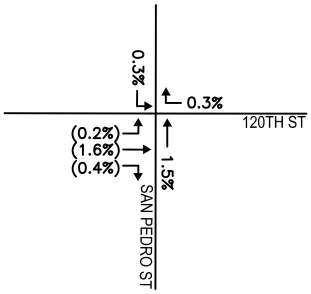


3. FIGUEROA ST/EL SEGUNDO BL

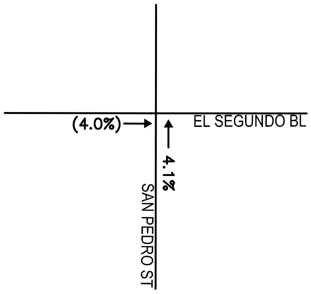


4. BROADWAY/EL SEGUNDO BL

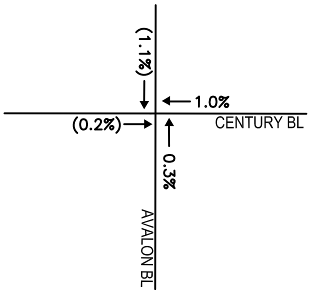
5. MAIN ST/EL SEGUNDO BL



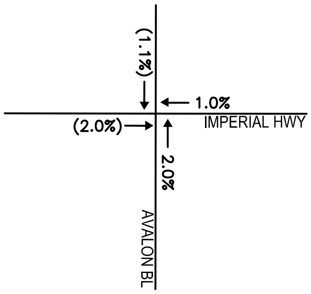
6. SAN PEDRO ST/120TH ST



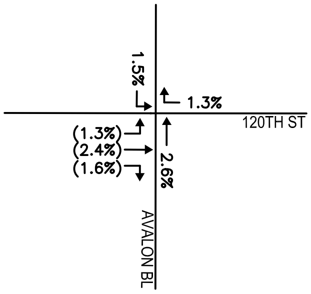
7. SAN PEDRO ST/EL SEGUNDO BL



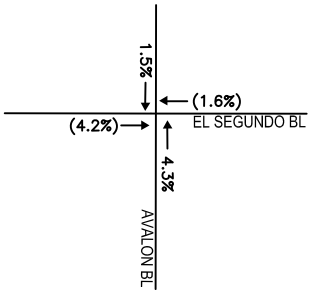
8. AVALON BL/CENTURY BL



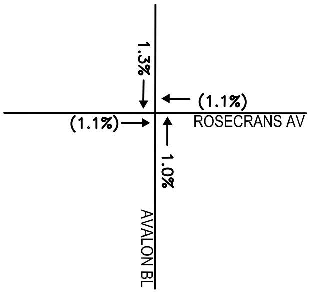
9. AVALON BL/IMPERIAL HWY



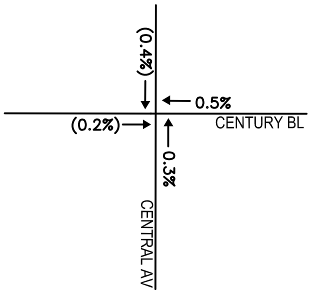
10. AVALON BL/120TH ST



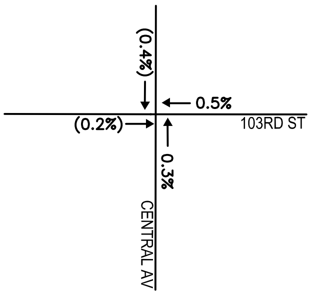
11. AVALON BL/EL SEGUNDO BL



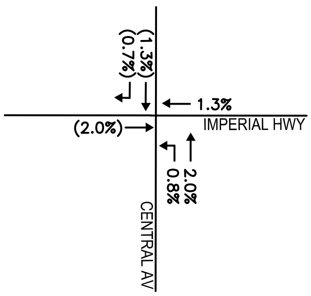
12. AVALON BL/ROSECRANS AV



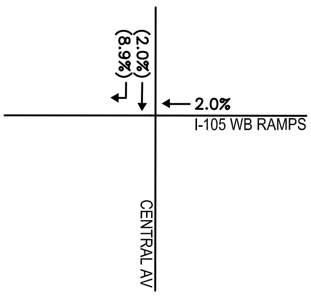
13. CENTRAL AV/CENTURY BL



14. CENTRAL AV/103RD ST



15. CENTRAL AV/IMPERIAL HWY



16. CENTRAL AV/I-105 WB RAMPS

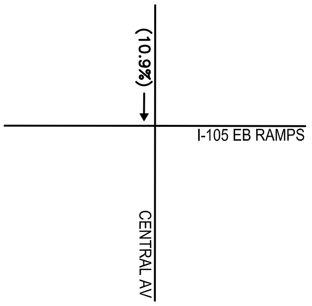
LEGEND:

XX% - PERCENT INBOUND
(XX%) - PERCENT OUTBOUND

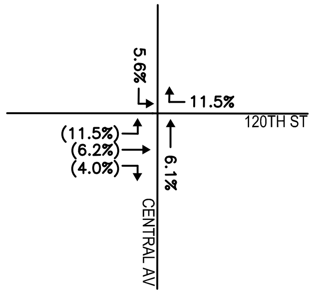
N
Not to scale

APPENDIX H1
PROJECT WORK TRIP DISTRIBUTION

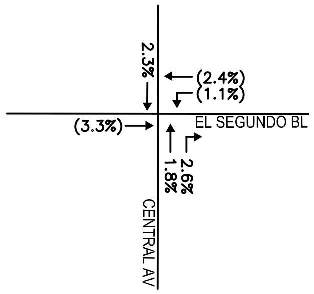
RAJU Associates, Inc.



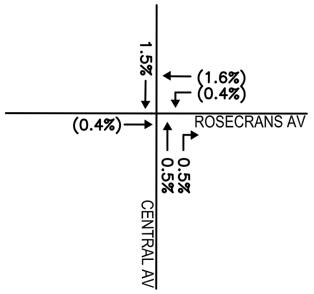
17. CENTRAL AV/I-105 EB RAMPS



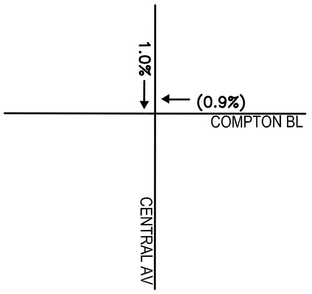
18. CENTRAL AV/120TH ST



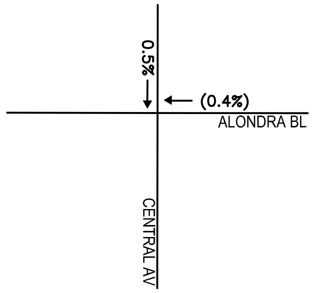
19. CENTRAL AV/EL SEGUNDO BL



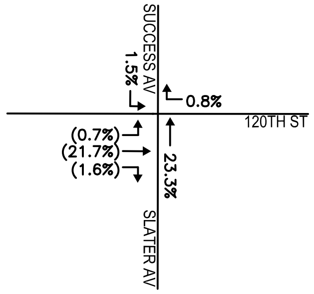
20. CENTRAL AV/ROSECRANS AV



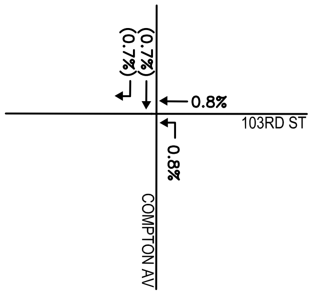
21. CENTRAL AV/COMPTON BL



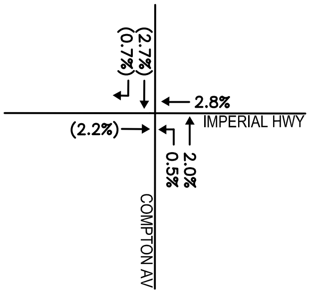
22. CENTRAL AV/ALONDRA BL



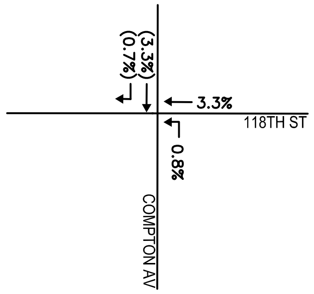
23. SUCCESS AV - SLATER AV/120TH ST



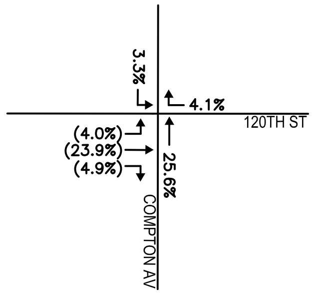
24. COMPTON AV/103RD ST



25. COMPTON AV/IMPERIAL HWY

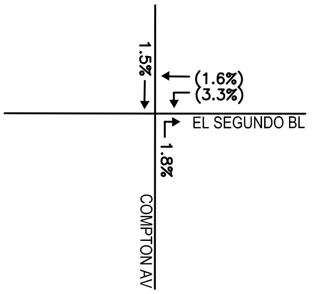


26. COMPTON AV/118TH ST

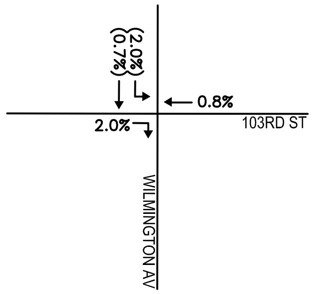


27. COMPTON AV/120TH ST

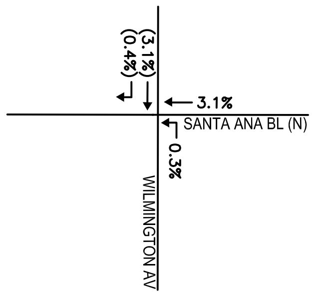
28. COMPTON AV/124TH ST



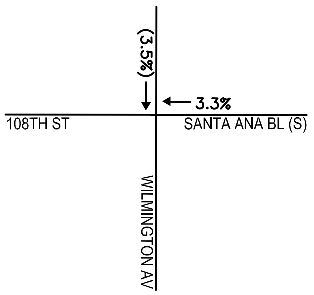
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



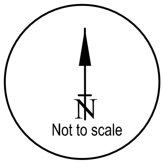
31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

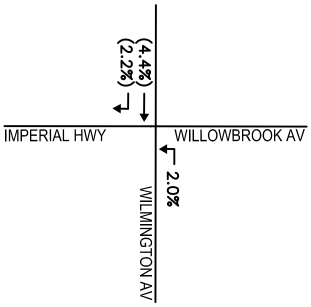
LEGEND:

XX% - PERCENT INBOUND
(XX%) - PERCENT OUTBOUND

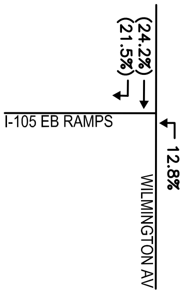


APPENDIX H1
PROJECT WORK TRIP DISTRIBUTION

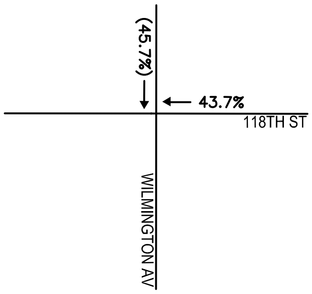
RAJU Associates, Inc.



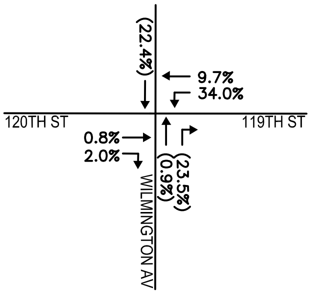
33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV



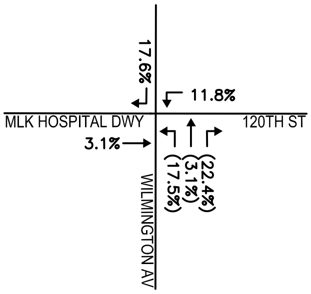
34. WILMINGTON AV/I-105 EB RAMPS



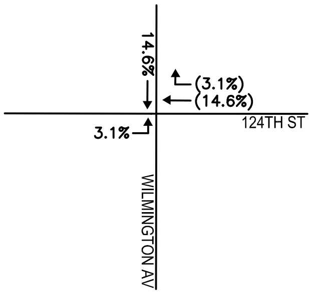
35. WILMINGTON AV/118TH ST



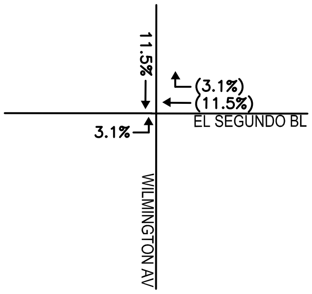
36. WILMINGTON AV/120TH ST - 119TH ST



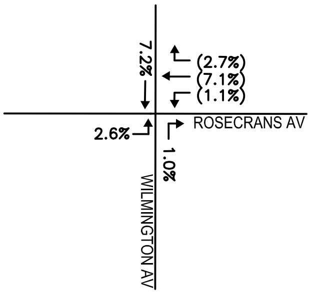
37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST



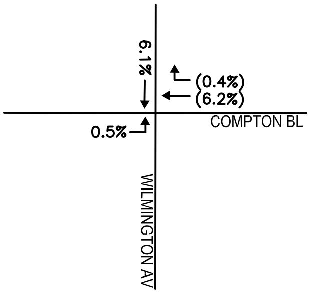
38. WILMINGTON AV/124TH ST



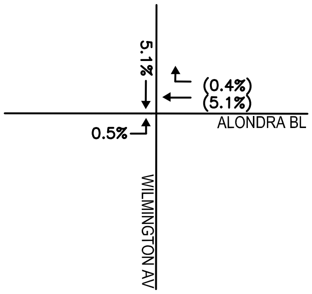
39. WILMINGTON AV/EL SEGUNDO BL



40. WILMINGTON AV/ROSECRANS AV

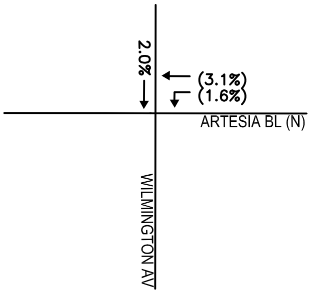


41. WILMINGTON AV/COMPTON BL

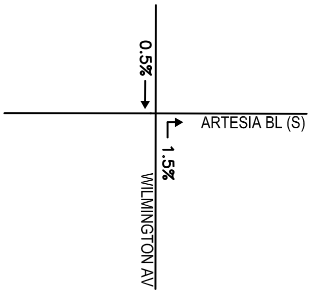


42. WILMINGTON AV/ALONDRA BL

43. WILMINGTON AV/GREENLEAF BL

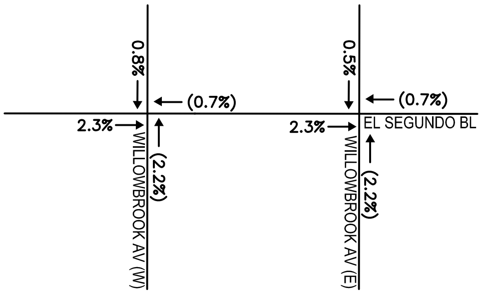


44. WILMINGTON AV/ARTESIA BL (N)



45. WILMINGTON AV/ARTESIA BL (S)

46. WILLOWBROOK AV/119TH ST



47. WILLOWBROOK AV/EL SEGUNDO BL

LEGEND:

XX% - PERCENT INBOUND
(XX%) - PERCENT OUTBOUND

N
Not to scale

APPENDIX H1
PROJECT WORK TRIP DISTRIBUTION

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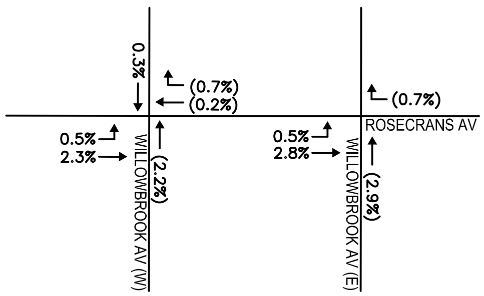
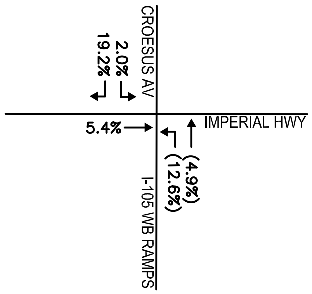
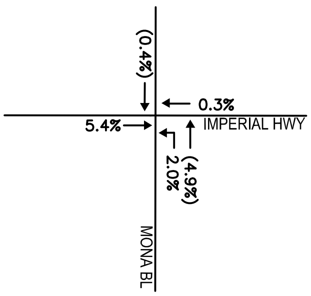


48. WILLOWBROOK AV/ROSECRANS AV

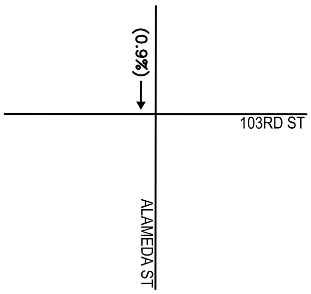


49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV

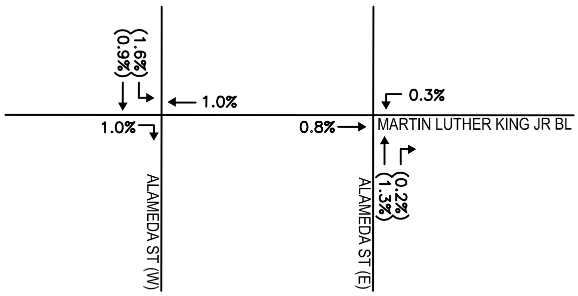


50. MONA BL/IMPERIAL HWY

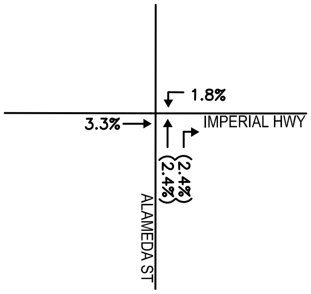
51. MONA BL/EL SEGUNDO BL



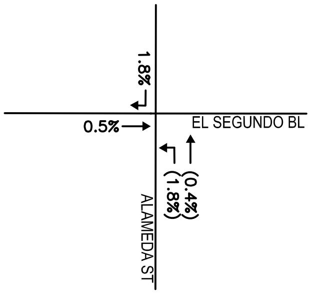
52. ALAMEDA ST/103RD ST



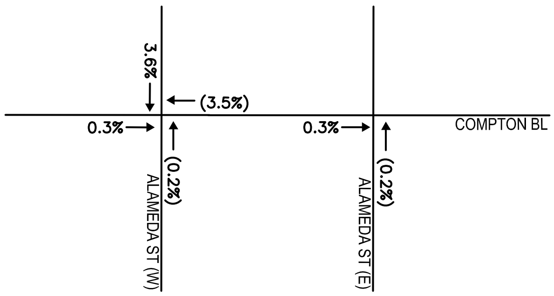
53. ALAMEDA ST/MARTIN LUTHER KING JR BL



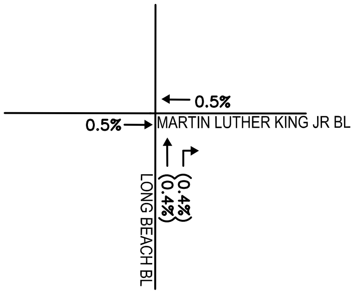
54. ALAMEDA ST/IMPERIAL HWY



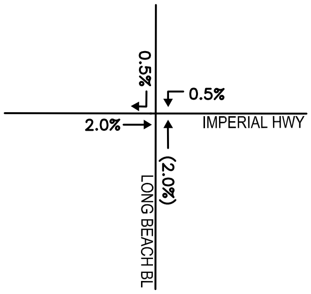
55. ALAMEDA ST/EL SEGUNDO BL



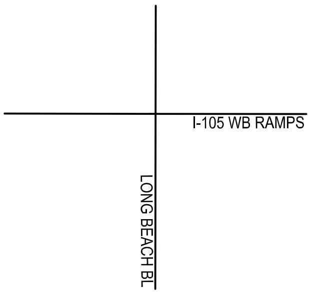
56. ALAMEDA ST/COMPTON BL



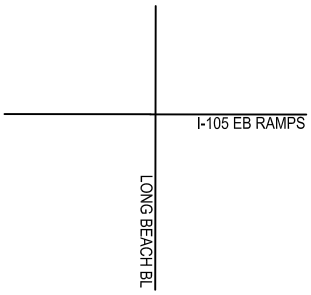
57. LONG BEACH BL/MARTIN LUTHER KING JR BL



58. LONG BEACH BL/IMPERIAL HWY



59. LONG BEACH BL/I-105 WB RAMPS



60. LONG BEACH BL/I-105 EB RAMPS

LEGEND:

XX% - PERCENT INBOUND
(XX%) - PERCENT OUTBOUND

N
Not to scale

APPENDIX H1
PROJECT WORK TRIP DISTRIBUTION

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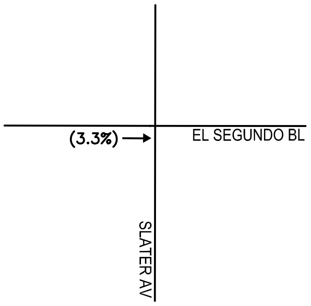
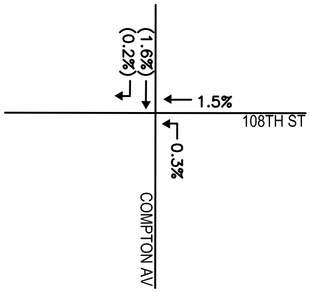
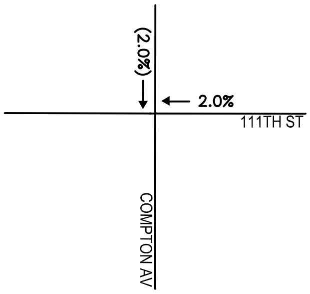


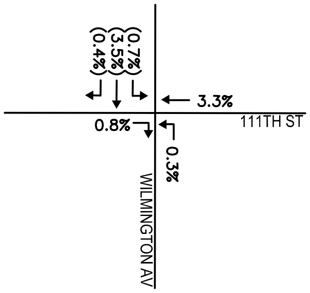
61. SLATER AV/EL SEGUNDO BL



62. COMPTON AV/108TH ST



63. COMPTON AV/111TH ST



64. WILMINGTON AV/111TH ST

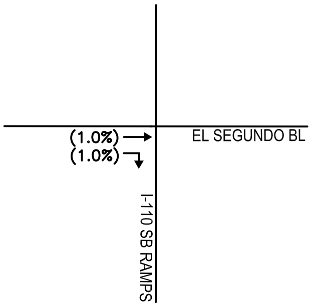
LEGEND:

XX% - PERCENT INBOUND
(XX%) - PERCENT OUTBOUND

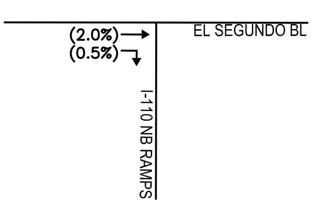
N
Not to scale

APPENDIX H1
PROJECT WORK TRIP DISTRIBUTION

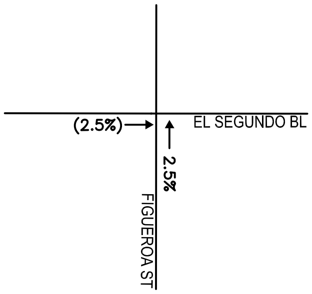
RAJU Associates, Inc.



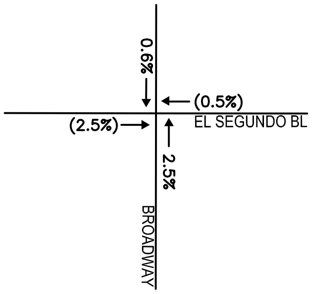
1. I-110 SB RAMPS/EL SEGUNDO BL



2. I-110 NB RAMPS/EL SEGUNDO BL

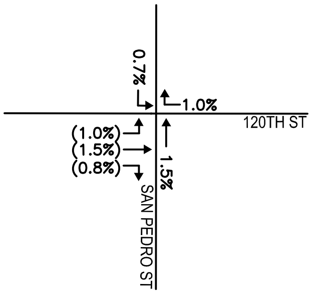


3. FIGUEROA ST/EL SEGUNDO BL



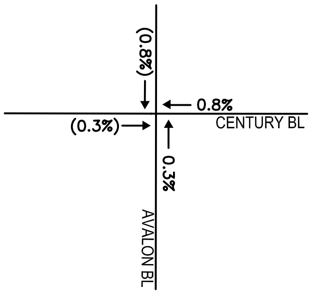
4. BROADWAY/EL SEGUNDO BL

5. MAIN ST/EL SEGUNDO BL

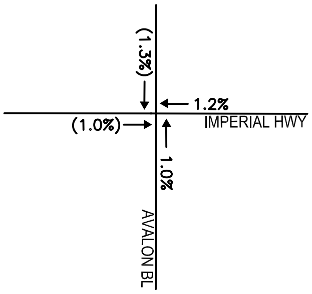


6. SAN PEDRO ST/120TH ST

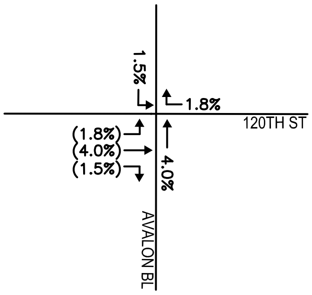
7. SAN PEDRO ST/EL SEGUNDO BL



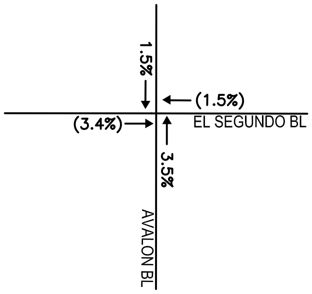
8. AVALON BL/CENTURY BL



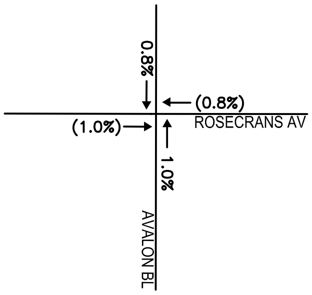
9. AVALON BL/IMPERIAL HWY



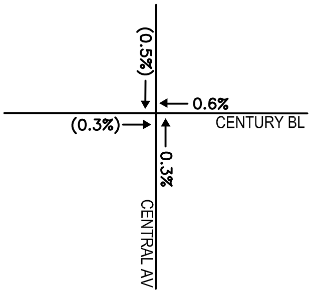
10. AVALON BL/120TH ST



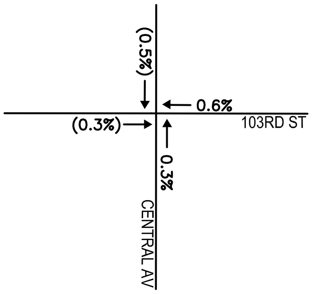
11. AVALON BL/EL SEGUNDO BL



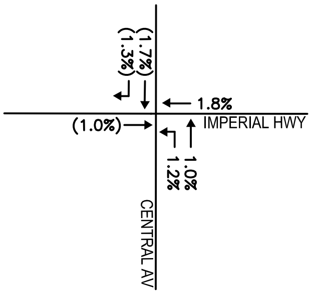
12. AVALON BL/ROSECRANS AV



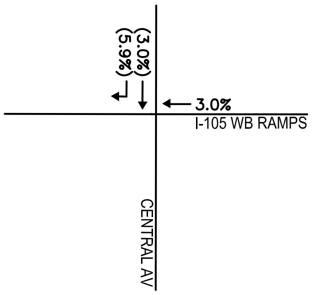
13. CENTRAL AV/CENTURY BL



14. CENTRAL AV/103RD ST



15. CENTRAL AV/IMPERIAL HWY



16. CENTRAL AV/I-105 WB RAMPS

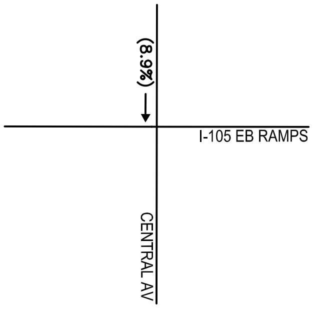
LEGEND:

XX% - PERCENT INBOUND
(XX%) - PERCENT OUTBOUND

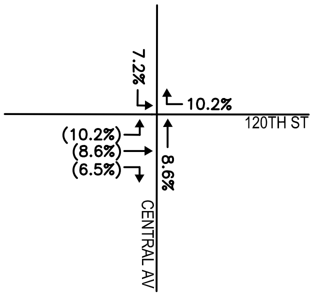
N
Not to scale

APPENDIX H2
PROJECT NON-WORK TRIP DISTRIBUTION

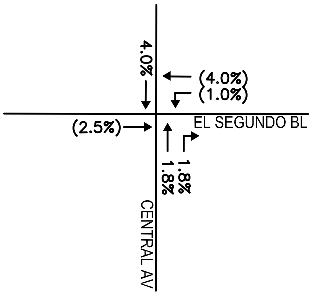
RAJU Associates, Inc.



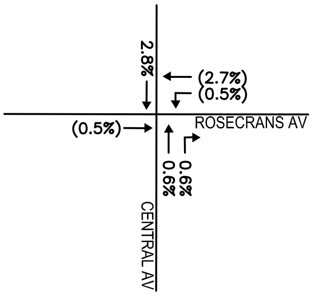
17. CENTRAL AV/I-105 EB RAMPS



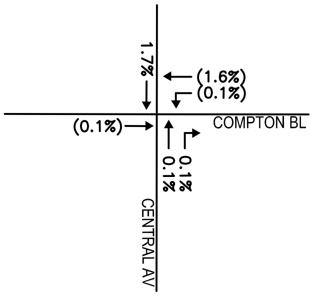
18. CENTRAL AV/120TH ST



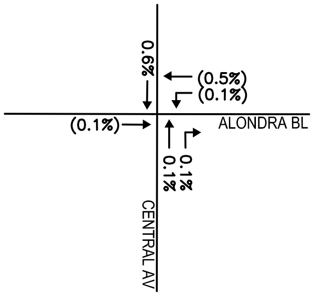
19. CENTRAL AV/EL SEGUNDO BL



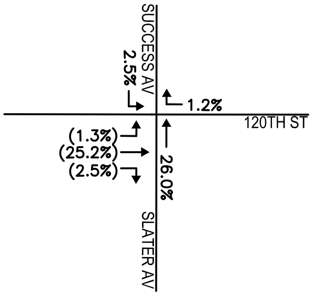
20. CENTRAL AV/ROSECRANS AV



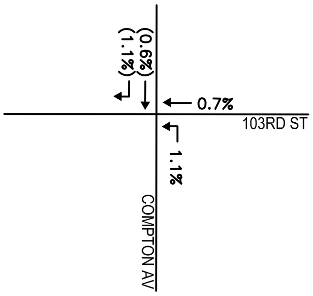
21. CENTRAL AV/COMPTON BL



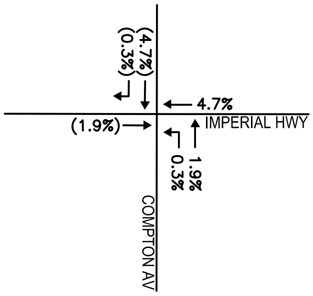
22. CENTRAL AV/ALONDRA BL



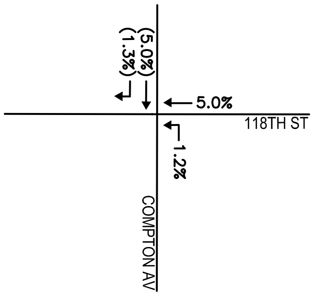
23. SUCCESS AV - SLATER AV/120TH ST



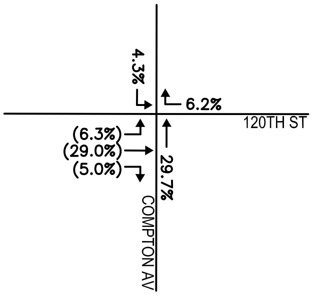
24. COMPTON AV/103RD ST



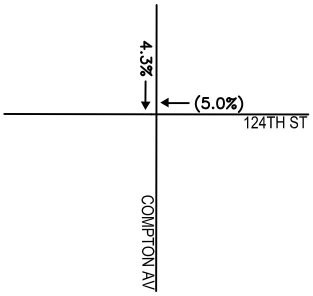
25. COMPTON AV/IMPERIAL HWY



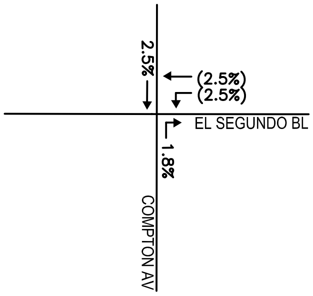
26. COMPTON AV/118TH ST



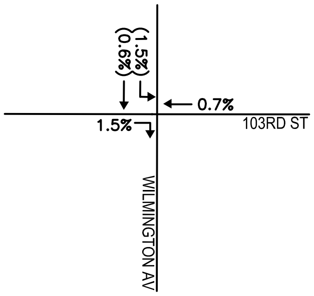
27. COMPTON AV/120TH ST



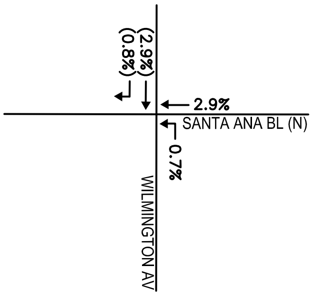
28. COMPTON AV/124TH ST



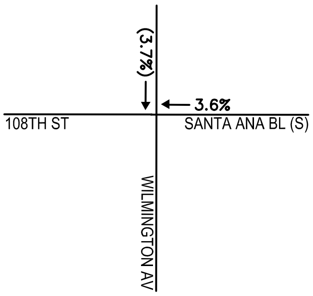
29. COMPTON AV/EL SEGUNDO BL



30. WILMINGTON AV/103RD ST



31. WILMINGTON AV/SANTA ANA BL (N)



32. WILMINGTON AV/108TH ST - SANTA ANA BL (S)

LEGEND:

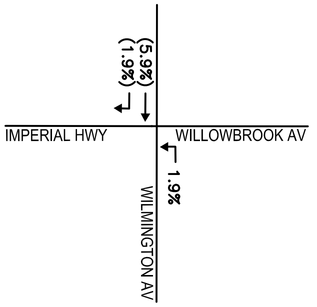
XX% - PERCENT INBOUND

(XX%) - PERCENT OUTBOUND

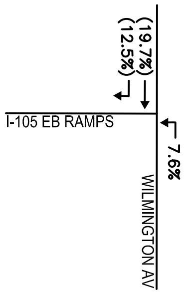
N
Not to scale

APPENDIX H2
PROJECT NON-WORK TRIP DISTRIBUTION

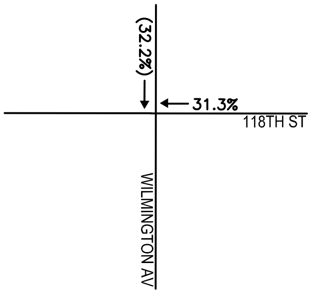
RAJU Associates, Inc.



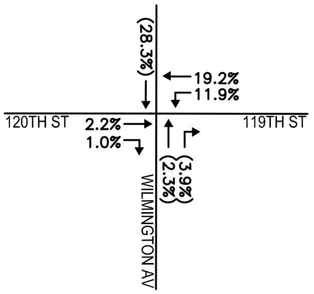
33. WILMINGTON AV/IMPERIAL HWY - WILLOWBROOK AV



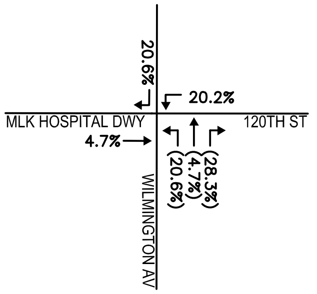
34. WILMINGTON AV/I-105 EB RAMPS



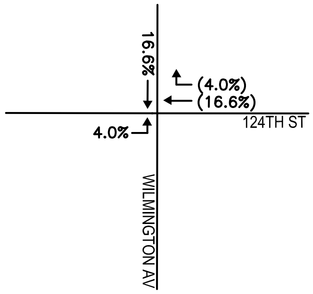
35. WILMINGTON AV/118TH ST



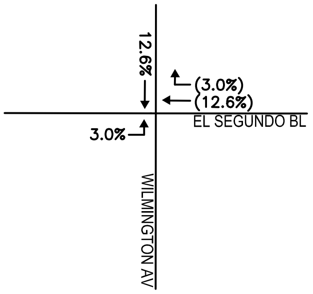
36. WILMINGTON AV/120TH ST - 119TH ST



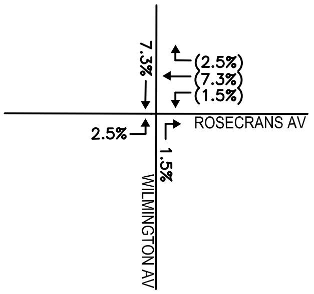
37. WILMINGTON AV/MLK HOSPITAL DWY - 120TH ST



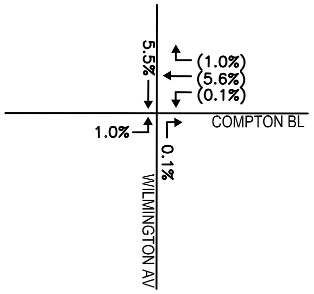
38. WILMINGTON AV/124TH ST



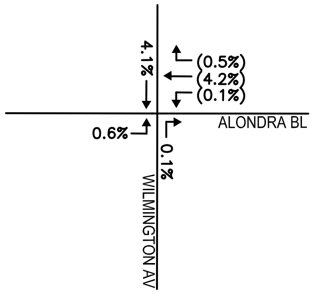
39. WILMINGTON AV/EL SEGUNDO BL



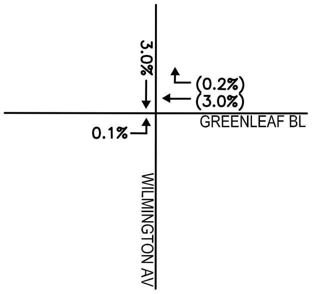
40. WILMINGTON AV/ROSECRANS AV



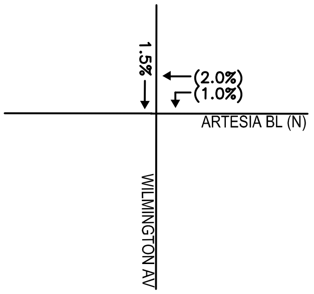
41. WILMINGTON AV/COMPTON BL



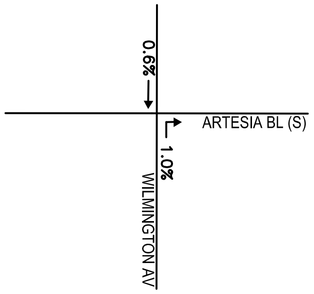
42. WILMINGTON AV/ALONDRA BL



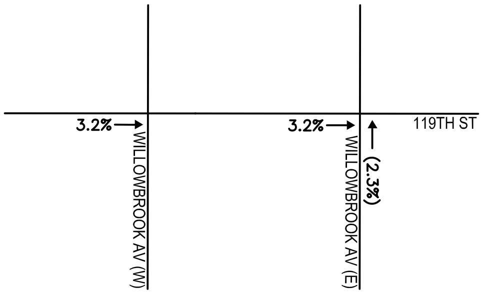
43. WILMINGTON AV/GREENLEAF BL



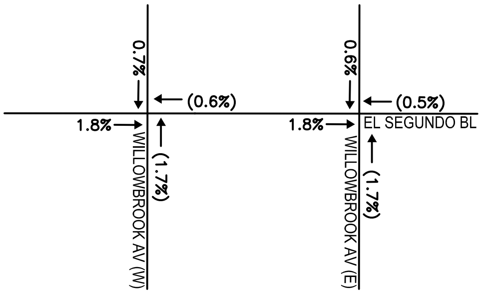
44. WILMINGTON AV/ARTESIA BL (N)



45. WILMINGTON AV/ARTESIA BL (S)



46. WILLOWBROOK AV/119TH ST



47. WILLOWBROOK AV/EL SEGUNDO BL

LEGEND:

XX% - PERCENT INBOUND

(XX%) - PERCENT OUTBOUND

N
Not to scale

APPENDIX H2
PROJECT NON-WORK TRIP DISTRIBUTION

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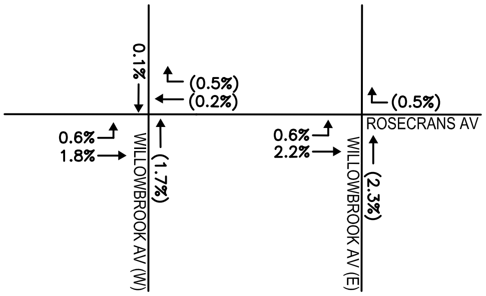
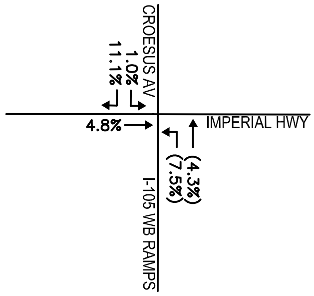
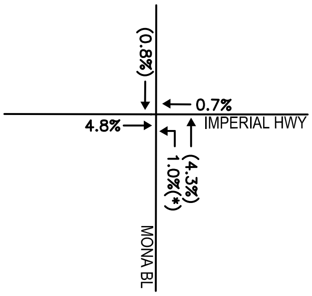


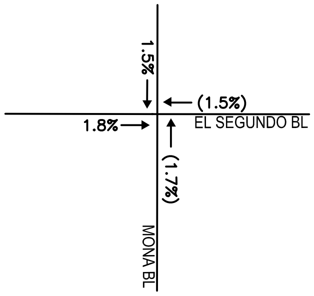
48. WILLOWBROOK AV/ROSECRANS AV



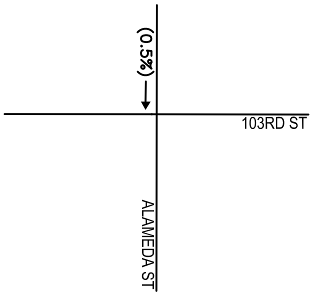
49. I-105 WB RAMPS/IMPERIAL HWY - CROESUS AV



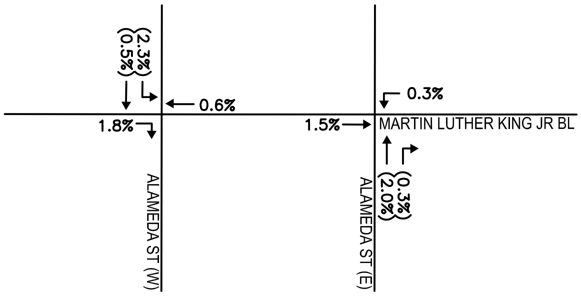
50. MONA BL/IMPERIAL HWY



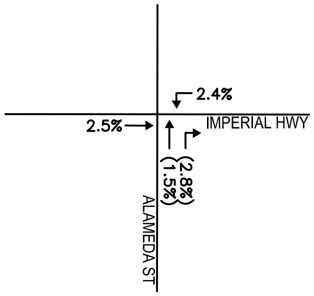
51. MONA BL/EL SEGUNDO BL



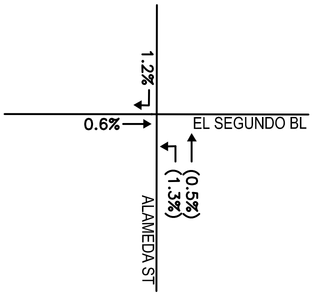
52. ALAMEDA ST/103RD ST



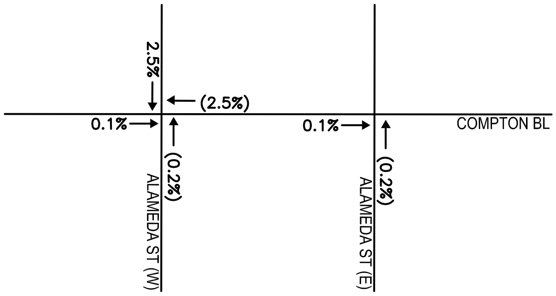
53. ALAMEDA ST/MARTIN LUTHER KING JR BL



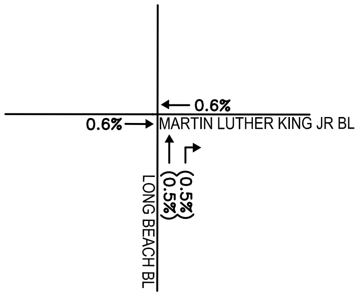
54. ALAMEDA ST/IMPERIAL HWY



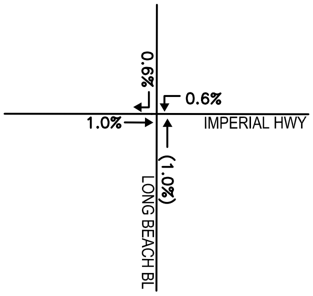
55. ALAMEDA ST/EL SEGUNDO BL



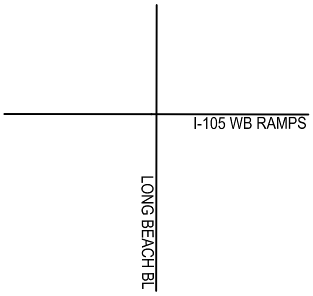
56. ALAMEDA ST/COMPTON BL



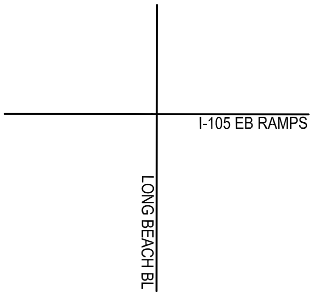
57. LONG BEACH BL/MARTIN LUTHER KING JR BL



58. LONG BEACH BL/IMPERIAL HWY



59. LONG BEACH BL/I-105 WB RAMPS



60. LONG BEACH BL/I-105 EB RAMPS

LEGEND:

XX% - PERCENT INBOUND

(XX%) - PERCENT OUTBOUND

N
Not to scale

APPENDIX H2
PROJECT NON-WORK TRIP DISTRIBUTION

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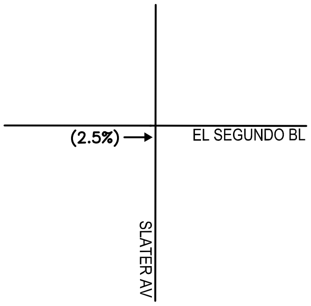
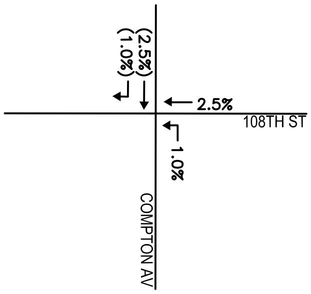
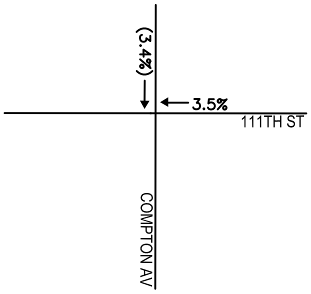


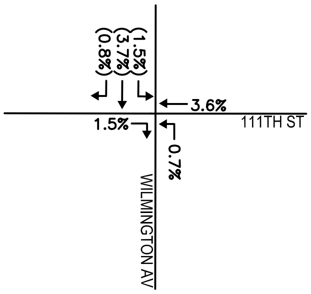
61. SLATER AV/EL SEGUNDO BL



62. COMPTON AV/108TH ST



63. COMPTON AV/111TH ST



64. WILMINGTON AV/111TH ST

LEGEND:

XX% - PERCENT INBOUND
(XX%) - PERCENT OUTBOUND

N
Not to scale

APPENDIX H2
PROJECT NON-WORK TRIP DISTRIBUTION

APPENDIX I

ICU Worksheets – Existing (Baseline) With Ambient Growth (2014) Plus Tier I Project Conditions

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **BROADWAY**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	87	0	0.000	N-S(1):	0.113 *
	TH	2.00	189	3,200	0.086	N-S(2):	0.108
	LT	1.00	55	1,600	0.034 *	E-W(1):	0.214
Westbound	RT	0.00	88	0	0.000	E-W(2):	0.287 *
	TH	3.00	1,094	4,800	0.246 *		
	LT	1.00	71	1,600	0.044	V/C:	0.400
Northbound	RT	0.00	22	0	0.000	Lost Time:	0.100
	TH	2.00	231	3,200	0.079 *		
	LT	1.00	35	1,600	0.022		
Eastbound	RT	0.00	120	0	0.000	ICU:	0.500
	TH	3.00	695	4,800	0.170		
	LT	1.00	66	1,600	0.041 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	66	0	0.000	N-S(1):	0.168 *
	TH	2.00	175	3,200	0.075	N-S(2):	0.154
	LT	1.00	81	1,600	0.051 *	E-W(1):	0.282 *
Westbound	RT	0.00	75	0	0.000	E-W(2):	0.233
	TH	3.00	719	4,800	0.165		
	LT	1.00	22	1,600	0.014 *	V/C:	0.450
Northbound	RT	0.00	90	0	0.000	Lost Time:	0.100
	TH	2.00	285	3,200	0.117 *		
	LT	1.00	127	1,600	0.079		
Eastbound	RT	0.00	61	0	0.000	ICU:	0.550
	TH	3.00	1,223	4,800	0.268 *		
	LT	1.00	109	1,600	0.068	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MAIN STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.121
	TH	2.00	255	3,200	0.108 *	N-S(2):	0.146 *
	LT	1.00	79	1,600	0.049	E-W(1):	0.179
Westbound	RT	0.00	51	0	0.000	E-W(2):	0.295 *
	TH	3.00	1,103	4,800	0.240 *		
	LT	1.00	80	1,600	0.050	V/C:	0.441
Northbound	RT	0.00	26	0	0.000	Lost Time:	0.100
	TH	2.00	205	3,200	0.072		
	LT	1.00	61	1,600	0.038 *		
Eastbound	RT	0.00	104	0	0.000	ICU:	0.541
	TH	3.00	514	4,800	0.129		
	LT	1.00	88	1,600	0.055 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	55	0	0.000	N-S(1):	0.212 *
	TH	2.00	174	3,200	0.072	N-S(2):	0.131
	LT	1.00	117	1,600	0.073 *	E-W(1):	0.292 *
Westbound	RT	0.00	68	0	0.000	E-W(2):	0.222
	TH	3.00	646	4,800	0.149		
	LT	1.00	36	1,600	0.023 *	V/C:	0.504
Northbound	RT	0.00	109	0	0.000	Lost Time:	0.100
	TH	2.00	337	3,200	0.139 *		
	LT	1.00	94	1,600	0.059		
Eastbound	RT	0.00	52	0	0.000	ICU:	0.604
	TH	3.00	1,241	4,800	0.269 *		
	LT	1.00	116	1,600	0.073	LOS:	B

* = Critical Movement

Project:	**MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**
North/South Street:	**SAN PEDRO STREET**
East/West Street:	**EL SEGUNDO BOULEVARD**
Scenario:	**EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	133	0	0.000	N-S(1):	0.124
	TH	2.00	173	3,200	0.096 *	N-S(2):	0.164 *
	LT	1.00	73	1,600	0.046	E-W(1):	0.175
Westbound	RT	0.00	64	0	0.000	E-W(2):	0.272 *
	TH	3.00	998	4,800	0.221 *		
	LT	1.00	104	1,600	0.065	V/C:	0.436
Northbound	RT	0.00	65	0	0.000	Lost Time:	0.100
	TH	2.00	186	3,200	0.078		
	LT	1.00	108	1,600	0.068 *		
Eastbound	RT	0.00	63	0	0.000	ICU:	0.536
	TH	3.00	467	4,800	0.110		
	LT	1.00	81	1,600	0.051 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	97	0	0.000	N-S(1):	0.138 *
	TH	2.00	169	3,200	0.083	N-S(2):	0.135
	LT	1.00	87	1,600	0.054 *	E-W(1):	0.303 *
Westbound	RT	0.00	104	0	0.000	E-W(2):	0.211
	TH	3.00	587	4,800	0.144		
	LT	1.00	51	1,600	0.032 *	V/C:	0.441
Northbound	RT	0.00	47	0	0.000	Lost Time:	0.100
	TH	2.00	222	3,200	0.084 *		
	LT	1.00	83	1,600	0.052		
Eastbound	RT	0.00	76	0	0.000	ICU:	0.541
	TH	3.00	1,226	4,800	0.271 *		
	LT	1.00	107	1,600	0.067	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: AVALON BOULEVARD
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	131	0	0.000	N-S(1):	0.226
	TH	2.00	481	3,200	0.191 *	N-S(2):	0.229 *
	LT	1.00	103	1,600	0.064	E-W(1):	0.156
Westbound	RT	0.00	140	0	0.000	E-W(2):	0.290 *
	TH	3.00	885	4,800	0.214 *		
	LT	1.00	81	1,600	0.051	V/C:	0.519
Northbound	RT	0.00	93	0	0.000	Lost Time:	0.100
	TH	2.00	426	3,200	0.162		
	LT	1.00	61	1,600	0.038 *		
Eastbound	RT	0.00	57	0	0.000	ICU:	0.619
	TH	3.00	448	4,800	0.105		
	LT	1.00	122	1,600	0.076 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.335 *
	TH	2.00	474	3,200	0.177	N-S(2):	0.254
	LT	1.00	145	1,600	0.091 *	E-W(1):	0.325 *
Westbound	RT	0.00	115	0	0.000	E-W(2):	0.194
	TH	3.00	453	4,800	0.118		
	LT	1.00	97	1,600	0.061 *	V/C:	0.660
Northbound	RT	0.00	150	0	0.000	Lost Time:	0.100
	TH	2.00	631	3,200	0.244 *		
	LT	1.00	123	1,600	0.077		
Eastbound	RT	0.00	127	0	0.000	ICU:	0.760
	TH	3.00	1,140	4,800	0.264 *		
	LT	1.00	121	1,600	0.076	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	92	0	0.000	N-S(1):	0.254 *
	TH	2.00	371	3,200	0.145	N-S(2):	0.226
	LT	1.00	154	1,600	0.096 *	E-W(1):	0.183
Westbound	RT	0.00	145	0	0.000	E-W(2):	0.257 *
	TH	3.00	932	4,800	0.224 *		
	LT	1.00	115	1,600	0.072	V/C:	0.511
Northbound	RT	0.00	83	0	0.000	Lost Time:	0.100
	TH	2.00	421	3,200	0.158 *		
	LT	1.00	129	1,600	0.081		
Eastbound	RT	0.00	69	0	0.000	ICU:	0.611
	TH	3.00	466	4,800	0.111		
	LT	1.00	52	1,600	0.033 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	69	0	0.000	N-S(1):	0.348 *
	TH	2.00	395	3,200	0.145	N-S(2):	0.227
	LT	1.00	208	1,600	0.130 *	E-W(1):	0.278 *
Westbound	RT	0.00	143	0	0.000	E-W(2):	0.216
	TH	3.00	576	4,800	0.150		
	LT	1.00	76	1,600	0.048 *	V/C:	0.626
Northbound	RT	0.00	144	0	0.000	Lost Time:	0.100
	TH	2.00	554	3,200	0.218 *		
	LT	1.00	131	1,600	0.082		
Eastbound	RT	0.00	88	0	0.000	ICU:	0.726
	TH	3.00	1,017	4,800	0.230 *		
	LT	1.00	105	1,600	0.066	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	190	0	0.000	N-S(1):	0.349
	TH	2.00	631	3,200	0.257 *	N-S(2):	0.354 *
	LT	1.00	105	1,600	0.066	E-W(1):	0.217
Westbound	RT	0.00	72	0	0.000	E-W(2):	0.317 *
	TH	2.00	710	3,200	0.244 *		
	LT	1.00	159	1,600	0.099	V/C:	0.671
Northbound	RT	0.00	251	0	0.000	Lost Time:	0.100
	TH	2.00	654	3,200	0.283		
	LT	1.00	155	1,600	0.097 *		
Eastbound	RT	1.00	106	1,600	0.000	ICU:	0.771
	TH	2.00	376	3,200	0.118		
	LT	1.00	116	1,600	0.073 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	148	0	0.000	N-S(1):	0.370 *
	TH	2.00	718	3,200	0.271	N-S(2):	0.341
	LT	1.00	138	1,600	0.086 *	E-W(1):	0.375 *
Westbound	RT	0.00	110	0	0.000	E-W(2):	0.334
	TH	2.00	471	3,200	0.182		
	LT	1.00	121	1,600	0.076 *	V/C:	0.745
Northbound	RT	0.00	198	0	0.000	Lost Time:	0.100
	TH	2.00	711	3,200	0.284 *		
	LT	1.00	112	1,600	0.070		
Eastbound	RT	1.00	167	1,600	0.034	ICU:	0.845
	TH	2.00	958	3,200	0.299 *		
	LT	1.00	243	1,600	0.152	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	149	1,600	0.000	N-S(1):	0.279
	TH	2.00	634	3,200	0.198 *	N-S(2):	0.288 *
	LT	1.00	130	1,600	0.081	E-W(1):	0.217
Westbound	RT	0.00	149	0	0.000	E-W(2):	0.404 *
	TH	2.00	836	3,200	0.308 *		
	LT	1.00	152	1,600	0.095	V/C:	0.692
Northbound	RT	0.00	62	0	0.000	Lost Time:	0.100
	TH	2.00	571	3,200	0.198		
	LT	1.00	144	1,600	0.090 *		
Eastbound	RT	0.00	152	0	0.000	ICU:	0.792
	TH	3.00	433	4,800	0.122		
	LT	1.00	153	1,600	0.096 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	127	1,600	0.000	N-S(1):	0.441 *
	TH	2.00	705	3,200	0.220	N-S(2):	0.339
	LT	1.00	272	1,600	0.170 *	E-W(1):	0.356
Westbound	RT	0.00	147	0	0.000	E-W(2):	0.378 *
	TH	2.00	633	3,200	0.244 *		
	LT	1.00	163	1,600	0.102	V/C:	0.819
Northbound	RT	0.00	118	0	0.000	Lost Time:	0.100
	TH	2.00	750	3,200	0.271 *		
	LT	1.00	191	1,600	0.119		
Eastbound	RT	0.00	192	0	0.000	ICU:	0.919
	TH	3.00	1,029	4,800	0.254		
	LT	1.00	215	1,600	0.134 *	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SUCCESS AVENUE-SLATER AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	39	0	0.000	N-S(1):	0.077
	TH	1.00	31	1,600	0.068 *	N-S(2):	0.084 *
	LT	0.00	39	1,600	0.024	E-W(1):	0.146
Westbound	RT	0.00	42	0	0.000	E-W(2):	0.242 *
	TH	2.00	661	3,200	0.220 *		
	LT	1.00	23	1,600	0.014	V/C:	0.326
Northbound	RT	0.00	12	0	0.000	Lost Time:	0.100
	TH	1.00	46	1,600	0.053		
	LT	0.00	26	1,600	0.016 *		
Eastbound	RT	0.00	7	0	0.000	ICU:	0.426
	TH	2.00	416	3,200	0.132		
	LT	1.00	35	1,600	0.022 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	34	0	0.000	N-S(1):	0.038
	TH	1.00	12	1,600	0.043 *	N-S(2):	0.049 *
	LT	0.00	22	1,600	0.014	E-W(1):	0.196 *
Westbound	RT	0.00	10	0	0.000	E-W(2):	0.172
	TH	2.00	480	3,200	0.153		
	LT	1.00	12	1,600	0.008 *	V/C:	0.245
Northbound	RT	0.00	21	0	0.000	Lost Time:	0.100
	TH	1.00	8	1,600	0.024		
	LT	0.00	9	1,600	0.006 *		
Eastbound	RT	0.00	11	0	0.000	ICU:	0.345
	TH	2.00	590	3,200	0.188 *		
	LT	1.00	30	1,600	0.019	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	122	0	0.000	N-S(1):	0.307
	TH	1.00	297	1,600	0.262 *	N-S(2):	0.340 *
	LT	1.00	155	1,600	0.097	E-W(1):	0.259
Westbound	RT	0.00	179	0	0.000	E-W(2):	0.480 *
	TH	2.00	1,141	3,200	0.413 *		
	LT	1.00	145	1,600	0.091	V/C:	0.820
Northbound	RT	1.00	153	1,600	0.005	Lost Time:	0.100
	TH	1.00	336	1,600	0.210	ATSAC/ATCS:	-0.100
	LT	1.00	124	1,600	0.078 *		
Eastbound	RT	0.00	145	0	0.000	ICU:	0.820
	TH	3.00	661	4,800	0.168		
	LT	1.00	107	1,600	0.067 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	152	0	0.000	N-S(1):	0.301
	TH	1.00	267	1,600	0.262 *	N-S(2):	0.322 *
	LT	1.00	200	1,600	0.125	E-W(1):	0.375 *
Westbound	RT	0.00	187	0	0.000	E-W(2):	0.346
	TH	2.00	698	3,200	0.277		
	LT	1.00	91	1,600	0.057 *	V/C:	0.697
Northbound	RT	1.00	116	1,600	0.016	Lost Time:	0.100
	TH	1.00	282	1,600	0.176	ATSAC/ATCS:	-0.100
	LT	1.00	96	1,600	0.060 *		
Eastbound	RT	0.00	98	0	0.000	ICU:	0.697
	TH	3.00	1,428	4,800	0.318 *		
	LT	1.00	110	1,600	0.069	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **118TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	10	0	0.000	N-S(1):	0.180 *
	TH	2.00	483	3,200	0.166	N-S(2):	0.173
	LT	0.00	38	1,600	0.024 *	E-W(1):	0.089
Westbound	RT	0.00	52	0	0.000	E-W(2):	0.096 *
	TH	1.00	15	1,600	0.080 *		
	LT	0.00	61	1,600	0.038	V/C:	0.276
Northbound	RT	0.00	70	0	0.000	Lost Time:	0.100
	TH	2.00	417	3,200	0.156 *		
	LT	0.00	11	1,600	0.007		
Eastbound	RT	0.00	40	0	0.000	ICU:	0.376
	TH	1.00	16	1,600	0.051		
	LT	0.00	26	1,600	0.016 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	6	0	0.000	N-S(1):	0.160 *
	TH	2.00	359	3,200	0.126	N-S(2):	0.130
	LT	0.00	38	1,600	0.024 *	E-W(1):	0.043
Westbound	RT	0.00	43	0	0.000	E-W(2):	0.063 *
	TH	1.00	22	1,600	0.058 *		
	LT	0.00	27	1,600	0.017	V/C:	0.223
Northbound	RT	0.00	40	0	0.000	Lost Time:	0.100
	TH	2.00	388	3,200	0.136 *		
	LT	0.00	7	1,600	0.004		
Eastbound	RT	0.00	11	0	0.000	ICU:	0.323
	TH	1.00	22	1,600	0.026		
	LT	0.00	8	1,600	0.005 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	138	0	0.000	N-S(1):	0.183
	TH	2.00	289	3,200	0.133 *	N-S(2):	0.204 *
	LT	1.00	116	1,600	0.073	E-W(1):	0.184
Westbound	RT	0.00	154	0	0.000	E-W(2):	0.272 *
	TH	2.00	400	3,200	0.173 *		
	LT	1.00	60	1,600	0.038	V/C:	0.476
Northbound	RT	0.00	52	0	0.000	Lost Time:	0.100
	TH	2.00	301	3,200	0.110		
	LT	1.00	114	1,600	0.071 *		
Eastbound	RT	0.00	93	0	0.000	ICU:	0.576
	TH	2.00	375	3,200	0.146		
	LT	1.00	158	1,600	0.099 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	71	0	0.000	N-S(1):	0.158
	TH	2.00	280	3,200	0.110 *	N-S(2):	0.171 *
	LT	1.00	100	1,600	0.063	E-W(1):	0.207
Westbound	RT	0.00	81	0	0.000	E-W(2):	0.221 *
	TH	2.00	395	3,200	0.149 *		
	LT	1.00	39	1,600	0.024	V/C:	0.392
Northbound	RT	0.00	45	0	0.000	Lost Time:	0.100
	TH	2.00	258	3,200	0.095		
	LT	1.00	97	1,600	0.061 *		
Eastbound	RT	0.00	131	0	0.000	ICU:	0.492
	TH	2.00	456	3,200	0.183		
	LT	1.00	115	1,600	0.072 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **124TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	11	0	0.000	N-S(1):	0.132
	TH	2.00	391	3,200	0.138 *	N-S(2):	0.139 *
	LT	0.00	39	1,600	0.024	E-W(1):	0.036
Westbound	RT	0.00	53	0	0.000	E-W(2):	0.078 *
	TH	1.00	28	1,600	0.074 *		
	LT	0.00	37	1,600	0.023	V/C:	0.217
Northbound	RT	0.00	17	0	0.000	Lost Time:	0.100
	TH	2.00	325	3,200	0.108		
	LT	0.00	2	1,600	0.001 *		
Eastbound	RT	0.00	2	0	0.000	ICU:	0.317
	TH	1.00	11	1,600	0.013		
	LT	0.00	7	1,600	0.004 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	8	0	0.000	N-S(1):	0.127 *
	TH	2.00	326	3,200	0.117	N-S(2):	0.118
	LT	0.00	41	1,600	0.026 *	E-W(1):	0.021
Westbound	RT	0.00	32	0	0.000	E-W(2):	0.038 *
	TH	1.00	10	1,600	0.037 *		
	LT	0.00	17	1,600	0.011	V/C:	0.165
Northbound	RT	0.00	16	0	0.000	Lost Time:	0.100
	TH	2.00	306	3,200	0.101 *		
	LT	0.00	1	1,600	0.001		
Eastbound	RT	0.00	5	0	0.000	ICU:	0.265
	TH	1.00	9	1,600	0.010		
	LT	0.00	2	1,600	0.001 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **IMPERIAL HIGHWAY-WILLOWBROOK AVE**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	121	0	0.000	N-S(1):	0.158
	TH	2.00	834	3,200	0.298 *	N-S(2):	0.385 *
	LT	1.00	24	1,600	0.015	E-W(1):	0.049
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.069 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.454
Northbound	RT	0.00	55	0	0.000	Lost Time:	0.100
	TH	2.00	402	3,200	0.143	ATSAC/ATCS:	-0.100
	LT	1.00	139	1,600	0.087 *		
Eastbound	RT	1.00	217	1,600	0.049	ICU:	0.454
	TH	1.00	23	1,600	0.014		
	LT	1.00	111	1,600	0.069 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	109	0	0.000	N-S(1):	0.191
	TH	2.00	775	3,200	0.276 *	N-S(2):	0.387 *
	LT	1.00	32	1,600	0.020	E-W(1):	0.062
Westbound	RT	0.00	2	0	0.000	E-W(2):	0.086 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.473
Northbound	RT	0.00	41	0	0.000	Lost Time:	0.100
	TH	2.00	505	3,200	0.171	ATSAC/ATCS:	-0.100
	LT	1.00	178	1,600	0.111 *		
Eastbound	RT	1.00	277	1,600	0.062	ICU:	0.473
	TH	1.00	24	1,600	0.015		
	LT	1.00	138	1,600	0.086 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: I-105 EASTBOUND ON/OFF RAMPS

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	444	3,200	0.014	N-S(1):	0.162
	TH	2.00	624	3,200	0.195 *	N-S(2):	0.408 *
	LT	0.00	0	0	0.000	E-W(1):	0.180
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.249 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.657
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	779	4,800	0.162		
	LT	1.00	340	1,600	0.213 *		
Eastbound	RT	1.00	628	1,600	0.180	ICU:	0.757
	TH	0.00	0	0	0.000		
	LT	1.00	398	1,600	0.249 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	353	3,200	0.003	N-S(1):	0.221
	TH	2.00	717	3,200	0.224 *	N-S(2):	0.457 *
	LT	0.00	0	0	0.000	E-W(1):	0.000
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.215 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.672
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,062	4,800	0.221		
	LT	1.00	373	1,600	0.233 *		
Eastbound	RT	1.00	269	1,600	0.000	ICU:	0.772
	TH	0.00	0	0	0.000		
	LT	1.00	344	1,600	0.215 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **118TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	76	0	0.000	N-S(1):	0.245
	TH	2.00	1,085	3,200	0.363 *	N-S(2):	0.428 *
	LT	2.00	101	2,880	0.035	E-W(1):	0.172 *
Westbound	RT	0.00	69	0	0.000	E-W(2):	0.135
	TH	1.00	28	1,600	0.081		
	LT	0.00	33	1,600	0.021 *	V/C:	0.600
Northbound	RT	0.00	46	0	0.000	Lost Time:	0.100
	TH	3.00	963	4,800	0.210		
	LT	1.00	104	1,600	0.065 *		
Eastbound	RT	0.00	121	0	0.000	ICU:	0.700
	TH	1.00	34	1,600	0.151 *		
	LT	0.00	86	1,600	0.054	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	37	0	0.000	N-S(1):	0.327 *
	TH	2.00	755	3,200	0.248	N-S(2):	0.278
	LT	2.00	182	2,880	0.063 *	E-W(1):	0.192
Westbound	RT	0.00	193	0	0.000	E-W(2):	0.268 *
	TH	1.00	58	1,600	0.208 *		
	LT	0.00	81	1,600	0.051	V/C:	0.595
Northbound	RT	0.00	120	0	0.000	Lost Time:	0.100
	TH	3.00	1,145	4,800	0.264 *		
	LT	1.00	48	1,600	0.030		
Eastbound	RT	0.00	56	0	0.000	ICU:	0.695
	TH	1.00	74	1,600	0.141		
	LT	0.00	96	1,600	0.060 *	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 120TH ST-119TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	332	0	0.000	N-S(1):	0.356
	TH	2.00	764	3,200	0.343 *	N-S(2):	0.431 *
	LT	1.00	141	1,600	0.088	E-W(1):	0.130
Westbound	RT	0.00	165	0	0.000	E-W(2):	0.210 *
	TH	2.00	239	3,200	0.126 *		
	LT	1.00	77	1,600	0.048	V/C:	0.641
Northbound	RT	0.00	42	0	0.000	Lost Time:	0.100
	TH	2.00	815	3,200	0.268		
	LT	1.00	141	1,600	0.088 *		
Eastbound	RT	1.00	86	1,600	0.000	ICU:	0.741
	TH	1.00	131	1,600	0.082		
	LT	1.00	135	1,600	0.084 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	111	0	0.000	N-S(1):	0.370 *
	TH	2.00	679	3,200	0.247	N-S(2):	0.311
	LT	1.00	88	1,600	0.055 *	E-W(1):	0.245
Westbound	RT	0.00	153	0	0.000	E-W(2):	0.266 *
	TH	2.00	175	3,200	0.103 *		
	LT	1.00	114	1,600	0.071	V/C:	0.636
Northbound	RT	0.00	119	0	0.000	Lost Time:	0.100
	TH	2.00	890	3,200	0.315 *		
	LT	1.00	102	1,600	0.064		
Eastbound	RT	1.00	170	1,600	0.043	ICU:	0.736
	TH	1.00	279	1,600	0.174		
	LT	1.00	260	1,600	0.163 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **MLK HOSPITAL DWY-120TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	115	0	0.000	N-S(1):	0.277
	TH	2.00	812	3,200	0.290 *	N-S(2):	0.318 *
	LT	1.00	34	1,600	0.021	E-W(1):	0.069
Westbound	RT	0.00	43	0	0.000	E-W(2):	0.094 *
	TH	1.00	8	1,600	0.038 *		
	LT	0.00	10	1,600	0.006	V/C:	0.412
Northbound	RT	0.00	8	0	0.000	Lost Time:	0.100
	TH	2.00	811	3,200	0.256		
	LT	1.00	44	1,600	0.028 *		
Eastbound	RT	1.00	56	1,600	0.008	ICU:	0.512
	TH	1.00	12	1,600	0.063		
	LT	0.00	89	1,600	0.056 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	72	0	0.000	N-S(1):	0.337 *
	TH	2.00	857	3,200	0.290	N-S(2):	0.330
	LT	1.00	30	1,600	0.019 *	E-W(1):	0.060
Westbound	RT	0.00	28	0	0.000	E-W(2):	0.079 *
	TH	1.00	12	1,600	0.030 *		
	LT	0.00	8	1,600	0.005	V/C:	0.416
Northbound	RT	0.00	22	0	0.000	Lost Time:	0.100
	TH	2.00	994	3,200	0.318 *		
	LT	1.00	64	1,600	0.040		
Eastbound	RT	1.00	45	1,600	0.000	ICU:	0.516
	TH	1.00	10	1,600	0.055		
	LT	0.00	78	1,600	0.049 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **124TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.314 *
	TH	2.00	751	3,200	0.241	N-S(2):	0.255
	LT	1.00	69	1,600	0.043 *	E-W(1):	0.084
Westbound	RT	0.00	66	0	0.000	E-W(2):	0.129 *
	TH	1.00	71	1,600	0.121 *		
	LT	0.00	56	1,600	0.035	V/C:	0.443
Northbound	RT	0.00	37	0	0.000	Lost Time:	0.100
	TH	2.00	831	3,200	0.271 *		
	LT	1.00	22	1,600	0.014		
Eastbound	RT	0.00	27	0	0.000	ICU:	0.543
	TH	1.00	38	1,600	0.049		
	LT	0.00	13	1,600	0.008 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.325 *
	TH	2.00	701	3,200	0.225	N-S(2):	0.241
	LT	1.00	76	1,600	0.048 *	E-W(1):	0.063
Westbound	RT	0.00	58	0	0.000	E-W(2):	0.078 *
	TH	1.00	24	1,600	0.069 *		
	LT	0.00	29	1,600	0.018	V/C:	0.403
Northbound	RT	0.00	35	0	0.000	Lost Time:	0.100
	TH	2.00	850	3,200	0.277 *		
	LT	1.00	26	1,600	0.016		
Eastbound	RT	0.00	24	0	0.000	ICU:	0.503
	TH	1.00	34	1,600	0.045		
	LT	0.00	14	1,600	0.009 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : N
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	106	0	0.000	N-S(1):	0.335
	TH	2.00	604	3,200	0.222 *	N-S(2):	0.376 *
	LT	1.00	152	1,600	0.095	E-W(1):	0.245
Westbound	RT	0.00	113	0	0.000	E-W(2):	0.308 *
	TH	2.00	575	3,200	0.215 *		
	LT	1.00	66	1,600	0.041	V/C:	0.684
Northbound	RT	0.00	69	0	0.000	Lost Time:	0.100
	TH	2.00	698	3,200	0.240		
	LT	1.00	246	1,600	0.154 *		
Eastbound	RT	0.00	271	0	0.000	ICU:	0.784
	TH	2.00	381	3,200	0.204		
	LT	1.00	149	1,600	0.093 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	92	0	0.000	N-S(1):	0.347 *
	TH	2.00	595	3,200	0.215	N-S(2):	0.319
	LT	1.00	152	1,600	0.095 *	E-W(1):	0.392 *
Westbound	RT	0.00	99	0	0.000	E-W(2):	0.243
	TH	2.00	348	3,200	0.140		
	LT	1.00	99	1,600	0.062 *	V/C:	0.739
Northbound	RT	0.00	85	0	0.000	Lost Time:	0.100
	TH	2.00	721	3,200	0.252 *		
	LT	1.00	166	1,600	0.104		
Eastbound	RT	0.00	267	0	0.000	ICU:	0.839
	TH	2.00	789	3,200	0.330 *		
	LT	1.00	165	1,600	0.103	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: I-105 WESTBOUND ON/OFF RAMPS
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	43	0	0.000	N-S(1):	0.276 *
	TH	1.00	68	1,600	0.077 *	N-S(2):	0.000
	LT	0.00	12	1,600	0.008	E-W(1):	0.461 *
Westbound	RT	0.00	25	0	0.000	E-W(2):	0.254
	TH	3.00	1,057	4,800	0.225		
	LT	2.00	883	2,880	0.307 *	V/C:	0.737
Northbound	RT	1.00	152	1,600	0.000	Lost Time:	0.100
	TH	0.01	3	17	0.179	ATSAC/ATCS:	-0.100
	LT	1.99	569	2,865	0.199 *		
Eastbound	RT	1.83	451	2,921	0.056	ICU:	0.737
	TH	3.17	784	5,079	0.154 *		
	LT	1.00	46	1,600	0.029	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	27	0	0.000	N-S(1):	0.265 *
	TH	1.00	28	1,600	0.045 *	N-S(2):	0.000
	LT	0.00	17	1,600	0.011	E-W(1):	0.455 *
Westbound	RT	0.00	13	0	0.000	E-W(2):	0.183
	TH	3.00	779	4,800	0.165		
	LT	2.00	580	2,880	0.201 *	V/C:	0.720
Northbound	RT	1.00	232	1,600	0.000	Lost Time:	0.100
	TH	0.06	19	96	0.198	ATSAC/ATCS:	-0.100
	LT	1.94	614	2,794	0.220 *		
Eastbound	RT	1.00	267	1,600	0.000	ICU:	0.720
	TH	4.00	1,628	6,400	0.254 *		
	LT	1.00	28	1,600	0.018	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MONA BOULEVARD**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	111	0	0.000	N-S(1):	0.147
	TH	1.00	94	1,600	0.144 *	N-S(2):	0.240 *
	LT	0.00	26	1,600	0.016	E-W(1):	0.329
Westbound	RT	0.00	30	0	0.000	E-W(2):	0.402 *
	TH	3.00	1,702	4,800	0.361 *		
	LT	1.00	190	1,600	0.119	V/C:	0.642
Northbound	RT	1.00	145	1,600	0.000	Lost Time:	0.100
	TH	1.00	56	1,600	0.131	ATSAC/ATCS:	-0.100
	LT	0.00	154	1,600	0.096 *		
Eastbound	RT	0.00	146	0	0.000	ICU:	0.642
	TH	3.00	864	4,800	0.210		
	LT	1.00	66	1,600	0.041 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	92	0	0.000	N-S(1):	0.155
	TH	1.00	57	1,600	0.113 *	N-S(2):	0.210 *
	LT	0.00	31	1,600	0.019	E-W(1):	0.493 *
Westbound	RT	0.00	33	0	0.000	E-W(2):	0.311
	TH	3.00	1,063	4,800	0.228		
	LT	1.00	152	1,600	0.095 *	V/C:	0.703
Northbound	RT	1.00	214	1,600	0.039	Lost Time:	0.100
	TH	1.00	62	1,600	0.136	ATSAC/ATCS:	-0.100
	LT	0.00	155	1,600	0.097 *		
Eastbound	RT	0.00	262	0	0.000	ICU:	0.703
	TH	3.00	1,648	4,800	0.398 *		
	LT	1.00	132	1,600	0.083	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MONA BOULEVARD**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	84	1,600	0.022	N-S(1):	0.216 *
	TH	1.00	134	1,600	0.131	N-S(2):	0.162
	LT	0.00	76	1,600	0.048 *	E-W(1):	0.177
Westbound	RT	0.00	39	0	0.000	E-W(2):	0.238 *
	TH	2.00	623	3,200	0.207 *		
	LT	1.00	29	1,600	0.018	V/C:	0.454
Northbound	RT	0.00	78	0	0.000	Lost Time:	0.100
	TH	1.00	142	1,600	0.168 *		
	LT	0.00	49	1,600	0.031		
Eastbound	RT	0.00	41	0	0.000	ICU:	0.554
	TH	2.00	468	3,200	0.159		
	LT	1.00	49	1,600	0.031 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	76	1,600	0.001	N-S(1):	0.164 *
	TH	1.00	130	1,600	0.124	N-S(2):	0.143
	LT	0.00	68	1,600	0.043 *	E-W(1):	0.313 *
Westbound	RT	0.00	52	0	0.000	E-W(2):	0.192
	TH	2.00	415	3,200	0.146		
	LT	1.00	39	1,600	0.024 *	V/C:	0.477
Northbound	RT	0.00	58	0	0.000	Lost Time:	0.100
	TH	1.00	104	1,600	0.121 *		
	LT	0.00	31	1,600	0.019		
Eastbound	RT	0.00	83	0	0.000	ICU:	0.577
	TH	2.00	843	3,200	0.289 *		
	LT	1.00	74	1,600	0.046	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **S ALAMEDA STREET**
East/West Street: **103RD STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	241	0	0.000	N-S(1):	0.350
	TH	2.00	1,030	3,200	0.397 *	N-S(2):	0.448 *
	LT	0.00	0	0	0.000	E-W(1):	0.233 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.173
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.681
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,121	3,200	0.350		
	LT	1.00	82	1,600	0.051 *		
Eastbound	RT	0.00	96	0	0.000	ICU:	0.781
	TH	1.00	0	1,600	0.233 *		
	LT	0.00	276	1,600	0.173	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	265	0	0.000	N-S(1):	0.362
	TH	2.00	1,155	3,200	0.444 *	N-S(2):	0.511 *
	LT	0.00	0	0	0.000	E-W(1):	0.236 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.171
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.747
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,158	3,200	0.362		
	LT	1.00	107	1,600	0.067 *		
Eastbound	RT	0.00	105	0	0.000	ICU:	0.847
	TH	1.00	0	1,600	0.236 *		
	LT	0.00	273	1,600	0.171	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	561	1,600	0.226 *	N-S(1):	0.279
	TH	2.00	598	3,200	0.187	N-S(2):	0.290 *
	LT	1.00	91	1,600	0.057	E-W(1):	0.194
Westbound	RT	1.00	57	1,600	0.036	E-W(2):	0.364 *
	TH	3.00	1,081	4,800	0.225 *		
	LT	1.00	124	1,600	0.078	V/C:	0.654
Northbound	RT	0.00	81	0	0.000	Lost Time:	0.100
	TH	2.00	630	3,200	0.222		
	LT	2.00	184	2,880	0.064 *		
Eastbound	RT	0.00	143	0	0.000	ICU:	0.754
	TH	3.00	415	4,800	0.116		
	LT	2.00	399	2,880	0.139 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	491	1,600	0.156	N-S(1):	0.377 *
	TH	2.00	714	3,200	0.223	N-S(2):	0.297
	LT	1.00	171	1,600	0.107 *	E-W(1):	0.364 *
Westbound	RT	1.00	47	1,600	0.029	E-W(2):	0.308
	TH	3.00	679	4,800	0.141		
	LT	1.00	102	1,600	0.064 *	V/C:	0.741
Northbound	RT	0.00	152	0	0.000	Lost Time:	0.100
	TH	2.00	711	3,200	0.270 *		
	LT	2.00	214	2,880	0.074		
Eastbound	RT	0.00	182	0	0.000	ICU:	0.841
	TH	3.00	1,259	4,800	0.300 *		
	LT	2.00	482	2,880	0.167	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	105	0	0.000	N-S(1):	0.224
	TH	2.00	552	3,200	0.205 *	N-S(2):	0.298 *
	LT	1.00	57	1,600	0.036	E-W(1):	0.120
Westbound	RT	1.00	83	1,600	0.016	E-W(2):	0.237 *
	TH	1.00	274	1,600	0.171 *		
	LT	1.00	55	1,600	0.034	V/C:	0.535
Northbound	RT	0.00	47	0	0.000	Lost Time:	0.100
	TH	2.00	553	3,200	0.188		
	LT	1.00	149	1,600	0.093 *		
Eastbound	RT	1.00	112	1,600	0.000	ICU:	0.635
	TH	2.00	276	3,200	0.086		
	LT	1.00	106	1,600	0.066 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	120	0	0.000	N-S(1):	0.296
	TH	2.00	735	3,200	0.267 *	N-S(2):	0.366 *
	LT	1.00	100	1,600	0.063	E-W(1):	0.215
Westbound	RT	1.00	76	1,600	0.000	E-W(2):	0.286 *
	TH	1.00	284	1,600	0.178 *		
	LT	1.00	43	1,600	0.027	V/C:	0.652
Northbound	RT	0.00	41	0	0.000	Lost Time:	0.100
	TH	2.00	705	3,200	0.233		
	LT	1.00	158	1,600	0.099 *		
Eastbound	RT	1.00	179	1,600	0.013	ICU:	0.752
	TH	2.00	603	3,200	0.188		
	LT	1.00	173	1,600	0.108 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **119TH STREET**

Scenario: **EXISTING (BASELINE)+ AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	35	0	0.000	N-S(1):	0.015
	TH	1.00	9	1,600	0.028 *	N-S(2):	0.104 *
	LT	1.00	2	1,120	0.002	E-W(1):	0.251
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.254 *
	TH	1.00	276	1,120	0.254 *		
	LT	0.00	8	1,120	0.007		
Northbound	RT	1.00	23	1,120	0.013		
	TH	0.00	0	0	0.000		
	LT	1.00	121	1,600	0.076 *		
Eastbound	RT	0.00	57	0	0.000		
	TH	1.00	216	1,120	0.244		
	LT	0.00	0	0	0.000 *		

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	58	0	0.000	N-S(1):	0.128
	TH	1.00	37	1,120	0.088 *	N-S(2):	0.142 *
	LT	0.00	4	1,600	0.003	E-W(1):	0.197 *
Westbound	RT	0.00	3	0	0.000	E-W(2):	0.185
	TH	1.00	165	1,120	0.150		
	LT	1.00	21	1,600	0.013 *		
Northbound	RT	0.00	36	0	0.000		
	TH	1.00	43	1,120	0.125		
	LT	0.00	61	1,120	0.054 *		
Eastbound	RT	0.00	93	0	0.000		
	TH	1.00	113	1,120	0.184 *		
	LT	1.00	39	1,120	0.035		

* = Critical Movement

Observed				N-S:	0.142
Gate Lost Time (sec)-	57	40	60	E-W:	0.254
	59	41	41		
Total Seconds-	298			V/C:	0.396
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.496
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: 119TH STREET

Scenario: EXISTING (BASELINE)+ AMBIENT(2014) + PROJECT TIER 1 CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	41	0	0.000	N-S(1): 0.006
	TH	1.00	22	1,600	0.039 *	N-S(2): 0.104 *
	LT	1.00	2	1,120	0.002	E-W(1): 0.424 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.245
	TH	1.00	251	1,120	0.245	
	LT	0.00	23	1,120	0.021 *	
Northbound	RT	1.00	27	1,120	0.004	
	TH	0.00	0	0	0.000	
	LT	1.00	104	1,600	0.065 *	
Eastbound	RT	0.00	67	0	0.000	
	TH	1.00	384	1,120	0.403 *	
	LT	0.00	0	0	0.000	

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	58	0	0.000	N-S(1): 0.125
	TH	1.00	26	1,120	0.079 *	N-S(2): 0.150 *
	LT	0.00	4	1,120	0.004	E-W(1): 0.313 *
Westbound	RT	0.00	1	0	0.000	E-W(2): 0.173
	TH	1.00	134	1,120	0.121	
	LT	1.00	14	1,600	0.009 *	
Northbound	RT	0.00	26	0	0.000	
	TH	1.00	30	1,120	0.121	
	LT	0.00	79	1,120	0.071 *	
Eastbound	RT	0.00	113	0	0.000	
	TH	1.00	228	1,120	0.304 *	
	LT	1.00	58	1,120	0.052	

* = Critical Movement

Observed				N-S:	0.150
Gate Lost Time (sec)-	57	40	60	E-W:	0.424
	59	41	41		
Total Seconds-	298			V/C:	0.574
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.674
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	B
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE)+ AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	32	0	0.000	N-S(1):	0.167 *
	TH	1.00	140	1,600	0.108	N-S(2):	0.149
	LT	1.00	30	1,232	0.024 *	E-W(1):	0.192
Westbound	RT	1.00	38	1,232	0.006	E-W(2):	0.278 *
	TH	2.00	622	2,464	0.252 *		
	LT	0.00	0	0	0.000		
Northbound	RT	0.00	11	0	0.000		
	TH	1.00	165	1,232	0.143 *		
	LT	1.00	66	1,600	0.041		
Eastbound	RT	1.00	86	1,600	0.013		
	TH	2.00	474	2,464	0.192		
	LT	1.00	41	1,600	0.026 *		

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	27	0	0.000	N-S(1):	0.103
	TH	1.00	86	1,232	0.092 *	N-S(2):	0.109 *
	LT	1.00	45	1,600	0.028	E-W(1):	0.213
Westbound	RT	0.00	38	0	0.000	E-W(2):	0.266 *
	TH	2.00	614	2,464	0.265 *		
	LT	1.00	27	1,600	0.017		
Northbound	RT	0.00	36	0	0.000		
	TH	1.00	84	1,600	0.075		
	LT	1.00	21	1,232	0.017 *		
Eastbound	RT	1.00	22	1,232	0.001		
	TH	2.00	481	2,464	0.196		
	LT	0.00	1	1,232	0.001 *		

* = Critical Movement

Observed				N-S:	0.167
Gate Lost Time (sec)-	42	40	44	E-W:	0.278
	82	68	62		
Total Seconds-	338			V/C:	0.445
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.545
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE)+ AMBIENT(2014) + PROJECT TIER 1 CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	20	0	0.000	N-S(1):	0.115 *
	TH	1.00	99	1,600	0.074	N-S(2):	0.102
	LT	1.00	16	1,232	0.013 *	E-W(1):	0.362 *
Westbound	RT	1.00	37	1,232	0.017	E-W(2):	0.198
	TH	2.00	440	2,464	0.179		
	LT	0.00	0	0	0.000 *		
Northbound	RT	0.00	10	0	0.000		
	TH	1.00	116	1,232	0.102 *		
	LT	1.00	44	1,600	0.028		
Eastbound	RT	1.00	75	1,600	0.019		
	TH	2.00	893	2,464	0.362 *		
	LT	1.00	30	1,600	0.019		

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.112 *
	TH	1.00	77	1,232	0.078	N-S(2):	0.100
	LT	1.00	64	1,600	0.040 *	E-W(1):	0.401 *
Westbound	RT	0.00	39	0	0.000	E-W(2):	0.198
	TH	2.00	443	2,464	0.196		
	LT	1.00	63	1,600	0.039 *		
Northbound	RT	0.00	50	0	0.000		
	TH	1.00	65	1,600	0.072 *		
	LT	1.00	27	1,232	0.022		
Eastbound	RT	1.00	40	1,232	0.011		
	TH	2.00	889	2,464	0.362 *		
	LT	0.00	2	1,232	0.002		

* = Critical Movement

Observed				N-S:	0.115
Gate Lost Time (sec)-	42	40	44	E-W:	0.401
	82	68	62		
Total Seconds-	338			V/C:	0.516
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.616
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	B
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

APPENDIX J

ICU Worksheets – Existing (Baseline) With Ambient Growth (2014) Plus Tier I Project And Related Projects/Cumulative (2014) Plus Tier I Project Conditions

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **I-110 SOUTHBOUND RAMPS**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.71	722	2,742	0.263	N-S(1):	0.293 *
	TH	0.00	0	0	0.000	N-S(2):	0.263
	LT	1.29	542	1,852	0.293 *	E-W(1):	0.519 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.345
	TH	3.00	1,658	4,800	0.345		
	LT	1.00	369	1,600	0.231 *	V/C:	0.812
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	460	1,600	0.288 *	ICU:	0.812
	TH	3.00	622	3,200	0.194		
	LT	0.00	0	0	0.000	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.50	374	2,406	0.155	N-S(1):	0.173 *
	TH	0.00	0	0	0.000	N-S(2):	0.155
	LT	1.50	372	2,154	0.173 *	E-W(1):	0.519 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.209
	TH	3.00	1,001	4,800	0.209		
	LT	1.00	212	1,600	0.133 *	V/C:	0.692
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	578	0	0.000	ICU:	0.692
	TH	3.00	1,277	4,800	0.386 *		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **I-110 NORTHBOUND RAMPS**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.164
	TH	0.00	0	0	0.000 *	N-S(2):	0.383 *
	LT	0.00	0	0	0.000	E-W(1):	0.385 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.252
	TH	3.00	1,208	4,800	0.252		
	LT	1.00	145	1,600	0.091 *	V/C:	0.768
Northbound	RT	0.50	277	803	0.164	Lost Time:	0.100
	TH	0.00	0	0	0.000	ATSAC/ATCS:	-0.100
	LT	1.50	827	2,157	0.383 *		
Eastbound	RT	1.00	221	1,600	0.000	ICU:	0.768
	TH	2.00	940	3,200	0.294 *		
	LT	0.00	0	0	0.000	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.000
	TH	0.00	0	0	0.000 *	N-S(2):	0.266 *
	LT	0.00	0	0	0.000	E-W(1):	0.608 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.156
	TH	3.00	749	4,800	0.156		
	LT	1.00	347	1,600	0.217 *	V/C:	0.874
Northbound	RT	0.78	300	1,253	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000	ATSAC/ATCS:	-0.100
	LT	1.22	466	1,752	0.266 *		
Eastbound	RT	1.00	395	1,600	0.008	ICU:	0.874
	TH	2.00	1,252	3,200	0.391 *		
	LT	0.00	0	0	0.000	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: FIGUEROA STREET
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	121	1,600	0.006	N-S(1):	0.160 *
	TH	2.00	287	3,200	0.090	N-S(2):	0.156
	LT	1.00	66	1,600	0.041 *	E-W(1):	0.301
Westbound	RT	0.00	80	0	0.000	E-W(2):	0.316 *
	TH	3.00	1,103	4,800	0.246 *		
	LT	1.00	60	1,600	0.038	V/C:	0.476
Northbound	RT	0.00	27	0	0.000	Lost Time:	0.100
	TH	2.00	355	3,200	0.119 *		
	LT	1.00	106	1,600	0.066		
Eastbound	RT	1.00	259	1,600	0.096	ICU:	0.576
	TH	2.00	843	3,200	0.263		
	LT	1.00	112	1,600	0.070 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	111	1,600	0.000	N-S(1):	0.214
	TH	2.00	330	3,200	0.103 *	N-S(2):	0.217 *
	LT	1.00	90	1,600	0.056	E-W(1):	0.431 *
Westbound	RT	0.00	106	0	0.000	E-W(2):	0.276
	TH	3.00	781	4,800	0.185		
	LT	1.00	45	1,600	0.028 *	V/C:	0.648
Northbound	RT	0.00	115	0	0.000	Lost Time:	0.100
	TH	2.00	389	3,200	0.158		
	LT	1.00	182	1,600	0.114 *		
Eastbound	RT	1.00	148	1,600	0.000	ICU:	0.748
	TH	2.00	1,288	3,200	0.403 *		
	LT	1.00	145	1,600	0.091	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **BROADWAY**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	87	0	0.000	N-S(1):	0.113 *
	TH	2.00	189	3,200	0.086	N-S(2):	0.108
	LT	1.00	55	1,600	0.034 *	E-W(1):	0.221
Westbound	RT	0.00	88	0	0.000	E-W(2):	0.294 *
	TH	3.00	1,128	4,800	0.253 *		
	LT	1.00	71	1,600	0.044	V/C:	0.407
Northbound	RT	0.00	22	0	0.000	Lost Time:	0.100
	TH	2.00	231	3,200	0.079 *		
	LT	1.00	35	1,600	0.022		
Eastbound	RT	0.00	120	0	0.000	ICU:	0.507
	TH	3.00	731	4,800	0.177		
	LT	1.00	66	1,600	0.041 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	66	0	0.000	N-S(1):	0.168 *
	TH	2.00	175	3,200	0.075	N-S(2):	0.154
	LT	1.00	81	1,600	0.051 *	E-W(1):	0.289 *
Westbound	RT	0.00	75	0	0.000	E-W(2):	0.239
	TH	3.00	747	4,800	0.171		
	LT	1.00	22	1,600	0.014 *	V/C:	0.457
Northbound	RT	0.00	90	0	0.000	Lost Time:	0.100
	TH	2.00	285	3,200	0.117 *		
	LT	1.00	127	1,600	0.079		
Eastbound	RT	0.00	61	0	0.000	ICU:	0.557
	TH	3.00	1,260	4,800	0.275 *		
	LT	1.00	109	1,600	0.068	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MAIN STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.123
	TH	2.00	255	3,200	0.108 *	N-S(2):	0.146 *
	LT	1.00	79	1,600	0.049	E-W(1):	0.187
Westbound	RT	0.00	51	0	0.000	E-W(2):	0.303 *
	TH	3.00	1,137	4,800	0.248 *		
	LT	1.00	81	1,600	0.051	V/C:	0.449
Northbound	RT	0.00	30	0	0.000	Lost Time:	0.100
	TH	2.00	206	3,200	0.074		
	LT	1.00	61	1,600	0.038 *		
Eastbound	RT	0.00	104	0	0.000	ICU:	0.549
	TH	3.00	550	4,800	0.136		
	LT	1.00	88	1,600	0.055 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	55	0	0.000	N-S(1):	0.213 *
	TH	2.00	174	3,200	0.072	N-S(2):	0.131
	LT	1.00	117	1,600	0.073 *	E-W(1):	0.300 *
Westbound	RT	0.00	68	0	0.000	E-W(2):	0.228
	TH	3.00	674	4,800	0.155		
	LT	1.00	37	1,600	0.023 *	V/C:	0.513
Northbound	RT	0.00	110	0	0.000	Lost Time:	0.100
	TH	2.00	337	3,200	0.140 *		
	LT	1.00	94	1,600	0.059		
Eastbound	RT	0.00	52	0	0.000	ICU:	0.613
	TH	3.00	1,278	4,800	0.277 *		
	LT	1.00	116	1,600	0.073	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SAN PEDRO STREET**
East/West Street: **120TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	94	0	0.000	N-S(1):	0.133
	TH	2.00	276	3,200	0.128 *	N-S(2):	0.165 *
	LT	0.00	38	1,600	0.024	E-W(1):	0.356 *
Westbound	RT	0.00	54	0	0.000	E-W(2):	0.231
	TH	1.00	290	1,600	0.215		
	LT	1.00	48	1,600	0.030 *	V/C:	0.521
Northbound	RT	0.00	66	0	0.000	Lost Time:	0.100
	TH	2.00	224	3,200	0.109		
	LT	0.00	59	1,600	0.037 *		
Eastbound	RT	0.00	68	0	0.000	ICU:	0.621
	TH	1.00	454	1,600	0.326 *		
	LT	1.00	26	1,600	0.016	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	111	0	0.000	N-S(1):	0.129
	TH	2.00	278	3,200	0.131 *	N-S(2):	0.173 *
	LT	0.00	30	1,600	0.019	E-W(1):	0.276
Westbound	RT	0.00	41	0	0.000	E-W(2):	0.342 *
	TH	1.00	464	1,600	0.316 *		
	LT	1.00	60	1,600	0.038	V/C:	0.515
Northbound	RT	0.00	40	0	0.000	Lost Time:	0.100
	TH	2.00	244	3,200	0.110		
	LT	0.00	67	1,600	0.042 *		
Eastbound	RT	0.00	70	0	0.000	ICU:	0.615
	TH	1.00	310	1,600	0.238		
	LT	1.00	41	1,600	0.026 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SAN PEDRO STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	135	0	0.000	N-S(1):	0.125
	TH	2.00	173	3,200	0.096 *	N-S(2):	0.164 *
	LT	1.00	75	1,600	0.047	E-W(1):	0.184
Westbound	RT	0.00	65	0	0.000	E-W(2):	0.279 *
	TH	3.00	1,031	4,800	0.228 *		
	LT	1.00	104	1,600	0.065	V/C:	0.443
Northbound	RT	0.00	65	0	0.000	Lost Time:	0.100
	TH	2.00	186	3,200	0.078		
	LT	1.00	108	1,600	0.068 *		
Eastbound	RT	0.00	63	0	0.000	ICU:	0.543
	TH	3.00	506	4,800	0.119		
	LT	1.00	82	1,600	0.051 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	98	0	0.000	N-S(1):	0.139 *
	TH	2.00	169	3,200	0.083	N-S(2):	0.135
	LT	1.00	88	1,600	0.055 *	E-W(1):	0.311 *
Westbound	RT	0.00	106	0	0.000	E-W(2):	0.218
	TH	3.00	615	4,800	0.150		
	LT	1.00	51	1,600	0.032 *	V/C:	0.450
Northbound	RT	0.00	47	0	0.000	Lost Time:	0.100
	TH	2.00	222	3,200	0.084 *		
	LT	1.00	83	1,600	0.052		
Eastbound	RT	0.00	76	0	0.000	ICU:	0.550
	TH	3.00	1,262	4,800	0.279 *		
	LT	1.00	109	1,600	0.068	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **CENTURY BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	92	0	0.000	N-S(1): 0.235
	TH	2.00	486	3,200	0.181 *	N-S(2): 0.280 *
	LT	1.00	51	1,600	0.032	E-W(1): 0.305 *
Westbound	RT	0.00	51	0	0.000	E-W(2): 0.277
	TH	2.00	683	3,200	0.229	
	LT	1.00	120	1,600	0.075 *	V/C: 0.585
Northbound	RT	0.00	53	0	0.000	Lost Time: 0.100
	TH	2.00	598	3,200	0.203	ATSAC/ATCS: -0.100
	LT	1.00	158	1,600	0.099 *	
Eastbound	RT	0.00	116	0	0.000	ICU: 0.585
	TH	2.00	621	3,200	0.230 *	
	LT	1.00	76	1,600	0.048	LOS: A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	87	0	0.000	N-S(1): 0.238
	TH	2.00	556	3,200	0.201 *	N-S(2): 0.292 *
	LT	1.00	73	1,600	0.046	E-W(1): 0.363 *
Westbound	RT	0.00	68	0	0.000	E-W(2): 0.287
	TH	2.00	590	3,200	0.206	
	LT	1.00	98	1,600	0.061 *	V/C: 0.655
Northbound	RT	0.00	77	0	0.000	Lost Time: 0.100
	TH	2.00	538	3,200	0.192	ATSAC/ATCS: -0.100
	LT	1.00	145	1,600	0.091 *	
Eastbound	RT	0.00	167	0	0.000	ICU: 0.655
	TH	2.00	799	3,200	0.302 *	
	LT	1.00	129	1,600	0.081	LOS: B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: AVALON BOULEVARD
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : N
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	66	0	0.000	N-S(1):	0.324 *
	TH	2.00	575	3,200	0.200	N-S(2):	0.296
	LT	1.00	177	1,600	0.111 *	E-W(1):	0.222
Westbound	RT	0.00	252	0	0.000	E-W(2):	0.310 *
	TH	3.00	863	4,800	0.232 *		
	LT	1.00	135	1,600	0.084	V/C:	0.634
Northbound	RT	0.00	97	0	0.000	Lost Time:	0.100
	TH	2.00	583	3,200	0.213 *	ATSAC/ATCS:	-0.100
	LT	1.00	153	1,600	0.096		
Eastbound	RT	0.00	132	0	0.000	ICU:	0.634
	TH	3.00	532	4,800	0.138		
	LT	1.00	124	1,600	0.078 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	101	0	0.000	N-S(1):	0.352 *
	TH	2.00	553	3,200	0.204	N-S(2):	0.279
	LT	1.00	192	1,600	0.120 *	E-W(1):	0.392 *
Westbound	RT	0.00	183	0	0.000	E-W(2):	0.272
	TH	3.00	616	4,800	0.166		
	LT	1.00	114	1,600	0.071 *	V/C:	0.744
Northbound	RT	0.00	94	0	0.000	Lost Time:	0.100
	TH	2.00	648	3,200	0.232 *	ATSAC/ATCS:	-0.100
	LT	1.00	120	1,600	0.075		
Eastbound	RT	0.00	161	0	0.000	ICU:	0.744
	TH	3.00	1,379	4,800	0.321 *		
	LT	1.00	169	1,600	0.106	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **120TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	34	0	0.000	N-S(1):	0.253 *
	TH	2.00	596	3,200	0.197	N-S(2):	0.229
	LT	1.00	83	1,600	0.052 *	E-W(1):	0.325 *
Westbound	RT	0.00	118	0	0.000	E-W(2):	0.324
	TH	1.00	322	1,600	0.275		
	LT	1.00	162	1,600	0.101 *	V/C:	0.578
Northbound	RT	0.00	138	0	0.000	Lost Time:	0.100
	TH	2.00	504	3,200	0.201 *	ATSAC/ATCS:	-0.100
	LT	1.00	51	1,600	0.032		
Eastbound	RT	0.00	77	0	0.000	ICU:	0.578
	TH	1.00	282	1,600	0.224 *		
	LT	1.00	78	1,600	0.049	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	64	0	0.000	N-S(1):	0.344 *
	TH	2.00	573	3,200	0.199	N-S(2):	0.238
	LT	1.00	120	1,600	0.075 *	E-W(1):	0.345 *
Westbound	RT	0.00	85	0	0.000	E-W(2):	0.297
	TH	1.00	289	1,600	0.234		
	LT	1.00	128	1,600	0.080 *	V/C:	0.689
Northbound	RT	0.00	181	0	0.000	Lost Time:	0.100
	TH	2.00	679	3,200	0.269 *	ATSAC/ATCS:	-0.100
	LT	1.00	62	1,600	0.039		
Eastbound	RT	0.00	50	0	0.000	ICU:	0.689
	TH	1.00	374	1,600	0.265 *		
	LT	1.00	100	1,600	0.063	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	140	0	0.000	N-S(1):	0.238
	TH	2.00	493	3,200	0.198 *	N-S(2):	0.244 *
	LT	1.00	109	1,600	0.068	E-W(1):	0.161
Westbound	RT	0.00	152	0	0.000	E-W(2):	0.310 *
	TH	3.00	900	4,800	0.219 *		
	LT	1.00	82	1,600	0.051	V/C:	0.554
Northbound	RT	0.00	96	0	0.000	Lost Time:	0.100
	TH	2.00	447	3,200	0.170		
	LT	1.00	73	1,600	0.046 *		
Eastbound	RT	0.00	60	0	0.000	ICU:	0.654
	TH	3.00	468	4,800	0.110		
	LT	1.00	145	1,600	0.091 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	96	0	0.000	N-S(1):	0.342 *
	TH	2.00	490	3,200	0.183	N-S(2):	0.265
	LT	1.00	148	1,600	0.093 *	E-W(1):	0.334 *
Westbound	RT	0.00	118	0	0.000	E-W(2):	0.202
	TH	3.00	472	4,800	0.123		
	LT	1.00	101	1,600	0.063 *	V/C:	0.676
Northbound	RT	0.00	152	0	0.000	Lost Time:	0.100
	TH	2.00	646	3,200	0.249 *		
	LT	1.00	131	1,600	0.082		
Eastbound	RT	0.00	142	0	0.000	ICU:	0.776
	TH	3.00	1,157	4,800	0.271 *		
	LT	1.00	127	1,600	0.079	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: AVALON BOULEVARD
East/West Street: ROSECRANS AVENUE

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	95	0	0.000	N-S(1):	0.261 *
	TH	2.00	381	3,200	0.149	N-S(2):	0.230
	LT	1.00	158	1,600	0.099 *	E-W(1):	0.186
Westbound	RT	0.00	150	0	0.000	E-W(2):	0.262 *
	TH	3.00	943	4,800	0.228 *		
	LT	1.00	116	1,600	0.073	V/C:	0.523
Northbound	RT	0.00	84	0	0.000	Lost Time:	0.100
	TH	2.00	433	3,200	0.162 *		
	LT	1.00	129	1,600	0.081		
Eastbound	RT	0.00	69	0	0.000	ICU:	0.623
	TH	3.00	474	4,800	0.113		
	LT	1.00	55	1,600	0.034 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	71	0	0.000	N-S(1):	0.356 *
	TH	2.00	405	3,200	0.149	N-S(2):	0.231
	LT	1.00	213	1,600	0.133 *	E-W(1):	0.283 *
Westbound	RT	0.00	150	0	0.000	E-W(2):	0.223
	TH	3.00	593	4,800	0.155		
	LT	1.00	78	1,600	0.049 *	V/C:	0.639
Northbound	RT	0.00	146	0	0.000	Lost Time:	0.100
	TH	2.00	567	3,200	0.223 *		
	LT	1.00	131	1,600	0.082		
Eastbound	RT	0.00	88	0	0.000	ICU:	0.739
	TH	3.00	1,035	4,800	0.234 *		
	LT	1.00	109	1,600	0.068	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: CENTURY BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.334
	TH	2.00	793	3,200	0.276 *	N-S(2):	0.420 *
	LT	1.00	42	1,600	0.026	E-W(1):	0.261
Westbound	RT	0.00	43	0	0.000	E-W(2):	0.331 *
	TH	1.00	393	1,600	0.273 *		
	LT	1.00	56	1,600	0.035	V/C:	0.751
Northbound	RT	0.00	49	0	0.000	Lost Time:	0.100
	TH	2.00	937	3,200	0.308	ATSAC/ATCS:	-0.100
	LT	1.00	230	1,600	0.144 *		
Eastbound	RT	1.00	189	1,600	0.000	ICU:	0.751
	TH	1.00	361	1,600	0.226		
	LT	1.00	93	1,600	0.058 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	73	0	0.000	N-S(1):	0.368
	TH	2.00	872	3,200	0.295 *	N-S(2):	0.413 *
	LT	1.00	86	1,600	0.054	E-W(1):	0.369 *
Westbound	RT	0.00	53	0	0.000	E-W(2):	0.349
	TH	1.00	379	1,600	0.270		
	LT	1.00	78	1,600	0.049 *	V/C:	0.782
Northbound	RT	0.00	72	0	0.000	Lost Time:	0.100
	TH	2.00	933	3,200	0.314	ATSAC/ATCS:	-0.100
	LT	1.00	189	1,600	0.118 *		
Eastbound	RT	1.00	226	1,600	0.023	ICU:	0.782
	TH	1.00	512	1,600	0.320 *		
	LT	1.00	126	1,600	0.079	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **103RD STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	12	0	0.000	N-S(1):	0.451 *
	TH	2.00	907	3,200	0.287	N-S(2):	0.319
	LT	1.00	118	1,600	0.074 *	E-W(1):	0.260 *
Westbound	RT	0.00	141	0	0.000	E-W(2):	0.228
	TH	1.00	183	1,600	0.203		
	LT	1.00	178	1,600	0.111 *	V/C:	0.711
Northbound	RT	0.00	208	0	0.000	Lost Time:	0.100
	TH	2.00	997	3,200	0.377 *	ATSAC/ATCS:	-0.100
	LT	1.00	51	1,600	0.032		
Eastbound	RT	0.00	60	0	0.000	ICU:	0.711
	TH	1.00	178	1,600	0.149 *		
	LT	1.00	40	1,600	0.025	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	38	0	0.000	N-S(1):	0.487 *
	TH	2.00	997	3,200	0.323	N-S(2):	0.362
	LT	1.00	178	1,600	0.111 *	E-W(1):	0.259
Westbound	RT	0.00	171	0	0.000	E-W(2):	0.294 *
	TH	1.00	253	1,600	0.265 *		
	LT	1.00	163	1,600	0.102	V/C:	0.781
Northbound	RT	0.00	233	0	0.000	Lost Time:	0.100
	TH	2.00	971	3,200	0.376 *	ATSAC/ATCS:	-0.100
	LT	1.00	63	1,600	0.039		
Eastbound	RT	0.00	48	0	0.000	ICU:	0.781
	TH	1.00	203	1,600	0.157		
	LT	1.00	46	1,600	0.029 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	42	0	0.000	N-S(1):	0.368
	TH	2.00	978	3,200	0.319 *	N-S(2):	0.392 *
	LT	2.00	144	2,880	0.050	E-W(1):	0.289 *
Westbound	RT	0.00	228	0	0.000	E-W(2):	0.226
	TH	3.00	774	4,800	0.209		
	LT	2.00	298	2,880	0.103 *	V/C:	0.681
Northbound	RT	1.00	281	1,600	0.083	Lost Time:	0.100
	TH	2.00	1,017	3,200	0.318	ATSAC/ATCS:	-0.100
	LT	2.00	211	2,880	0.073 *		
Eastbound	RT	0.00	298	1,600	0.186 *	ICU:	0.681
	TH	3.00	484	3,200	0.151		
	LT	2.00	50	2,880	0.017	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	60	0	0.000	N-S(1):	0.344
	TH	2.00	944	3,200	0.314 *	N-S(2):	0.403 *
	LT	2.00	169	2,880	0.059	E-W(1):	0.378 *
Westbound	RT	0.00	144	0	0.000	E-W(2):	0.174
	TH	3.00	529	4,800	0.140		
	LT	2.00	238	2,880	0.083 *	V/C:	0.781
Northbound	RT	1.00	328	1,600	0.131	Lost Time:	0.100
	TH	2.00	912	3,200	0.285	ATSAC/ATCS:	-0.100
	LT	2.00	256	2,880	0.089 *		
Eastbound	RT	0.00	345	0	0.000	ICU:	0.781
	TH	3.00	1,070	4,800	0.295 *		
	LT	2.00	97	2,880	0.034	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: I-105 WESTBOUND ON/OFF RAMPS

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: AM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	717	1,600	0.448 *	N-S(1):	0.354
	TH	2.00	896	3,200	0.280	N-S(2):	0.601 *
	LT	0.00	0	0	0.000	E-W(1):	0.089
Westbound	RT	1.99	389	3,192	0.122	E-W(2):	0.122 *
	TH	0.01	1	8	0.122 *		
	LT	1.00	143	1,600	0.089	V/C:	0.723
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,132	3,200	0.354	ATSAC/ATCS:	-0.100
	LT	2.00	440	2,880	0.153 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.723
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	C

Peak Period: PM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	565	1,600	0.353 *	N-S(1):	0.303
	TH	2.00	1,010	3,200	0.316	N-S(2):	0.506 *
	LT	0.00	0	0	0.000	E-W(1):	0.180 *
Westbound	RT	1.79	465	2,865	0.162	E-W(2):	0.162
	TH	0.00	0	0	0.000		
	LT	1.21	314	1,741	0.180 *	V/C:	0.686
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	970	3,200	0.303	ATSAC/ATCS:	-0.100
	LT	2.00	440	2,880	0.153 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.686
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **I-105 EASTBOUND ON/OFF RAMPS**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.349 *
	TH	2.00	539	3,200	0.168	N-S(2):	0.168
	LT	2.00	507	2,880	0.176 *	E-W(1):	0.292
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.325 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.674
Northbound	RT	1.13	313	1,810	0.173	Lost Time:	0.100
	TH	2.87	794	4,590	0.173 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	1.31	614	2,101	0.292	ICU:	0.674
	TH	0.04	20	68	0.292		
	LT	1.64	769	2,368	0.325 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.371 *
	TH	2.00	825	3,200	0.258	N-S(2):	0.258
	LT	2.00	497	2,880	0.173 *	E-W(1):	0.225
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.250 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.621
Northbound	RT	1.21	383	1,932	0.198	Lost Time:	0.100
	TH	2.79	886	4,468	0.198 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	1.12	404	1,799	0.225	ICU:	0.621
	TH	0.44	158	704	0.225		
	LT	1.44	516	2,068	0.250 *	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	82	0	0.000	N-S(1):	0.378 *
	TH	2.00	809	3,200	0.278	N-S(2):	0.329
	LT	1.00	184	1,600	0.115 *	E-W(1):	0.217
Westbound	RT	0.00	196	0	0.000	E-W(2):	0.283 *
	TH	2.00	466	3,200	0.207 *		
	LT	1.00	146	1,600	0.091	V/C:	0.661
Northbound	RT	0.00	148	0	0.000	Lost Time:	0.100
	TH	2.00	692	3,200	0.263 *	ATSAC/ATCS:	-0.100
	LT	1.00	82	1,600	0.051		
Eastbound	RT	0.00	40	0	0.000	ICU:	0.661
	TH	2.00	364	3,200	0.126		
	LT	1.00	121	1,600	0.076 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	101	0	0.000	N-S(1):	0.401 *
	TH	2.00	922	3,200	0.320	N-S(2):	0.371
	LT	1.00	146	1,600	0.091 *	E-W(1):	0.205
Westbound	RT	0.00	190	0	0.000	E-W(2):	0.246 *
	TH	2.00	306	3,200	0.155 *		
	LT	1.00	90	1,600	0.056	V/C:	0.647
Northbound	RT	0.00	99	0	0.000	Lost Time:	0.100
	TH	2.00	892	3,200	0.310 *	ATSAC/ATCS:	-0.100
	LT	1.00	81	1,600	0.051		
Eastbound	RT	0.00	84	0	0.000	ICU:	0.647
	TH	2.00	392	3,200	0.149		
	LT	1.00	145	1,600	0.091 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	190	0	0.000	N-S(1):	0.354
	TH	2.00	639	3,200	0.259 *	N-S(2):	0.357 *
	LT	1.00	105	1,600	0.066	E-W(1):	0.226
Westbound	RT	0.00	72	0	0.000	E-W(2):	0.325 *
	TH	2.00	735	3,200	0.252 *		
	LT	1.00	160	1,600	0.100	V/C:	0.682
Northbound	RT	0.00	254	0	0.000	Lost Time:	0.100
	TH	2.00	668	3,200	0.288		
	LT	1.00	157	1,600	0.098 *		
Eastbound	RT	1.00	107	1,600	0.000	ICU:	0.782
	TH	2.00	403	3,200	0.126		
	LT	1.00	117	1,600	0.073 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	150	0	0.000	N-S(1):	0.374 *
	TH	2.00	732	3,200	0.276	N-S(2):	0.347
	LT	1.00	138	1,600	0.086 *	E-W(1):	0.383 *
Westbound	RT	0.00	111	0	0.000	E-W(2):	0.342
	TH	2.00	494	3,200	0.189		
	LT	1.00	124	1,600	0.078 *	V/C:	0.757
Northbound	RT	0.00	199	0	0.000	Lost Time:	0.100
	TH	2.00	723	3,200	0.288 *		
	LT	1.00	113	1,600	0.071		
Eastbound	RT	1.00	168	1,600	0.034	ICU:	0.857
	TH	2.00	976	3,200	0.305 *		
	LT	1.00	245	1,600	0.153	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	149	1,600	0.000	N-S(1):	0.284
	TH	2.00	641	3,200	0.200 *	N-S(2):	0.291 *
	LT	1.00	130	1,600	0.081	E-W(1):	0.221
Westbound	RT	0.00	150	0	0.000	E-W(2):	0.408 *
	TH	2.00	848	3,200	0.312 *		
	LT	1.00	155	1,600	0.097	V/C:	0.699
Northbound	RT	0.00	63	0	0.000	Lost Time:	0.100
	TH	2.00	585	3,200	0.203		
	LT	1.00	146	1,600	0.091 *		
Eastbound	RT	0.00	153	0	0.000	ICU:	0.799
	TH	3.00	444	4,800	0.124		
	LT	1.00	153	1,600	0.096 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	127	1,600	0.000	N-S(1):	0.447 *
	TH	2.00	720	3,200	0.225	N-S(2):	0.346
	LT	1.00	273	1,600	0.171 *	E-W(1):	0.366
Westbound	RT	0.00	148	0	0.000	E-W(2):	0.382 *
	TH	2.00	645	3,200	0.248 *		
	LT	1.00	171	1,600	0.107	V/C:	0.829
Northbound	RT	0.00	119	0	0.000	Lost Time:	0.100
	TH	2.00	763	3,200	0.276 *		
	LT	1.00	193	1,600	0.121		
Eastbound	RT	0.00	194	0	0.000	ICU:	0.929
	TH	3.00	1,049	4,800	0.259		
	LT	1.00	215	1,600	0.134 *	LOS:	E

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **COMPTON BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	76	0	0.000	N-S(1):	0.345 *
	TH	2.00	656	3,200	0.229	N-S(2):	0.303
	LT	1.00	157	1,600	0.098 *	E-W(1):	0.233
Westbound	RT	0.00	118	0	0.000	E-W(2):	0.257 *
	TH	2.00	430	3,200	0.171 *		
	LT	1.00	102	1,600	0.064	V/C:	0.602
Northbound	RT	0.00	152	0	0.000	Lost Time:	0.100
	TH	2.00	637	3,200	0.247 *		
	LT	1.00	119	1,600	0.074		
Eastbound	RT	1.00	123	1,600	0.003	ICU:	0.702
	TH	2.00	541	3,200	0.169		
	LT	1.00	137	1,600	0.086 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	133	0	0.000	N-S(1):	0.364 *
	TH	2.00	776	3,200	0.284	N-S(2):	0.332
	LT	1.00	155	1,600	0.097 *	E-W(1):	0.226
Westbound	RT	0.00	177	0	0.000	E-W(2):	0.262 *
	TH	2.00	360	3,200	0.168 *		
	LT	1.00	84	1,600	0.053	V/C:	0.626
Northbound	RT	0.00	107	0	0.000	Lost Time:	0.100
	TH	2.00	747	3,200	0.267 *		
	LT	1.00	77	1,600	0.048		
Eastbound	RT	1.00	126	1,600	0.031	ICU:	0.726
	TH	2.00	552	3,200	0.173		
	LT	1.00	150	1,600	0.094 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **ALONDRA BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	124	0	0.000	N-S(1): 0.287
	TH	2.00	726	3,200	0.266 *	N-S(2): 0.347 *
	LT	1.00	134	1,600	0.084	E-W(1): 0.191
Westbound	RT	0.00	143	0	0.000	E-W(2): 0.221 *
	TH	2.00	424	3,200	0.177 *	
	LT	1.00	100	1,600	0.063	V/C: 0.568
Northbound	RT	0.00	73	0	0.000	Lost Time: 0.100
	TH	2.00	577	3,200	0.203	
	LT	1.00	129	1,600	0.081 *	
Eastbound	RT	0.00	103	0	0.000	ICU: 0.668
	TH	2.00	307	3,200	0.128	
	LT	1.00	70	1,600	0.044 *	LOS: B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	94	0	0.000	N-S(1): 0.359 *
	TH	2.00	658	3,200	0.235	N-S(2): 0.298
	LT	1.00	180	1,600	0.113 *	E-W(1): 0.258 *
Westbound	RT	0.00	182	0	0.000	E-W(2): 0.233
	TH	2.00	289	3,200	0.147	
	LT	1.00	72	1,600	0.045 *	V/C: 0.617
Northbound	RT	0.00	105	0	0.000	Lost Time: 0.100
	TH	2.00	681	3,200	0.246 *	
	LT	1.00	101	1,600	0.063	
Eastbound	RT	0.00	127	0	0.000	ICU: 0.717
	TH	2.00	554	3,200	0.213 *	
	LT	1.00	138	1,600	0.086	LOS: C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SUCCESS AVENUE-SLATER AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	41	0	0.000	N-S(1): 0.077
	TH	1.00	31	1,600	0.069 *	N-S(2): 0.085 *
	LT	0.00	39	1,600	0.024	E-W(1): 0.151
Westbound	RT	0.00	42	0	0.000	E-W(2): 0.245 *
	TH	2.00	669	3,200	0.222 *	
	LT	1.00	23	1,600	0.014	V/C: 0.330
Northbound	RT	0.00	12	0	0.000	Lost Time: 0.100
	TH	1.00	47	1,600	0.053	
	LT	0.00	26	1,600	0.016 *	
Eastbound	RT	0.00	7	0	0.000	ICU: 0.430
	TH	2.00	430	3,200	0.137	
	LT	1.00	36	1,600	0.023 *	LOS: A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	35	0	0.000	N-S(1): 0.038
	TH	1.00	12	1,600	0.043 *	N-S(2): 0.049 *
	LT	0.00	22	1,600	0.014	E-W(1): 0.198 *
Westbound	RT	0.00	10	0	0.000	E-W(2): 0.176
	TH	2.00	492	3,200	0.157	
	LT	1.00	12	1,600	0.008 *	V/C: 0.247
Northbound	RT	0.00	21	0	0.000	Lost Time: 0.100
	TH	1.00	8	1,600	0.024	
	LT	0.00	9	1,600	0.006 *	
Eastbound	RT	0.00	11	0	0.000	ICU: 0.347
	TH	2.00	596	3,200	0.190 *	
	LT	1.00	30	1,600	0.019	LOS: A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **103RD AVENUE**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	79	0	0.000	N-S(1):	0.199
	TH	2.00	433	3,200	0.160 *	N-S(2):	0.215 *
	LT	1.00	54	1,600	0.034	E-W(1):	0.188
Westbound	RT	1.00	92	1,600	0.024	E-W(2):	0.257 *
	TH	1.00	311	1,600	0.194 *		
	LT	1.00	114	1,600	0.071	V/C:	0.472
Northbound	RT	0.00	115	0	0.000	Lost Time:	0.100
	TH	2.00	413	3,200	0.165	ATSAC/ATCS:	-0.100
	LT	1.00	88	1,600	0.055 *		
Eastbound	RT	0.00	109	0	0.000	ICU:	0.472
	TH	2.00	266	3,200	0.117		
	LT	1.00	101	1,600	0.063 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	79	0	0.000	N-S(1):	0.235 *
	TH	2.00	408	3,200	0.152	N-S(2):	0.233
	LT	1.00	88	1,600	0.055 *	E-W(1):	0.218
Westbound	RT	1.00	90	1,600	0.001	E-W(2):	0.312 *
	TH	1.00	418	1,600	0.261 *		
	LT	1.00	112	1,600	0.070	V/C:	0.547
Northbound	RT	0.00	117	0	0.000	Lost Time:	0.100
	TH	2.00	458	3,200	0.180 *	ATSAC/ATCS:	-0.100
	LT	1.00	130	1,600	0.081		
Eastbound	RT	0.00	93	0	0.000	ICU:	0.547
	TH	2.00	379	3,200	0.148		
	LT	1.00	82	1,600	0.051 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	123	0	0.000	N-S(1):	0.315
	TH	1.00	307	1,600	0.269 *	N-S(2):	0.347 *
	LT	1.00	155	1,600	0.097	E-W(1):	0.270
Westbound	RT	0.00	180	0	0.000	E-W(2):	0.488 *
	TH	2.00	1,164	3,200	0.420 *		
	LT	1.00	150	1,600	0.094	V/C:	0.835
Northbound	RT	1.00	162	1,600	0.008	Lost Time:	0.100
	TH	1.00	348	1,600	0.218	ATSAC/ATCS:	-0.100
	LT	1.00	125	1,600	0.078 *		
Eastbound	RT	0.00	149	0	0.000	ICU:	0.835
	TH	3.00	694	4,800	0.176		
	LT	1.00	108	1,600	0.068 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	153	0	0.000	N-S(1):	0.307
	TH	1.00	272	1,600	0.266 *	N-S(2):	0.329 *
	LT	1.00	200	1,600	0.125	E-W(1):	0.382 *
Westbound	RT	0.00	187	0	0.000	E-W(2):	0.353
	TH	2.00	719	3,200	0.283		
	LT	1.00	94	1,600	0.059 *	V/C:	0.711
Northbound	RT	1.00	118	1,600	0.015	Lost Time:	0.100
	TH	1.00	291	1,600	0.182	ATSAC/ATCS:	-0.100
	LT	1.00	101	1,600	0.063 *		
Eastbound	RT	0.00	100	0	0.000	ICU:	0.711
	TH	3.00	1,451	4,800	0.323 *		
	LT	1.00	112	1,600	0.070	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **118TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	10	0	0.000	N-S(1):	0.196 *
	TH	2.00	494	3,200	0.172	N-S(2):	0.179
	LT	0.00	47	1,600	0.029 *	E-W(1):	0.094
Westbound	RT	0.00	54	0	0.000	E-W(2):	0.101 *
	TH	1.00	15	1,600	0.084 *		
	LT	0.00	65	1,600	0.041	V/C:	0.297
Northbound	RT	0.00	85	0	0.000	Lost Time:	0.100
	TH	2.00	437	3,200	0.167 *		
	LT	0.00	11	1,600	0.007		
Eastbound	RT	0.00	40	0	0.000	ICU:	0.397
	TH	1.00	18	1,600	0.053		
	LT	0.00	27	1,600	0.017 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	6	0	0.000	N-S(1):	0.166 *
	TH	2.00	365	3,200	0.129	N-S(2):	0.133
	LT	0.00	42	1,600	0.026 *	E-W(1):	0.054
Westbound	RT	0.00	54	0	0.000	E-W(2):	0.082 *
	TH	1.00	24	1,600	0.077 *		
	LT	0.00	45	1,600	0.028	V/C:	0.248
Northbound	RT	0.00	47	0	0.000	Lost Time:	0.100
	TH	2.00	394	3,200	0.140 *		
	LT	0.00	7	1,600	0.004		
Eastbound	RT	0.00	11	0	0.000	ICU:	0.348
	TH	1.00	23	1,600	0.026		
	LT	0.00	8	1,600	0.005 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	143	0	0.000	N-S(1):	0.190
	TH	2.00	298	3,200	0.138 *	N-S(2):	0.209 *
	LT	1.00	116	1,600	0.073	E-W(1):	0.185
Westbound	RT	0.00	154	0	0.000	E-W(2):	0.280 *
	TH	2.00	402	3,200	0.174 *		
	LT	1.00	60	1,600	0.038	V/C:	0.489
Northbound	RT	0.00	52	0	0.000	Lost Time:	0.100
	TH	2.00	323	3,200	0.117		
	LT	1.00	114	1,600	0.071 *		
Eastbound	RT	0.00	93	0	0.000	ICU:	0.589
	TH	2.00	377	3,200	0.147		
	LT	1.00	170	1,600	0.106 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	81	0	0.000	N-S(1):	0.160
	TH	2.00	294	3,200	0.117 *	N-S(2):	0.178 *
	LT	1.00	100	1,600	0.063	E-W(1):	0.208
Westbound	RT	0.00	81	0	0.000	E-W(2):	0.224 *
	TH	2.00	397	3,200	0.149 *		
	LT	1.00	39	1,600	0.024	V/C:	0.402
Northbound	RT	0.00	45	0	0.000	Lost Time:	0.100
	TH	2.00	266	3,200	0.097		
	LT	1.00	97	1,600	0.061 *		
Eastbound	RT	0.00	131	0	0.000	ICU:	0.502
	TH	2.00	457	3,200	0.184		
	LT	1.00	120	1,600	0.075 *	LOS:	A

* = Critical Movement

Project:	**MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**
North/South Street:	**COMPTON AVENUE**
East/West Street:	**124TH STREET**
Scenario:	**EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	12	0	0.000	N-S(1):	0.137
	TH	2.00	399	3,200	0.141 *	N-S(2):	0.142 *
	LT	0.00	39	1,600	0.024	E-W(1):	0.037
Westbound	RT	0.00	53	0	0.000	E-W(2):	0.080 *
	TH	1.00	28	1,600	0.074 *		
	LT	0.00	37	1,600	0.023	V/C:	0.222
Northbound	RT	0.00	17	0	0.000	Lost Time:	0.100
	TH	2.00	344	3,200	0.113		
	LT	0.00	2	1,600	0.001 *		
Eastbound	RT	0.00	2	0	0.000	ICU:	0.322
	TH	1.00	11	1,600	0.014		
	LT	0.00	10	1,600	0.006 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	10	0	0.000	N-S(1):	0.129 *
	TH	2.00	338	3,200	0.122	N-S(2):	0.123
	LT	0.00	41	1,600	0.026 *	E-W(1):	0.022
Westbound	RT	0.00	32	0	0.000	E-W(2):	0.039 *
	TH	1.00	10	1,600	0.037 *		
	LT	0.00	17	1,600	0.011	V/C:	0.168
Northbound	RT	0.00	16	0	0.000	Lost Time:	0.100
	TH	2.00	313	3,200	0.103 *		
	LT	0.00	1	1,600	0.001		
Eastbound	RT	0.00	5	0	0.000	ICU:	0.268
	TH	1.00	9	1,600	0.011		
	LT	0.00	3	1,600	0.002 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	233	1,600	0.146 *	N-S(1):	0.096
	TH	2.00	62	1,600	0.039	N-S(2):	0.229 *
	LT	1.00	112	1,600	0.070	E-W(1):	0.229
Westbound	RT	0.00	87	0	0.000	E-W(2):	0.433 *
	TH	2.00	952	3,200	0.325 *		
	LT	1.00	7	1,600	0.004	V/C:	0.662
Northbound	RT	0.00	15	0	0.000	Lost Time:	0.100
	TH	2.00	67	3,200	0.026		
	LT	1.00	133	1,600	0.083 *		
Eastbound	RT	0.00	68	0	0.000	ICU:	0.762
	TH	2.00	651	3,200	0.225		
	LT	1.00	172	1,600	0.108 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	114	1,600	0.071 *	N-S(1):	0.094
	TH	2.00	61	1,600	0.038	N-S(2):	0.115 *
	LT	1.00	120	1,600	0.075	E-W(1):	0.368 *
Westbound	RT	0.00	81	0	0.000	E-W(2):	0.283
	TH	2.00	447	3,200	0.165		
	LT	1.00	12	1,600	0.008 *	V/C:	0.483
Northbound	RT	0.00	19	0	0.000	Lost Time:	0.100
	TH	2.00	41	3,200	0.019		
	LT	1.00	71	1,600	0.044 *		
Eastbound	RT	0.00	119	0	0.000	ICU:	0.583
	TH	2.00	1,032	3,200	0.360 *		
	LT	1.00	189	1,600	0.118	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **103RD STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	57	0	0.000	N-S(1):	0.219
	TH	2.00	387	3,200	0.139 *	N-S(2):	0.244 *
	LT	1.00	85	1,600	0.053	E-W(1):	0.242
Westbound	RT	0.00	76	0	0.000	E-W(2):	0.297 *
	TH	1.00	334	1,600	0.256 *		
	LT	1.00	100	1,600	0.063	V/C:	0.541
Northbound	RT	0.00	97	0	0.000	Lost Time:	0.100
	TH	2.00	435	3,200	0.166		
	LT	1.00	168	1,600	0.105 *		
Eastbound	RT	1.00	98	1,600	0.000	ICU:	0.641
	TH	1.00	286	1,600	0.179		
	LT	1.00	66	1,600	0.041 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	46	0	0.000	N-S(1):	0.209 *
	TH	2.00	327	3,200	0.117	N-S(2):	0.202
	LT	1.00	90	1,600	0.056 *	E-W(1):	0.219 *
Westbound	RT	0.00	48	0	0.000	E-W(2):	0.207
	TH	1.00	251	1,600	0.187		
	LT	1.00	76	1,600	0.048 *	V/C:	0.428
Northbound	RT	0.00	102	0	0.000	Lost Time:	0.100
	TH	2.00	389	3,200	0.153 *		
	LT	1.00	136	1,600	0.085		
Eastbound	RT	1.00	144	1,600	0.005	ICU:	0.528
	TH	1.00	273	1,600	0.171 *		
	LT	1.00	32	1,600	0.020	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **SANTA ANA BOULEVARD(N)**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	5	0	0.000	N-S(1):	0.355
	TH	1.00	560	1,600	0.353 *	N-S(2):	0.359 *
	LT	1.00	18	1,600	0.011	E-W(1):	0.080
Westbound	RT	0.00	97	0	0.000	E-W(2):	0.142 *
	TH	1.00	30	1,600	0.138 *		
	LT	0.00	94	1,600	0.059	V/C:	0.501
Northbound	RT	0.00	29	0	0.000	Lost Time:	0.100
	TH	1.00	521	1,600	0.344		
	LT	1.00	10	1,600	0.006 *		
Eastbound	RT	0.00	12	0	0.000	ICU:	0.601
	TH	1.00	15	1,600	0.021		
	LT	0.00	7	1,600	0.004 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.437 *
	TH	1.00	496	1,600	0.312	N-S(2):	0.321
	LT	1.00	33	1,600	0.021 *	E-W(1):	0.058
Westbound	RT	0.00	78	0	0.000	E-W(2):	0.094 *
	TH	1.00	21	1,600	0.093 *		
	LT	0.00	49	1,600	0.031	V/C:	0.531
Northbound	RT	0.00	51	0	0.000	Lost Time:	0.100
	TH	1.00	614	1,600	0.416 *		
	LT	1.00	14	1,600	0.009		
Eastbound	RT	0.00	16	0	0.000	ICU:	0.631
	TH	1.00	26	1,600	0.027		
	LT	0.00	1	1,600	0.001 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **SANTA ANA BOULEVARD(S)**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	56	0	0.000	N-S(1): 0.358
	TH	1.00	583	1,600	0.399 *	N-S(2): 0.416 *
	LT	1.00	28	1,600	0.018	E-W(1): 0.124 *
Westbound	RT	0.00	10	0	0.000	E-W(2): 0.105
	TH	1.00	71	1,600	0.086	
	LT	0.00	57	1,600	0.036 *	V/C: 0.540
Northbound	RT	0.00	26	0	0.000	Lost Time: 0.100
	TH	1.00	518	1,600	0.340	
	LT	1.00	27	1,600	0.017 *	
Eastbound	RT	0.00	22	0	0.000	ICU: 0.640
	TH	1.00	88	1,600	0.088 *	
	LT	0.00	31	1,600	0.019	LOS: B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	24	0	0.000	N-S(1): 0.443 *
	TH	1.00	499	1,600	0.327	N-S(2): 0.345
	LT	1.00	40	1,600	0.025 *	E-W(1): 0.130 *
Westbound	RT	0.00	11	0	0.000	E-W(2): 0.094
	TH	1.00	44	1,600	0.073	
	LT	0.00	62	1,600	0.039 *	V/C: 0.573
Northbound	RT	0.00	34	0	0.000	Lost Time: 0.100
	TH	1.00	634	1,600	0.418 *	
	LT	1.00	28	1,600	0.018	
Eastbound	RT	0.00	29	0	0.000	ICU: 0.673
	TH	1.00	84	1,600	0.091 *	
	LT	0.00	33	1,600	0.021	LOS: B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: IMPERIAL HIGHWAY-WILLOWBROOK AVE

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	125	0	0.000	N-S(1):	0.166
	TH	2.00	879	3,200	0.314 *	N-S(2):	0.404 *
	LT	1.00	24	1,600	0.015	E-W(1):	0.053
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.071 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.475
Northbound	RT	0.00	55	0	0.000	Lost Time:	0.100
	TH	2.00	427	3,200	0.151	ATSAC/ATCS:	-0.100
	LT	1.00	144	1,600	0.090 *		
Eastbound	RT	1.00	228	1,600	0.053	ICU:	0.475
	TH	1.00	23	1,600	0.014		
	LT	1.00	113	1,600	0.071 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	113	0	0.000	N-S(1):	0.199
	TH	2.00	809	3,200	0.288 *	N-S(2):	0.401 *
	LT	1.00	32	1,600	0.020	E-W(1):	0.066
Westbound	RT	0.00	2	0	0.000	E-W(2):	0.088 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.489
Northbound	RT	0.00	41	0	0.000	Lost Time:	0.100
	TH	2.00	531	3,200	0.179	ATSAC/ATCS:	-0.100
	LT	1.00	181	1,600	0.113 *		
Eastbound	RT	1.00	287	1,600	0.066	ICU:	0.489
	TH	1.00	24	1,600	0.015		
	LT	1.00	141	1,600	0.088 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **I-105 EASTBOUND ON/OFF RAMPS**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	456	3,200	0.018	N-S(1):	0.172
	TH	2.00	668	3,200	0.209 *	N-S(2):	0.430 *
	LT	0.00	0	0	0.000	E-W(1):	0.189
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.250 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.680
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	827	4,800	0.172		
	LT	1.00	354	1,600	0.221 *		
Eastbound	RT	1.00	657	1,600	0.189	ICU:	0.780
	TH	0.00	0	0	0.000		
	LT	1.00	400	1,600	0.250 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	361	3,200	0.005	N-S(1):	0.235
	TH	2.00	753	3,200	0.235 *	N-S(2):	0.483 *
	LT	0.00	0	0	0.000	E-W(1):	0.000
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.215 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.698
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,128	4,800	0.235		
	LT	1.00	397	1,600	0.248 *		
Eastbound	RT	1.00	293	1,600	0.000	ICU:	0.798
	TH	0.00	0	0	0.000		
	LT	1.00	344	1,600	0.215 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **118TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	120	0	0.000	N-S(1):	0.256
	TH	2.00	1,114	3,200	0.386 *	N-S(2):	0.462 *
	LT	2.00	101	2,880	0.035	E-W(1):	0.182 *
Westbound	RT	0.00	69	0	0.000	E-W(2):	0.142
	TH	1.00	28	1,600	0.081		
	LT	0.00	33	1,600	0.021 *	V/C:	0.644
Northbound	RT	0.00	46	0	0.000	Lost Time:	0.100
	TH	3.00	1,013	4,800	0.221		
	LT	1.00	121	1,600	0.076 *		
Eastbound	RT	0.00	126	0	0.000	ICU:	0.744
	TH	1.00	34	1,600	0.161 *		
	LT	0.00	98	1,600	0.061	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	57	0	0.000	N-S(1):	0.334 *
	TH	2.00	794	3,200	0.266	N-S(2):	0.301
	LT	2.00	182	2,880	0.063 *	E-W(1):	0.240
Westbound	RT	0.00	193	0	0.000	E-W(2):	0.302 *
	TH	1.00	58	1,600	0.208 *		
	LT	0.00	81	1,600	0.051	V/C:	0.636
Northbound	RT	0.00	120	0	0.000	Lost Time:	0.100
	TH	3.00	1,180	4,800	0.271 *		
	LT	1.00	56	1,600	0.035		
Eastbound	RT	0.00	78	0	0.000	ICU:	0.736
	TH	1.00	74	1,600	0.189		
	LT	0.00	151	1,600	0.094 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 120TH ST-119TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	333	0	0.000	N-S(1):	0.374
	TH	2.00	788	3,200	0.350 *	N-S(2):	0.438 *
	LT	1.00	148	1,600	0.093	E-W(1):	0.131
Westbound	RT	0.00	190	0	0.000	E-W(2):	0.219 *
	TH	2.00	240	3,200	0.134 *		
	LT	1.00	77	1,600	0.048	V/C:	0.657
Northbound	RT	0.00	42	0	0.000	Lost Time:	0.100
	TH	2.00	857	3,200	0.281		
	LT	1.00	141	1,600	0.088 *		
Eastbound	RT	1.00	86	1,600	0.000	ICU:	0.757
	TH	1.00	132	1,600	0.083		
	LT	1.00	136	1,600	0.085 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	111	0	0.000	N-S(1):	0.389 *
	TH	2.00	724	3,200	0.261	N-S(2):	0.325
	LT	1.00	103	1,600	0.064 *	E-W(1):	0.246
Westbound	RT	0.00	164	0	0.000	E-W(2):	0.269 *
	TH	2.00	176	3,200	0.106 *		
	LT	1.00	114	1,600	0.071	V/C:	0.658
Northbound	RT	0.00	119	0	0.000	Lost Time:	0.100
	TH	2.00	922	3,200	0.325 *		
	LT	1.00	102	1,600	0.064		
Eastbound	RT	1.00	170	1,600	0.043	ICU:	0.758
	TH	1.00	280	1,600	0.175		
	LT	1.00	260	1,600	0.163 *	LOS:	C

* = Critical Movement

Project:	**MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**
North/South Street:	**WILMINGTON AVENUE**
East/West Street:	**MLK HOSPITAL DWY-120TH STREET**
Scenario:	**EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C		ICU ANALYSIS	
Southbound	RT	0.00	115	0	0.000		N-S(1):	0.290
	TH	2.00	836	3,200	0.297	*	N-S(2):	0.325 *
	LT	1.00	34	1,600	0.021		E-W(1):	0.069
Westbound	RT	0.00	43	0	0.000		E-W(2):	0.094 *
	TH	1.00	8	1,600	0.038	*		
	LT	0.00	10	1,600	0.006		V/C:	0.419
Northbound	RT	0.00	8	0	0.000		Lost Time:	0.100
	TH	2.00	853	3,200	0.269			
	LT	1.00	44	1,600	0.028	*		
Eastbound	RT	1.00	56	1,600	0.008		ICU:	0.519
	TH	1.00	12	1,600	0.063			
	LT	0.00	89	1,600	0.056	*	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C		ICU ANALYSIS	
Southbound	RT	0.00	72	0	0.000		N-S(1):	0.347 *
	TH	2.00	902	3,200	0.304		N-S(2):	0.344
	LT	1.00	30	1,600	0.019	*	E-W(1):	0.060
Westbound	RT	0.00	28	0	0.000		E-W(2):	0.079 *
	TH	1.00	12	1,600	0.030	*		
	LT	0.00	8	1,600	0.005		V/C:	0.426
Northbound	RT	0.00	22	0	0.000		Lost Time:	0.100
	TH	2.00	1,026	3,200	0.328	*		
	LT	1.00	64	1,600	0.040			
Eastbound	RT	1.00	45	1,600	0.000		ICU:	0.526
	TH	1.00	10	1,600	0.055			
	LT	0.00	78	1,600	0.049	*	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **124TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.332 *
	TH	2.00	769	3,200	0.246	N-S(2):	0.260
	LT	1.00	76	1,600	0.048 *	E-W(1):	0.084
Westbound	RT	0.00	68	0	0.000	E-W(2):	0.130 *
	TH	1.00	71	1,600	0.122 *		
	LT	0.00	56	1,600	0.035	V/C:	0.462
Northbound	RT	0.00	37	0	0.000	Lost Time:	0.100
	TH	2.00	871	3,200	0.284 *		
	LT	1.00	22	1,600	0.014		
Eastbound	RT	0.00	27	0	0.000	ICU:	0.562
	TH	1.00	38	1,600	0.049		
	LT	0.00	13	1,600	0.008 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.334 *
	TH	2.00	745	3,200	0.239	N-S(2):	0.255
	LT	1.00	78	1,600	0.049 *	E-W(1):	0.063
Westbound	RT	0.00	62	0	0.000	E-W(2):	0.081 *
	TH	1.00	24	1,600	0.072 *		
	LT	0.00	29	1,600	0.018	V/C:	0.415
Northbound	RT	0.00	35	0	0.000	Lost Time:	0.100
	TH	2.00	878	3,200	0.285 *		
	LT	1.00	26	1,600	0.016		
Eastbound	RT	0.00	24	0	0.000	ICU:	0.515
	TH	1.00	34	1,600	0.045		
	LT	0.00	14	1,600	0.009 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	106	0	0.000	N-S(1):	0.348
	TH	2.00	616	3,200	0.226 *	N-S(2):	0.382 *
	LT	1.00	158	1,600	0.099	E-W(1):	0.251
Westbound	RT	0.00	124	0	0.000	E-W(2):	0.317 *
	TH	2.00	592	3,200	0.224 *		
	LT	1.00	66	1,600	0.041	V/C:	0.699
Northbound	RT	0.00	70	0	0.000	Lost Time:	0.100
	TH	2.00	726	3,200	0.249		
	LT	1.00	249	1,600	0.156 *		
Eastbound	RT	0.00	272	0	0.000	ICU:	0.799
	TH	2.00	400	3,200	0.210		
	LT	1.00	149	1,600	0.093 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	92	0	0.000	N-S(1):	0.364 *
	TH	2.00	622	3,200	0.223	N-S(2):	0.327
	LT	1.00	169	1,600	0.106 *	E-W(1):	0.398 *
Westbound	RT	0.00	107	0	0.000	E-W(2):	0.251
	TH	2.00	367	3,200	0.148		
	LT	1.00	100	1,600	0.063 *	V/C:	0.762
Northbound	RT	0.00	85	0	0.000	Lost Time:	0.100
	TH	2.00	740	3,200	0.258 *		
	LT	1.00	167	1,600	0.104		
Eastbound	RT	0.00	268	0	0.000	ICU:	0.862
	TH	2.00	804	3,200	0.335 *		
	LT	1.00	165	1,600	0.103	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	135	0	0.000	N-S(1):	0.355
	TH	2.00	735	3,200	0.272 *	N-S(2):	0.361 *
	LT	1.00	165	1,600	0.103	E-W(1):	0.237
Westbound	RT	0.00	151	0	0.000	E-W(2):	0.383 *
	TH	2.00	841	3,200	0.310 *		
	LT	1.00	128	1,600	0.080	V/C:	0.744
Northbound	RT	0.00	134	0	0.000	Lost Time:	0.100
	TH	2.00	673	3,200	0.252		
	LT	1.00	143	1,600	0.089 *		
Eastbound	RT	1.00	131	1,600	0.000	ICU:	0.844
	TH	2.00	503	3,200	0.157		
	LT	1.00	116	1,600	0.073 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	142	0	0.000	N-S(1):	0.368 *
	TH	2.00	626	3,200	0.240	N-S(2):	0.340
	LT	1.00	161	1,600	0.101 *	E-W(1):	0.405 *
Westbound	RT	0.00	163	0	0.000	E-W(2):	0.341
	TH	2.00	605	3,200	0.240		
	LT	1.00	143	1,600	0.089 *	V/C:	0.773
Northbound	RT	0.00	165	0	0.000	Lost Time:	0.100
	TH	2.00	689	3,200	0.267 *		
	LT	1.00	160	1,600	0.100		
Eastbound	RT	1.00	173	1,600	0.008	ICU:	0.873
	TH	2.00	1,012	3,200	0.316 *		
	LT	1.00	162	1,600	0.101	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **COMPTON BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	123	0	0.000	N-S(1):	0.273
	TH	2.00	578	3,200	0.219 *	N-S(2):	0.275 *
	LT	1.00	175	1,600	0.109	E-W(1):	0.295 *
Westbound	RT	1.00	154	1,600	0.000	E-W(2):	0.203
	TH	2.00	460	3,200	0.144		
	LT	1.00	159	1,600	0.099 *	V/C:	0.570
Northbound	RT	1.00	150	1,600	0.000	Lost Time:	0.100
	TH	2.00	524	3,200	0.164		
	LT	1.00	89	1,600	0.056 *		
Eastbound	RT	0.00	85	0	0.000	ICU:	0.670
	TH	2.00	542	3,200	0.196 *		
	LT	1.00	95	1,600	0.059	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	103	0	0.000	N-S(1):	0.309 *
	TH	2.00	545	3,200	0.203	N-S(2):	0.283
	LT	1.00	148	1,600	0.093 *	E-W(1):	0.312 *
Westbound	RT	1.00	196	1,600	0.030	E-W(2):	0.236
	TH	2.00	522	3,200	0.163		
	LT	1.00	157	1,600	0.098 *	V/C:	0.621
Northbound	RT	1.00	146	1,600	0.000	Lost Time:	0.100
	TH	2.00	690	3,200	0.216 *		
	LT	1.00	128	1,600	0.080		
Eastbound	RT	0.00	104	0	0.000	ICU:	0.721
	TH	2.00	582	3,200	0.214 *		
	LT	1.00	117	1,600	0.073	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **ALONDRA BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	68	0	0.000	N-S(1):	0.258
	TH	2.00	758	3,200	0.258 *	N-S(2):	0.297 *
	LT	1.00	92	1,600	0.058	E-W(1):	0.216
Westbound	RT	0.00	79	0	0.000	E-W(2):	0.219 *
	TH	2.00	464	3,200	0.170 *		
	LT	1.00	105	1,600	0.066	V/C:	0.516
Northbound	RT	0.00	55	0	0.000	Lost Time:	0.100
	TH	2.00	585	3,200	0.200		
	LT	1.00	62	1,600	0.039 *		
Eastbound	RT	0.00	53	0	0.000	ICU:	0.616
	TH	2.00	427	3,200	0.150		
	LT	1.00	79	1,600	0.049 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	93	0	0.000	N-S(1):	0.319 *
	TH	2.00	549	3,200	0.201	N-S(2):	0.250
	LT	1.00	101	1,600	0.063 *	E-W(1):	0.279 *
Westbound	RT	0.00	107	0	0.000	E-W(2):	0.251
	TH	2.00	404	3,200	0.160		
	LT	1.00	95	1,600	0.059 *	V/C:	0.598
Northbound	RT	0.00	93	0	0.000	Lost Time:	0.100
	TH	2.00	725	3,200	0.256 *		
	LT	1.00	79	1,600	0.049		
Eastbound	RT	0.00	100	0	0.000	ICU:	0.698
	TH	2.00	603	3,200	0.220 *		
	LT	1.00	145	1,600	0.091	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **GREEN LEAF BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	27	0	0.000	N-S(1):	0.235
	TH	2.00	872	3,200	0.281 *	N-S(2):	0.305 *
	LT	1.00	101	1,600	0.063	E-W(1):	0.279 *
Westbound	RT	0.00	60	0	0.000	E-W(2):	0.247
	TH	1.00	288	1,600	0.218		
	LT	1.00	193	1,600	0.121 *	V/C:	0.584
Northbound	RT	1.00	121	1,600	0.000	Lost Time:	0.100
	TH	2.00	549	3,200	0.172		
	LT	1.00	38	1,600	0.024 *		
Eastbound	RT	0.00	65	0	0.000	ICU:	0.684
	TH	1.00	187	1,600	0.158 *		
	LT	1.00	47	1,600	0.029	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	16	0	0.000	N-S(1):	0.344 *
	TH	2.00	644	3,200	0.206	N-S(2):	0.249
	LT	1.00	186	1,600	0.116 *	E-W(1):	0.290 *
Westbound	RT	0.00	152	0	0.000	E-W(2):	0.246
	TH	1.00	204	1,600	0.223		
	LT	1.00	109	1,600	0.068 *	V/C:	0.634
Northbound	RT	1.00	230	1,600	0.076	Lost Time:	0.100
	TH	2.00	728	3,200	0.228 *		
	LT	1.00	68	1,600	0.043		
Eastbound	RT	0.00	19	0	0.000	ICU:	0.734
	TH	1.00	336	1,600	0.222 *		
	LT	1.00	36	1,600	0.023	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON BOULEVARD**
East/West Street: **ARTESIA BOULEVARD(NORTH)**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	271	0	0.000	N-S(1):	0.147
	TH	3.00	835	4,800	0.230 *	N-S(2):	0.387 *
	LT	0.00	0	0	0.000	E-W(1):	0.315 *
Westbound	RT	0.00	325	0	0.000	E-W(2):	0.283
	TH	1.47	343	2,359	0.283		
	LT	1.53	691	2,197	0.315 *	V/C:	0.702
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	470	3,200	0.147		
	LT	1.00	251	1,600	0.157 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.802
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	256	0	0.000	N-S(1):	0.225
	TH	3.00	573	4,800	0.173 *	N-S(2):	0.477 *
	LT	0.00	0	0	0.000	E-W(1):	0.214
Westbound	RT	0.00	356	1,600	0.223 *	E-W(2):	0.223 *
	TH	1.56	173	899	0.193		
	LT	1.44	443	2,071	0.214	V/C:	0.700
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	721	3,200	0.225		
	LT	1.00	486	1,600	0.304 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.800
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON BOULEVARD**
East/West Street: **ARTESIA BOULEVARD (SOUTH)**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.304
	TH	2.00	1,022	3,200	0.319 *	N-S(2):	0.319 *
	LT	2.00	500	2,880	0.174	E-W(1):	0.299 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.134
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.618
Northbound	RT	2.00	366	3,200	0.114	Lost Time:	0.100
	TH	2.00	417	3,200	0.130		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	0.00	479	1,600	0.299 *	ICU:	0.718
	TH	1.44	85	705	0.121		
	LT	1.56	301	2,246	0.134	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.400 *
	TH	2.00	670	3,200	0.209	N-S(2):	0.209
	LT	2.00	337	2,880	0.117 *	E-W(1):	0.253 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.185
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.653
Northbound	RT	2.00	770	3,200	0.241	Lost Time:	0.100
	TH	2.00	905	3,200	0.283 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	271	0	0.000	ICU:	0.753
	TH	2.00	538	3,200	0.253 *		
	LT	1.00	296	1,600	0.185	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: I-105 WESTBOUND ON/OFF RAMPS
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : Y
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: AM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	43	0	0.000	N-S(1):	0.291 *
	TH	1.00	68	1,600	0.077 *	N-S(2):	0.000
	LT	0.00	12	1,600	0.008	E-W(1):	0.468 *
Westbound	RT	0.00	25	0	0.000	E-W(2):	0.260
	TH	3.00	1,083	4,800	0.231		
	LT	2.00	889	2,880	0.309 *	V/C:	0.759
Northbound	RT	1.00	154	1,600	0.000	Lost Time:	0.100
	TH	0.01	3	16	0.192	ATSAC/ATCS:	-0.100
	LT	1.99	613	2,866	0.214 *		
Eastbound	RT	1.85	471	2,955	0.055	ICU:	0.759
	TH	3.15	804	5,045	0.159 *		
	LT	1.00	46	1,600	0.029	LOS:	C

Peak Period: PM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	27	0	0.000	N-S(1):	0.272 *
	TH	1.00	28	1,600	0.045 *	N-S(2):	0.000
	LT	0.00	17	1,600	0.011	E-W(1):	0.462 *
Westbound	RT	0.00	13	0	0.000	E-W(2):	0.187
	TH	3.00	800	4,800	0.169		
	LT	2.00	587	2,880	0.204 *	V/C:	0.734
Northbound	RT	1.00	234	1,600	0.000	Lost Time:	0.100
	TH	0.06	19	93	0.205	ATSAC/ATCS:	-0.100
	LT	1.94	636	2,796	0.227 *		
Eastbound	RT	1.00	303	1,600	0.000	ICU:	0.734
	TH	4.00	1,651	6,400	0.258 *		
	LT	1.00	28	1,600	0.018	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MONA BOULEVARD**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	111	0	0.000	N-S(1):	0.150
	TH	1.00	94	1,600	0.144 *	N-S(2):	0.243 *
	LT	0.00	26	1,600	0.016	E-W(1):	0.334
Westbound	RT	0.00	30	0	0.000	E-W(2):	0.407 *
	TH	3.00	1,729	4,800	0.366 *		
	LT	1.00	190	1,600	0.119	V/C:	0.650
Northbound	RT	1.00	145	1,600	0.000	Lost Time:	0.100
	TH	1.00	56	1,600	0.134	ATSAC/ATCS:	-0.100
	LT	0.00	159	1,600	0.099 *		
Eastbound	RT	0.00	148	0	0.000	ICU:	0.650
	TH	3.00	884	4,800	0.215		
	LT	1.00	66	1,600	0.041 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	92	0	0.000	N-S(1):	0.155
	TH	1.00	57	1,600	0.113 *	N-S(2):	0.211 *
	LT	0.00	31	1,600	0.019	E-W(1):	0.499 *
Westbound	RT	0.00	33	0	0.000	E-W(2):	0.317
	TH	3.00	1,090	4,800	0.234		
	LT	1.00	153	1,600	0.096 *	V/C:	0.710
Northbound	RT	1.00	215	1,600	0.039	Lost Time:	0.100
	TH	1.00	62	1,600	0.136	ATSAC/ATCS:	-0.100
	LT	0.00	156	1,600	0.098 *		
Eastbound	RT	0.00	264	0	0.000	ICU:	0.710
	TH	3.00	1,671	4,800	0.403 *		
	LT	1.00	132	1,600	0.083	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MONA BOULEVARD**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	84	1,600	0.022	N-S(1):	0.217 *
	TH	1.00	135	1,600	0.132	N-S(2):	0.163
	LT	0.00	76	1,600	0.048 *	E-W(1):	0.185
Westbound	RT	0.00	39	0	0.000	E-W(2):	0.244 *
	TH	2.00	641	3,200	0.213 *		
	LT	1.00	29	1,600	0.018	V/C:	0.461
Northbound	RT	0.00	78	0	0.000	Lost Time:	0.100
	TH	1.00	143	1,600	0.169 *		
	LT	0.00	49	1,600	0.031		
Eastbound	RT	0.00	41	0	0.000	ICU:	0.561
	TH	2.00	492	3,200	0.167		
	LT	1.00	49	1,600	0.031 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	76	1,600	0.001	N-S(1):	0.164 *
	TH	1.00	130	1,600	0.124	N-S(2):	0.143
	LT	0.00	68	1,600	0.043 *	E-W(1):	0.319 *
Westbound	RT	0.00	52	0	0.000	E-W(2):	0.199
	TH	2.00	437	3,200	0.153		
	LT	1.00	39	1,600	0.024 *	V/C:	0.483
Northbound	RT	0.00	58	0	0.000	Lost Time:	0.100
	TH	1.00	104	1,600	0.121 *		
	LT	0.00	31	1,600	0.019		
Eastbound	RT	0.00	83	0	0.000	ICU:	0.583
	TH	2.00	861	3,200	0.295 *		
	LT	1.00	74	1,600	0.046	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **S ALAMEDA STREET**
East/West Street: **103RD STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	242	0	0.000	N-S(1):	0.362
	TH	2.00	1,066	3,200	0.409 *	N-S(2):	0.461 *
	LT	0.00	0	0	0.000	E-W(1):	0.234 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.173
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.695
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,157	3,200	0.362		
	LT	1.00	83	1,600	0.052 *		
Eastbound	RT	0.00	97	0	0.000	ICU:	0.795
	TH	1.00	0	1,600	0.234 *		
	LT	0.00	277	1,600	0.173	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	267	0	0.000	N-S(1):	0.373
	TH	2.00	1,191	3,200	0.456 *	N-S(2):	0.526 *
	LT	0.00	0	0	0.000	E-W(1):	0.239 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.171
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.765
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,194	3,200	0.373		
	LT	1.00	112	1,600	0.070 *		
Eastbound	RT	0.00	108	0	0.000	ICU:	0.865
	TH	1.00	0	1,600	0.239 *		
	LT	0.00	274	1,600	0.171	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	572	1,600	0.231 *	N-S(1):	0.289
	TH	2.00	623	3,200	0.195	N-S(2):	0.296 *
	LT	1.00	92	1,600	0.058	E-W(1):	0.197
Westbound	RT	1.00	58	1,600	0.036	E-W(2):	0.369 *
	TH	3.00	1,094	4,800	0.228 *		
	LT	1.00	125	1,600	0.078	V/C:	0.665
Northbound	RT	0.00	82	0	0.000	Lost Time:	0.100
	TH	2.00	658	3,200	0.231		
	LT	2.00	187	2,880	0.065 *		
Eastbound	RT	0.00	145	0	0.000	ICU:	0.765
	TH	3.00	426	4,800	0.119		
	LT	2.00	406	2,880	0.141 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	497	1,600	0.158	N-S(1):	0.388 *
	TH	2.00	743	3,200	0.232	N-S(2):	0.307
	LT	1.00	174	1,600	0.109 *	E-W(1):	0.370 *
Westbound	RT	1.00	49	1,600	0.031	E-W(2):	0.316
	TH	3.00	700	4,800	0.146		
	LT	1.00	105	1,600	0.066 *	V/C:	0.758
Northbound	RT	0.00	155	0	0.000	Lost Time:	0.100
	TH	2.00	739	3,200	0.279 *		
	LT	2.00	215	2,880	0.075		
Eastbound	RT	0.00	183	0	0.000	ICU:	0.858
	TH	3.00	1,274	4,800	0.304 *		
	LT	2.00	490	2,880	0.170	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SOUTH ALAMEDA STREET
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	112	0	0.000	N-S(1):	0.233
	TH	2.00	572	3,200	0.214 *	N-S(2):	0.310 *
	LT	1.00	58	1,600	0.036	E-W(1):	0.122
Westbound	RT	1.00	85	1,600	0.017	E-W(2):	0.252 *
	TH	1.00	282	1,600	0.176 *		
	LT	1.00	55	1,600	0.034	V/C:	0.562
Northbound	RT	0.00	47	0	0.000	Lost Time:	0.100
	TH	2.00	584	3,200	0.197		
	LT	1.00	153	1,600	0.096 *		
Eastbound	RT	1.00	113	1,600	0.000	ICU:	0.662
	TH	2.00	283	3,200	0.088		
	LT	1.00	122	1,600	0.076 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	131	0	0.000	N-S(1):	0.306
	TH	2.00	766	3,200	0.280 *	N-S(2):	0.380 *
	LT	1.00	102	1,600	0.064	E-W(1):	0.218
Westbound	RT	1.00	77	1,600	0.000	E-W(2):	0.294 *
	TH	1.00	293	1,600	0.183 *		
	LT	1.00	43	1,600	0.027	V/C:	0.674
Northbound	RT	0.00	41	0	0.000	Lost Time:	0.100
	TH	2.00	732	3,200	0.242		
	LT	1.00	160	1,600	0.100 *		
Eastbound	RT	1.00	183	1,600	0.014	ICU:	0.774
	TH	2.00	612	3,200	0.191		
	LT	1.00	178	1,600	0.111 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **MARTIN LUTHER KING JR BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	17	0	0.000	N-S(1):	0.331
	TH	2.00	862	3,200	0.275 *	N-S(2):	0.423 *
	LT	1.00	145	1,600	0.091	E-W(1):	0.250
Westbound	RT	0.00	156	0	0.000	E-W(2):	0.291 *
	TH	2.00	707	3,200	0.270 *		
	LT	1.00	124	1,600	0.078	V/C:	0.714
Northbound	RT	1.00	66	1,600	0.000	Lost Time:	0.100
	TH	2.00	768	3,200	0.240		
	LT	1.00	236	1,600	0.148 *		
Eastbound	RT	0.00	118	0	0.000	ICU:	0.814
	TH	2.00	431	3,200	0.172		
	LT	1.00	34	1,600	0.021 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	39	0	0.000	N-S(1):	0.452 *
	TH	2.00	994	3,200	0.323	N-S(2):	0.428
	LT	1.00	189	1,600	0.118 *	E-W(1):	0.301 *
Westbound	RT	0.00	182	0	0.000	E-W(2):	0.207
	TH	2.00	398	3,200	0.181		
	LT	1.00	105	1,600	0.066 *	V/C:	0.753
Northbound	RT	1.00	147	1,600	0.026	Lost Time:	0.100
	TH	2.00	1,070	3,200	0.334 *		
	LT	1.00	168	1,600	0.105		
Eastbound	RT	0.00	183	0	0.000	ICU:	0.853
	TH	2.00	570	3,200	0.235 *		
	LT	1.00	41	1,600	0.026	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : N
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	48	0	0.000	N-S(1): 0.267
	TH	3.00	1,012	4,800	0.221 *	N-S(2): 0.369 *
	LT	1.00	98	1,600	0.061	E-W(1): 0.493 *
Westbound	RT	0.00	55	0	0.000	E-W(2): 0.366
	TH	2.00	1,025	3,200	0.338	
	LT	1.00	379	1,600	0.237 *	V/C: 0.862
Northbound	RT	1.00	422	1,600	0.027	Lost Time: 0.100
	TH	3.00	990	4,800	0.206	
	LT	1.00	237	1,600	0.148 *	
Eastbound	RT	0.00	202	0	0.000	ICU: 0.962
	TH	2.00	618	3,200	0.256 *	
	LT	1.00	45	1,600	0.028	LOS: E

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	84	0	0.000	N-S(1): 0.332
	TH	3.00	1,105	4,800	0.248 *	N-S(2): 0.375 *
	LT	1.00	119	1,600	0.074	E-W(1): 0.583 *
Westbound	RT	0.00	88	0	0.000	E-W(2): 0.362
	TH	2.00	794	3,200	0.276	
	LT	1.00	295	1,600	0.184 *	V/C: 0.958
Northbound	RT	1.00	428	1,600	0.083	Lost Time: 0.100
	TH	3.00	1,237	4,800	0.258	
	LT	1.00	203	1,600	0.127 *	
Eastbound	RT	0.00	266	0	0.000	ICU: 1.058
	TH	2.00	1,011	3,200	0.399 *	
	LT	1.00	137	1,600	0.086	LOS: F

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **I-105 WESTBOUND RAMPS**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	9	0	0.000	N-S(1):	0.255
	TH	3.00	1,260	4,800	0.264 *	N-S(2):	0.268 *
	LT	0.00	0	0	0.000	E-W(1):	0.125 *
Westbound	RT	1.97	675	3,144	0.215	E-W(2):	0.000
	TH	0.03	12	56	0.215		
	LT	1.00	200	1,600	0.125 *	V/C:	0.393
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,225	4,800	0.255		
	LT	1.00	7	1,600	0.004 *		
Eastbound	RT	1.00	5	1,600	0.000	ICU:	0.493
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	7	0	0.000	N-S(1):	0.241
	TH	3.00	1,382	4,800	0.289 *	N-S(2):	0.291 *
	LT	0.00	0	0	0.000	E-W(1):	0.294 *
Westbound	RT	1.98	995	3,165	0.314	E-W(2):	0.000
	TH	0.02	11	35	0.314		
	LT	1.00	461	1,600	0.288 *	V/C:	0.585
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,159	4,800	0.241		
	LT	1.00	3	1,600	0.002 *		
Eastbound	RT	1.00	12	1,600	0.006 *	ICU:	0.685
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **I-105 EASTBOUND RAMPS**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.352 *
	TH	2.00	515	3,200	0.161	N-S(2):	0.161
	LT	1.00	25	1,600	0.016 *	E-W(1):	0.238 *
Westbound	RT	1.00	7	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.590
Northbound	RT	0.00	537	1,600	0.336 *	Lost Time:	0.100
	TH	3.00	1,040	3,200	0.325		
	LT	0.00	0	0	0.000		
Eastbound	RT	1.00	380	1,600	0.238 *	ICU:	0.690
	TH	0.01	2	10	0.210		
	LT	1.99	671	2,871	0.234	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.322
	TH	2.00	1,075	3,200	0.336 *	N-S(2):	0.336 *
	LT	1.00	15	1,600	0.009	E-W(1):	0.174 *
Westbound	RT	1.00	9	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.510
Northbound	RT	0.00	473	0	0.000	Lost Time:	0.100
	TH	3.00	1,031	4,800	0.313		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	1.00	279	1,600	0.174 *	ICU:	0.610
	TH	0.03	7	46	0.151		
	LT	1.97	477	2,838	0.168	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SLATER AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	102	1,600	0.025 *	N-S(1):	0.018
	TH	0.00	0	0	0.000	N-S(2):	0.025 *
	LT	1.00	28	1,600	0.018	E-W(1):	0.274
Westbound	RT	0.00	15	0	0.000	E-W(2):	0.451 *
	TH	2.00	1,303	3,200	0.412 *		
	LT	0.00	0	0	0.000	V/C:	0.476
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.576
	TH	2.00	877	3,200	0.274		
	LT	1.00	62	1,600	0.039 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	52	1,600	0.003	N-S(1):	0.009 *
	TH	0.00	0	0	0.000	N-S(2):	0.003
	LT	1.00	15	1,600	0.009 *	E-W(1):	0.409 *
Westbound	RT	0.00	15	0	0.000	E-W(2):	0.223
	TH	2.00	606	3,200	0.194		
	LT	0.00	0	0	0.000 *	V/C:	0.418
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.518
	TH	2.00	1,309	3,200	0.409 *		
	LT	1.00	47	1,600	0.029	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: 108TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: AM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	47	0	0.000	N-S(1): 0.488 *
	TH	1.00	482	1,600	0.346	N-S(2): 0.373
	LT	0.00	24	1,600	0.015 *	E-W(1): 0.187
Westbound	RT	0.00	75	0	0.000	E-W(2): 0.211 *
	TH	1.00	87	1,600	0.169 *	
	LT	0.00	109	1,600	0.068	V/C: 0.699
Northbound	RT	0.00	70	0	0.000	Lost Time: 0.100
	TH	1.00	643	1,600	0.473 *	ATSAC/ATCS: -0.100
	LT	0.00	43	1,600	0.027	
Eastbound	RT	0.00	50	0	0.000	ICU: 0.699
	TH	1.00	74	1,600	0.119	
	LT	0.00	67	1,600	0.042 *	LOS: B

Peak Period: PM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	48	0	0.000	N-S(1): 0.419
	TH	1.00	576	1,600	0.415 *	N-S(2): 0.437 *
	LT	0.00	40	1,600	0.025	E-W(1): 0.155 *
Westbound	RT	0.00	27	0	0.000	E-W(2): 0.111
	TH	1.00	64	1,600	0.093	
	LT	0.00	57	1,600	0.036 *	V/C: 0.592
Northbound	RT	0.00	69	0	0.000	Lost Time: 0.100
	TH	1.00	526	1,600	0.394	ATSAC/ATCS: -0.100
	LT	0.00	35	1,600	0.022 *	
Eastbound	RT	0.00	60	0	0.000	ICU: 0.592
	TH	1.00	102	1,600	0.119 *	
	LT	0.00	28	1,600	0.018	LOS: A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **111TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	55	0	0.000	N-S(1):	0.435 *
	TH	1.00	522	1,600	0.412	N-S(2):	0.423
	LT	0.00	82	1,600	0.051 *	E-W(1):	0.113
Westbound	RT	0.00	83	0	0.000	E-W(2):	0.144 *
	TH	1.00	36	1,600	0.103 *		
	LT	0.00	46	1,600	0.029	V/C:	0.579
Northbound	RT	0.00	38	0	0.000	Lost Time:	0.100
	TH	1.00	559	1,600	0.384 *	ATSAC/ATCS:	-0.100
	LT	0.00	17	1,600	0.011		
Eastbound	RT	0.00	17	0	0.000	ICU:	0.579
	TH	1.00	53	1,600	0.084		
	LT	0.00	65	1,600	0.041 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	48	0	0.000	N-S(1):	0.391
	TH	1.00	614	1,600	0.448 *	N-S(2):	0.458 *
	LT	0.00	55	1,600	0.034	E-W(1):	0.051
Westbound	RT	0.00	67	0	0.000	E-W(2):	0.082 *
	TH	1.00	5	1,600	0.059 *		
	LT	0.00	23	1,600	0.014	V/C:	0.540
Northbound	RT	0.00	24	0	0.000	Lost Time:	0.100
	TH	1.00	531	1,600	0.357	ATSAC/ATCS:	-0.100
	LT	0.00	16	1,600	0.010 *		
Eastbound	RT	0.00	17	0	0.000	ICU:	0.540
	TH	1.00	6	1,600	0.037		
	LT	0.00	36	1,600	0.023 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **111TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT(2014) + RELATED PROJECTS + PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.436
	TH	1.00	695	1,600	0.474 *	N-S(2):	0.481 *
	LT	0.00	60	1,600	0.038	E-W(1):	0.077
Westbound	RT	0.00	57	0	0.000	E-W(2):	0.101 *
	TH	1.00	28	1,600	0.101 *		
	LT	0.00	76	1,600	0.048	V/C:	0.582
Northbound	RT	0.00	78	0	0.000	Lost Time:	0.100
	TH	1.00	548	1,600	0.398		
	LT	0.00	11	1,600	0.007 *		
Eastbound	RT	0.00	12	0	0.000	ICU:	0.682
	TH	1.00	35	1,600	0.029		
	LT	0.00	0	0	0.000 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.505 *
	TH	1.00	561	1,600	0.367	N-S(2):	0.376
	LT	0.00	23	1,600	0.014 *	E-W(1):	0.039
Westbound	RT	0.00	43	0	0.000	E-W(2):	0.059 *
	TH	1.00	16	1,600	0.057 *		
	LT	0.00	32	1,600	0.020	V/C:	0.564
Northbound	RT	0.00	50	0	0.000	Lost Time:	0.100
	TH	1.00	721	1,600	0.491 *		
	LT	0.00	14	1,600	0.009		
Eastbound	RT	0.00	15	0	0.000	ICU:	0.664
	TH	1.00	12	1,600	0.019		
	LT	0.00	3	1,600	0.002 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **119TH STREET**

Scenario: **EXISTING (BASELINE)+ AMBIENT(2014) +CUMULATIVE PROJECTS+PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	35	0	0.000	N-S(1):	0.015
	TH	1.00	9	1,600	0.028 *	N-S(2):	0.107 *
	LT	1.00	2	1,120	0.002	E-W(1):	0.259
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.272 *
	TH	1.00	297	1,120	0.272 *		
	LT	0.00	8	1,120	0.007		
Northbound	RT	1.00	23	1,120	0.013		
	TH	0.00	0	0	0.000		
	LT	1.00	126	1,600	0.079 *		
Eastbound	RT	0.00	59	0	0.000		
	TH	1.00	223	1,120	0.252		
	LT	0.00	0	0	0.000 *		

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	67	0	0.000	N-S(1):	0.133
	TH	1.00	37	1,120	0.096 *	N-S(2):	0.156 *
	LT	0.00	4	1,600	0.003	E-W(1):	0.200 *
Westbound	RT	0.00	3	0	0.000	E-W(2):	0.193
	TH	1.00	171	1,120	0.155		
	LT	1.00	21	1,600	0.013 *		
Northbound	RT	0.00	36	0	0.000		
	TH	1.00	43	1,120	0.130		
	LT	0.00	67	1,120	0.060 *		
Eastbound	RT	0.00	93	0	0.000		
	TH	1.00	116	1,120	0.187 *		
	LT	1.00	42	1,120	0.038		

* = Critical Movement

Observed				N-S:	0.156
Gate Lost Time (sec)-	57	40	60	E-W:	0.272
	59	41	41		
Total Seconds-	298			V/C:	0.428
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.528
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE(W)**
East/West Street: **119TH STREET**

Scenario: **EXISTING (BASELINE)+ AMBIENT(2014) +CUMULATIVE PROJECTS+PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	41	0	0.000	N-S(1):	0.006
	TH	1.00	22	1,600	0.039 *	N-S(2):	0.106 *
	LT	1.00	2	1,120	0.002	E-W(1):	0.439 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.253
	TH	1.00	260	1,120	0.253		
	LT	0.00	23	1,120	0.021 *		
Northbound	RT	1.00	27	1,120	0.004		
	TH	0.00	0	0	0.000		
	LT	1.00	107	1,600	0.067 *		
Eastbound	RT	0.00	73	0	0.000		
	TH	1.00	395	1,120	0.418 *		
	LT	0.00	0	0	0.000		

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	60	0	0.000	N-S(1):	0.128
	TH	1.00	26	1,120	0.080 *	N-S(2):	0.154 *
	LT	0.00	4	1,120	0.004	E-W(1):	0.319 *
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.179
	TH	1.00	137	1,120	0.123		
	LT	1.00	14	1,600	0.009 *		
Northbound	RT	0.00	26	0	0.000		
	TH	1.00	30	1,120	0.124		
	LT	0.00	83	1,120	0.074 *		
Eastbound	RT	0.00	115	0	0.000		
	TH	1.00	232	1,120	0.310 *		
	LT	1.00	63	1,120	0.056		

* = Critical Movement

Observed				N-S:	0.154
Gate Lost Time (sec)-	57	40	60	E-W:	0.439
	59	41	41		
Total Seconds-	298			V/C:	0.593
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.693
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	B
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE)+ AMBIENT(2014) +CUMULATIVE PROJECTS+PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	32	0	0.000	N-S(1):	0.174 *
	TH	1.00	142	1,600	0.109	N-S(2):	0.156
	LT	1.00	30	1,232	0.024 *	E-W(1):	0.201
Westbound	RT	1.00	38	1,232	0.006	E-W(2):	0.286 *
	TH	2.00	640	2,464	0.260 *		
	LT	0.00	1	1,600	0.001		
Northbound	RT	0.00	15	0	0.000		
	TH	1.00	170	1,232	0.150 *		
	LT	1.00	75	1,600	0.047		
Eastbound	RT	1.00	91	1,600	0.010		
	TH	2.00	494	2,464	0.200		
	LT	1.00	41	1,600	0.026 *		

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	27	0	0.000	N-S(1):	0.106
	TH	1.00	86	1,232	0.092 *	N-S(2):	0.110 *
	LT	1.00	45	1,600	0.028	E-W(1):	0.222
Westbound	RT	0.00	38	0	0.000	E-W(2):	0.273 *
	TH	2.00	632	2,464	0.272 *		
	LT	1.00	27	1,600	0.017		
Northbound	RT	0.00	36	0	0.000		
	TH	1.00	89	1,600	0.078		
	LT	1.00	22	1,232	0.018 *		
Eastbound	RT	1.00	22	1,232	0.000		
	TH	2.00	505	2,464	0.205		
	LT	0.00	1	1,232	0.001 *		

* = Critical Movement

Observed				N-S:	0.174
Gate Lost Time (sec)-	42	40	44	E-W:	0.286
	82	68	62		
Total Seconds-	338			V/C:	0.460
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.560
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE)+ AMBIENT(2014) +CUMULATIVE PROJECTS+PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	20	0	0.000	N-S(1):	0.119 *
	TH	1.00	105	1,600	0.078	N-S(2):	0.110
	LT	1.00	16	1,232	0.013 *	E-W(1):	0.371 *
Westbound	RT	1.00	37	1,232	0.017	E-W(2):	0.207
	TH	2.00	459	2,464	0.188		
	LT	0.00	3	1,600	0.002 *		
Northbound	RT	0.00	11	0	0.000		
	TH	1.00	119	1,232	0.106 *		
	LT	1.00	51	1,600	0.032		
Eastbound	RT	1.00	89	1,600	0.024		
	TH	2.00	910	2,464	0.369 *		
	LT	1.00	30	1,600	0.019		

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.114 *
	TH	1.00	78	1,232	0.079	N-S(2):	0.101
	LT	1.00	64	1,600	0.040 *	E-W(1):	0.408 *
Westbound	RT	0.00	39	0	0.000	E-W(2):	0.207
	TH	2.00	465	2,464	0.205		
	LT	1.00	63	1,600	0.039 *		
Northbound	RT	0.00	50	0	0.000		
	TH	1.00	68	1,600	0.074 *		
	LT	1.00	27	1,232	0.022		
Eastbound	RT	1.00	40	1,232	0.011		
	TH	2.00	907	2,464	0.369 *		
	LT	0.00	2	1,232	0.002		

* = Critical Movement

Observed				N-S:	0.119
Gate Lost Time (sec)-	42	40	44	E-W:	0.408
	82	68	62		
Total Seconds-	338			V/C:	0.527
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.627
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	B
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (BASELINE)+ AMBIENT(2014) +CUMULATIVE PROJECTS+PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	30	0	0.000	N-S(1): 0.221 *
	TH	1.00	116	1,600	0.168	N-S(2): 0.184
	LT	0.00	122	1,600	0.076 *	E-W(1): 0.283
Westbound	RT	0.00	135	0	0.000	E-W(2): 0.406 *
	TH	2.00	1,104	3,200	0.387 *	
	LT	1.00	45	1,600	0.028	
Northbound	RT	0.00	86	0	0.000	
	TH	1.00	121	1,600	0.145 *	
	LT	0.00	25	1,600	0.016	
Eastbound	RT	0.00	24	0	0.000	
	TH	2.00	791	3,200	0.255	
	LT	1.00	30	1,600	0.019 *	

WILLOWBROOK AV (E)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	82	0	0.000	N-S(1): 0.113
	TH	1.00	68	1,600	0.094 *	N-S(2): 0.122 *
	LT	1.00	136	1,600	0.085	E-W(1): 0.308
Westbound	RT	0.00	95	0	0.000	E-W(2): 0.444 *
	TH	2.00	1,188	3,200	0.401 *	
	LT	1.00	35	1,600	0.022	
Northbound	RT	0.00	25	0	0.000	
	TH	1.00	20	1,600	0.028	
	LT	1.00	45	1,600	0.028 *	
Eastbound	RT	0.00	39	0	0.000	
	TH	2.00	877	3,200	0.286	
	LT	1.00	68	1,600	0.043 *	

* = Critical Movement

N-S:	0.221
E-W:	0.444
V/C:	0.665
Lost Time:	0.100
ICU:	0.765
LOS:	C

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: EXISTING (BASELINE)+ AMBIENT(2014) +CUMULATIVE PROJECTS+PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	28	0	0.000	N-S(1):	0.234 *
	TH	1.00	88	1,600	0.150	N-S(2):	0.168
	LT	0.00	124	1,600	0.078 *	E-W(1):	0.458 *
Westbound	RT	0.00	44	0	0.000	E-W(2):	0.321
	TH	2.00	955	3,200	0.312		
	LT	1.00	46	1,600	0.029 *		
Northbound	RT	0.00	106	0	0.000		
	TH	1.00	114	1,600	0.156 *		
	LT	0.00	29	1,600	0.018		
Eastbound	RT	0.00	27	0	0.000		
	TH	2.00	1,346	3,200	0.429 *		
	LT	1.00	15	1,600	0.009		

WILLOWBROOK AV (E)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	48	0	0.000	N-S(1):	0.098 *
	TH	1.00	62	1,600	0.069	N-S(2):	0.087
	LT	1.00	122	1,600	0.076 *	E-W(1):	0.470 *
Westbound	RT	0.00	115	0	0.000	E-W(2):	0.387
	TH	2.00	930	3,200	0.327		
	LT	1.00	26	1,600	0.016 *		
Northbound	RT	0.00	19	0	0.000		
	TH	1.00	16	1,600	0.022 *		
	LT	1.00	28	1,600	0.018		
Eastbound	RT	0.00	50	0	0.000		
	TH	2.00	1,404	3,200	0.454 *		
	LT	1.00	96	1,600	0.060		

* = Critical Movement

N-S:	0.234
E-W:	0.470
V/C:	0.704
Lost Time:	0.100
ICU:	0.804
LOS:	D

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: S.ALAMEDA STREET
East/West Street: MARTIN LUTHER KING JR BOULEVARD

Scenario: EXISTING (BASELINE)+ AMBIENT(2014) +CUMULATIVE PROJECTS+PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

S. ALAMEDA ST (W)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	2	0	0.000	N-S(1):	0.433
	TH	2.00	1,018	3,200	0.319	N-S(2):	0.319
	LT	1.00	130	1,600	0.081 *	E-W(1):	0.149
Westbound	RT	1.00	368	1,600	0.149 *	E-W(2):	0.006
	TH	0.04	8	63	0.128		
	LT	1.96	400	2,824	0.142		
Northbound	RT	0.00	183	0	0.000		
	TH	2.00	942	3,200	0.352 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	4	0	0.000		
	TH	1.00	1	1,600	0.006 *		
	LT	0.00	5	1,600	0.003		

S. ALAMEDA ST (E)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	60	0	0.000	N-S(1):	0.171
	TH	1.00	68	1,600	0.103	N-S(2):	0.106
	LT	0.00	37	1,600	0.023 *	E-W(1):	0.249
Westbound	RT	0.00	83	0	0.000	E-W(2):	0.098
	TH	2.00	713	3,200	0.249 *		
	LT	1.00	12	1,600	0.008		
Northbound	RT	0.00	60	0	0.000		
	TH	1.00	173	1,600	0.148 *		
	LT	0.00	4	1,600	0.003		
Eastbound	RT	0.00	3	0	0.000		
	TH	2.00	217	3,200	0.098 *		
	LT	0.00	94	1,600	0.059		

* = Critical Movement

N-S:	0.433
E-W:	0.249
V/C:	0.682
Lost Time:	0.100
ICU:	0.782
LOS:	C

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: S.ALAMEDA STREET
East/West Street: MARTIN LUTHER KING JR BOULEVARD

Scenario: EXISTING (BASELINE)+ AMBIENT(2014) +CUMULATIVE PROJECTS+PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

S. ALAMEDA ST (W)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C		ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000		N-S(1):	0.481
	TH	2.00	1,148	3,200	0.359		N-S(2):	0.359
	LT	1.00	169	1,600	0.106	*	E-W(1):	0.089
Westbound	RT	1.00	242	1,600	0.046		E-W(2):	0.014
	TH	0.03	4	50	0.080			
	LT	1.97	253	2,835	0.089	*		
Northbound	RT	0.00	180	0	0.000			
	TH	2.00	1,021	3,200	0.375	*		
	LT	0.00	0	0	0.000			
Eastbound	RT	0.00	3	0	0.000			
	TH	1.00	13	1,600	0.014	*		
	LT	0.00	7	1,600	0.004			

S. ALAMEDA ST (E)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C		ICU ANALYSIS	
Southbound	RT	0.00	71	0	0.000		N-S(1):	0.154
	TH	1.00	51	1,600	0.094		N-S(2):	0.097
	LT	0.00	28	1,600	0.018	*	E-W(1):	0.138
Westbound	RT	0.00	33	0	0.000		E-W(2):	0.119
	TH	2.00	410	3,200	0.138	*		
	LT	1.00	6	1,600	0.004			
Northbound	RT	0.00	96	0	0.000			
	TH	1.00	118	1,600	0.136	*		
	LT	0.00	4	1,600	0.003			
Eastbound	RT	0.00	9	0	0.000			
	TH	2.00	332	3,200	0.119	*		
	LT	0.00	39	1,600	0.024			

* = Critical Movement

N-S:	0.481
E-W:	0.138
V/C:	0.619
Lost Time:	0.100
ICU:	0.719
LOS:	C

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **ALAMEDA STREET**
East/West Street: **COMPTON BOULEVARD**

Scenario: **EXISTING (BASELINE)+ AMBIENT(2014) +CUMULATIVE PROJECTS+PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

S. ALAMEDA ST (W)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	77	0	0.000	N-S(1): 0.207
	TH	2.00	715	3,200	0.248 *	N-S(2): 0.302 *
	LT	1.00	103	1,600	0.064	E-W(1): 0.182
Westbound	RT	0.00	121	0	0.000	E-W(2): 0.273 *
	TH	2.00	596	3,200	0.224 *	
	LT	1.00	33	1,600	0.021	
Northbound	RT	0.00	37	0	0.000	
	TH	2.00	421	3,200	0.143	
	LT	1.00	87	1,600	0.054 *	
Eastbound	RT	0.00	74	0	0.000	
	TH	2.00	442	3,200	0.161	
	LT	1.00	79	1,600	0.049 *	

S. ALAMEDA ST (E)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	9	0	0.000	N-S(1): 0.135 *
	TH	1.00	151	1,600	0.100	N-S(2): 0.123
	LT	1.00	29	1,600	0.018 *	E-W(1): 0.187
Westbound	RT	1.00	55	1,600	0.016	E-W(2): 0.228 *
	TH	2.00	705	3,200	0.220 *	
	LT	1.00	15	1,600	0.009	
Northbound	RT	0.00	63	0	0.000	
	TH	1.00	124	1,600	0.117 *	
	LT	1.00	36	1,600	0.023	
Eastbound	RT	0.00	43	0	0.000	
	TH	2.00	526	3,200	0.178	
	LT	1.00	12	1,600	0.008 *	

* = Critical Movement

N-S:	0.302
E-W:	0.273
V/C:	0.575
Lost Time:	0.100
ICU:	0.675
LOS:	B

Project:	**MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**
North/South Street:	**ALAMEDA STREET**
East/West Street:	**COMPTON BOULEVARD**
Scenario:	**EXISTING (BASELINE)+ AMBIENT(2014) +CUMULATIVE PROJECTS+PROJECT TIER I CONDITIONS (CUMULATIVE (2014) PLUS PROJECT TIER I)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

S. ALAMEDA ST (W)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	70	0	0.000	N-S(1):	0.293 *
	TH	2.00	653	3,200	0.226	N-S(2):	0.284
	LT	1.00	105	1,600	0.066 *	E-W(1):	0.258 *
Westbound	RT	0.00	91	0	0.000	E-W(2):	0.257
	TH	2.00	544	3,200	0.198		
	LT	1.00	40	1,600	0.025 *		
Northbound	RT	0.00	60	0	0.000		
	TH	2.00	665	3,200	0.227 *		
	LT	1.00	92	1,600	0.058		
Eastbound	RT	0.00	67	0	0.000		
	TH	2.00	677	3,200	0.233 *		
	LT	1.00	94	1,600	0.059		

S. ALAMEDA ST (E)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	14	0	0.000	N-S(1):	0.124 *
	TH	1.00	88	1,600	0.064	N-S(2):	0.077
	LT	1.00	27	1,600	0.017 *	E-W(1):	0.270 *
Westbound	RT	1.00	21	1,600	0.000	E-W(2):	0.210
	TH	2.00	641	3,200	0.200		
	LT	1.00	19	1,600	0.012 *		
Northbound	RT	0.00	48	0	0.000		
	TH	1.00	123	1,600	0.107 *		
	LT	1.00	21	1,600	0.013		
Eastbound	RT	0.00	23	0	0.000		
	TH	2.00	803	3,200	0.258 *		
	LT	1.00	16	1,600	0.010		

* = Critical Movement

N-S:	0.293
E-W:	0.270
V/C:	0.563
Lost Time:	0.100
ICU:	0.663
LOS:	B

APPENDIX K

ICU Worksheets – Existing (Baseline) With Ambient Growth (2020) Conditions

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: BROADWAY
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.119 *
	TH	2.00	197	3,200	0.090	N-S(2):	0.113
	LT	1.00	57	1,600	0.036 *	E-W(1):	0.224
Westbound	RT	0.00	92	0	0.000	E-W(2):	0.301 *
	TH	3.00	1,144	4,800	0.258 *		
	LT	1.00	74	1,600	0.046	V/C:	0.420
Northbound	RT	0.00	23	0	0.000	Lost Time:	0.100
	TH	2.00	242	3,200	0.083 *		
	LT	1.00	36	1,600	0.023		
Eastbound	RT	0.00	125	0	0.000	ICU:	0.520
	TH	3.00	731	4,800	0.178		
	LT	1.00	69	1,600	0.043 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	69	0	0.000	N-S(1):	0.175 *
	TH	2.00	183	3,200	0.079	N-S(2):	0.162
	LT	1.00	85	1,600	0.053 *	E-W(1):	0.294 *
Westbound	RT	0.00	78	0	0.000	E-W(2):	0.245
	TH	3.00	755	4,800	0.174		
	LT	1.00	23	1,600	0.014 *	V/C:	0.469
Northbound	RT	0.00	93	0	0.000	Lost Time:	0.100
	TH	2.00	298	3,200	0.122 *		
	LT	1.00	132	1,600	0.083		
Eastbound	RT	0.00	63	0	0.000	ICU:	0.569
	TH	3.00	1,279	4,800	0.280 *		
	LT	1.00	114	1,600	0.071	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: MAIN STREET
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	94	0	0.000	N-S(1):	0.127
	TH	2.00	266	3,200	0.113 *	N-S(2):	0.152 *
	LT	1.00	83	1,600	0.052	E-W(1):	0.188
Westbound	RT	0.00	54	0	0.000	E-W(2):	0.309 *
	TH	3.00	1,153	4,800	0.251 *		
	LT	1.00	84	1,600	0.053	V/C:	0.461
Northbound	RT	0.00	27	0	0.000	Lost Time:	0.100
	TH	2.00	214	3,200	0.075		
	LT	1.00	63	1,600	0.039 *		
Eastbound	RT	0.00	108	0	0.000	ICU:	0.561
	TH	3.00	542	4,800	0.135		
	LT	1.00	92	1,600	0.058 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	57	0	0.000	N-S(1):	0.222 *
	TH	2.00	182	3,200	0.075	N-S(2):	0.136
	LT	1.00	122	1,600	0.076 *	E-W(1):	0.306 *
Westbound	RT	0.00	71	0	0.000	E-W(2):	0.232
	TH	3.00	679	4,800	0.156		
	LT	1.00	38	1,600	0.024 *	V/C:	0.528
Northbound	RT	0.00	114	0	0.000	Lost Time:	0.100
	TH	2.00	353	3,200	0.146 *		
	LT	1.00	98	1,600	0.061		
Eastbound	RT	0.00	55	0	0.000	ICU:	0.628
	TH	3.00	1,297	4,800	0.282 *		
	LT	1.00	121	1,600	0.076	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SAN PEDRO STREET
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	138	0	0.000	N-S(1):	0.130
	TH	2.00	180	3,200	0.099 *	N-S(2):	0.170 *
	LT	1.00	76	1,600	0.048	E-W(1):	0.184
Westbound	RT	0.00	66	0	0.000	E-W(2):	0.284 *
	TH	3.00	1,043	4,800	0.231 *		
	LT	1.00	108	1,600	0.068	V/C:	0.454
Northbound	RT	0.00	68	0	0.000	Lost Time:	0.100
	TH	2.00	194	3,200	0.082		
	LT	1.00	113	1,600	0.071 *		
Eastbound	RT	0.00	65	0	0.000	ICU:	0.554
	TH	3.00	493	4,800	0.116		
	LT	1.00	85	1,600	0.053 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	101	0	0.000	N-S(1):	0.145 *
	TH	2.00	176	3,200	0.087	N-S(2):	0.141
	LT	1.00	91	1,600	0.057 *	E-W(1):	0.318 *
Westbound	RT	0.00	108	0	0.000	E-W(2):	0.220
	TH	3.00	618	4,800	0.151		
	LT	1.00	54	1,600	0.034 *	V/C:	0.463
Northbound	RT	0.00	49	0	0.000	Lost Time:	0.100
	TH	2.00	232	3,200	0.088 *		
	LT	1.00	87	1,600	0.054		
Eastbound	RT	0.00	79	0	0.000	ICU:	0.563
	TH	3.00	1,282	4,800	0.284 *		
	LT	1.00	111	1,600	0.069	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: AVALON BOULEVARD
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : N
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	136	0	0.000	N-S(1): 0.237
	TH	2.00	505	3,200	0.200 *	N-S(2): 0.239 *
	LT	1.00	107	1,600	0.067	E-W(1): 0.164
Westbound	RT	0.00	146	0	0.000	E-W(2): 0.303 *
	TH	3.00	926	4,800	0.223 *	
	LT	1.00	85	1,600	0.053	V/C: 0.542
Northbound	RT	0.00	96	0	0.000	Lost Time: 0.100
	TH	2.00	447	3,200	0.170	
	LT	1.00	63	1,600	0.039 *	
Eastbound	RT	0.00	59	0	0.000	ICU: 0.642
	TH	3.00	474	4,800	0.111	
	LT	1.00	128	1,600	0.080 *	LOS: B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	94	0	0.000	N-S(1): 0.349 *
	TH	2.00	497	3,200	0.185	N-S(2): 0.266
	LT	1.00	151	1,600	0.094 *	E-W(1): 0.339 *
Westbound	RT	0.00	120	0	0.000	E-W(2): 0.204
	TH	3.00	479	4,800	0.125	
	LT	1.00	101	1,600	0.063 *	V/C: 0.688
Northbound	RT	0.00	157	0	0.000	Lost Time: 0.100
	TH	2.00	660	3,200	0.255 *	
	LT	1.00	129	1,600	0.081	
Eastbound	RT	0.00	132	0	0.000	ICU: 0.788
	TH	3.00	1,193	4,800	0.276 *	
	LT	1.00	126	1,600	0.079	LOS: C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	95	0	0.000	N-S(1):	0.266 *
	TH	2.00	388	3,200	0.151	N-S(2):	0.235
	LT	1.00	161	1,600	0.101 *	E-W(1):	0.192
Westbound	RT	0.00	151	0	0.000	E-W(2):	0.268 *
	TH	3.00	972	4,800	0.234 *		
	LT	1.00	120	1,600	0.075	V/C:	0.534
Northbound	RT	0.00	87	0	0.000	Lost Time:	0.100
	TH	2.00	440	3,200	0.165 *		
	LT	1.00	134	1,600	0.084		
Eastbound	RT	0.00	72	0	0.000	ICU:	0.634
	TH	3.00	488	4,800	0.117		
	LT	1.00	55	1,600	0.034 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	72	0	0.000	N-S(1):	0.364 *
	TH	2.00	414	3,200	0.152	N-S(2):	0.237
	LT	1.00	217	1,600	0.136 *	E-W(1):	0.289 *
Westbound	RT	0.00	149	0	0.000	E-W(2):	0.224
	TH	3.00	602	4,800	0.156		
	LT	1.00	79	1,600	0.049 *	V/C:	0.653
Northbound	RT	0.00	150	0	0.000	Lost Time:	0.100
	TH	2.00	580	3,200	0.228 *		
	LT	1.00	136	1,600	0.085		
Eastbound	RT	0.00	92	0	0.000	ICU:	0.753
	TH	3.00	1,061	4,800	0.240 *		
	LT	1.00	109	1,600	0.068	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	199	0	0.000	N-S(1):	0.365
	TH	2.00	662	3,200	0.269 *	N-S(2):	0.370 *
	LT	1.00	109	1,600	0.068	E-W(1):	0.227
Westbound	RT	0.00	75	0	0.000	E-W(2):	0.333 *
	TH	2.00	742	3,200	0.255 *		
	LT	1.00	166	1,600	0.104	V/C:	0.703
Northbound	RT	0.00	262	0	0.000	Lost Time:	0.100
	TH	2.00	689	3,200	0.297		
	LT	1.00	162	1,600	0.101 *		
Eastbound	RT	1.00	110	1,600	0.000	ICU:	0.803
	TH	2.00	394	3,200	0.123		
	LT	1.00	125	1,600	0.078 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	156	0	0.000	N-S(1):	0.387 *
	TH	2.00	755	3,200	0.285	N-S(2):	0.358
	LT	1.00	144	1,600	0.090 *	E-W(1):	0.392 *
Westbound	RT	0.00	115	0	0.000	E-W(2):	0.351
	TH	2.00	496	3,200	0.191		
	LT	1.00	126	1,600	0.079 *	V/C:	0.779
Northbound	RT	0.00	206	0	0.000	Lost Time:	0.100
	TH	2.00	745	3,200	0.297 *		
	LT	1.00	117	1,600	0.073		
Eastbound	RT	1.00	174	1,600	0.036	ICU:	0.879
	TH	2.00	1,001	3,200	0.313 *		
	LT	1.00	256	1,600	0.160	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	155	1,600	0.000	N-S(1):	0.292
	TH	2.00	664	3,200	0.208 *	N-S(2):	0.302 *
	LT	1.00	135	1,600	0.084	E-W(1):	0.226
Westbound	RT	0.00	155	0	0.000	E-W(2):	0.422 *
	TH	2.00	871	3,200	0.321 *		
	LT	1.00	159	1,600	0.099	V/C:	0.724
Northbound	RT	0.00	64	0	0.000	Lost Time:	0.100
	TH	2.00	600	3,200	0.208		
	LT	1.00	150	1,600	0.094 *		
Eastbound	RT	0.00	159	0	0.000	ICU:	0.824
	TH	3.00	452	4,800	0.127		
	LT	1.00	161	1,600	0.101 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	133	1,600	0.000	N-S(1):	0.461 *
	TH	2.00	739	3,200	0.231	N-S(2):	0.355
	LT	1.00	283	1,600	0.177 *	E-W(1):	0.371
Westbound	RT	0.00	153	0	0.000	E-W(2):	0.395 *
	TH	2.00	660	3,200	0.254 *		
	LT	1.00	169	1,600	0.106	V/C:	0.856
Northbound	RT	0.00	123	0	0.000	Lost Time:	0.100
	TH	2.00	785	3,200	0.284 *		
	LT	1.00	199	1,600	0.124		
Eastbound	RT	0.00	200	0	0.000	ICU:	0.956
	TH	3.00	1,073	4,800	0.265		
	LT	1.00	225	1,600	0.141 *	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SUCCESS AVENUE-SLATER AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	41	0	0.000	N-S(1):	0.085
	TH	1.00	32	1,600	0.073 *	N-S(2):	0.090 *
	LT	0.00	43	1,600	0.027	E-W(1):	0.170
Westbound	RT	0.00	45	0	0.000	E-W(2):	0.262 *
	TH	2.00	720	3,200	0.239 *		
	LT	1.00	26	1,600	0.016	V/C:	0.352
Northbound	RT	0.00	18	0	0.000	Lost Time:	0.100
	TH	1.00	48	1,600	0.058		
	LT	0.00	27	1,600	0.017 *		
Eastbound	RT	0.00	8	0	0.000	ICU:	0.452
	TH	2.00	484	3,200	0.154		
	LT	1.00	36	1,600	0.023 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	35	0	0.000	N-S(1):	0.042
	TH	1.00	13	1,600	0.044 *	N-S(2):	0.050 *
	LT	0.00	23	1,600	0.014	E-W(1):	0.217 *
Westbound	RT	0.00	13	0	0.000	E-W(2):	0.194
	TH	2.00	547	3,200	0.175		
	LT	1.00	18	1,600	0.011 *	V/C:	0.267
Northbound	RT	0.00	26	0	0.000	Lost Time:	0.100
	TH	1.00	9	1,600	0.028		
	LT	0.00	10	1,600	0.006 *		
Eastbound	RT	0.00	12	0	0.000	ICU:	0.367
	TH	2.00	648	3,200	0.206 *		
	LT	1.00	31	1,600	0.019	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	128	0	0.000	N-S(1):	0.324
	TH	1.00	319	1,600	0.279 *	N-S(2):	0.360 *
	LT	1.00	162	1,600	0.101	E-W(1):	0.270
Westbound	RT	0.00	187	0	0.000	E-W(2):	0.500 *
	TH	2.00	1,192	3,200	0.431 *		
	LT	1.00	151	1,600	0.094	V/C:	0.860
Northbound	RT	1.00	160	1,600	0.006	Lost Time:	0.100
	TH	1.00	356	1,600	0.223	ATSAC/ATCS:	-0.100
	LT	1.00	130	1,600	0.081 *		
Eastbound	RT	0.00	151	0	0.000	ICU:	0.860
	TH	3.00	692	4,800	0.176		
	LT	1.00	111	1,600	0.069 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	159	0	0.000	N-S(1):	0.319
	TH	1.00	284	1,600	0.277 *	N-S(2):	0.340 *
	LT	1.00	208	1,600	0.130	E-W(1):	0.391 *
Westbound	RT	0.00	195	0	0.000	E-W(2):	0.362
	TH	2.00	732	3,200	0.290		
	LT	1.00	94	1,600	0.059 *	V/C:	0.731
Northbound	RT	1.00	121	1,600	0.017	Lost Time:	0.100
	TH	1.00	303	1,600	0.189	ATSAC/ATCS:	-0.100
	LT	1.00	100	1,600	0.063 *		
Eastbound	RT	0.00	102	0	0.000	ICU:	0.731
	TH	3.00	1,491	4,800	0.332 *		
	LT	1.00	115	1,600	0.072	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **118TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	11	0	0.000	N-S(1):	0.190 *
	TH	2.00	512	3,200	0.176	N-S(2):	0.184
	LT	0.00	40	1,600	0.025 *	E-W(1):	0.094
Westbound	RT	0.00	55	0	0.000	E-W(2):	0.101 *
	TH	1.00	16	1,600	0.084 *		
	LT	0.00	63	1,600	0.039	V/C:	0.291
Northbound	RT	0.00	73	0	0.000	Lost Time:	0.100
	TH	2.00	441	3,200	0.165 *		
	LT	0.00	13	1,600	0.008		
Eastbound	RT	0.00	44	0	0.000	ICU:	0.391
	TH	1.00	17	1,600	0.055		
	LT	0.00	27	1,600	0.017 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	6	0	0.000	N-S(1):	0.170 *
	TH	2.00	379	3,200	0.133	N-S(2):	0.139
	LT	0.00	40	1,600	0.025 *	E-W(1):	0.046
Westbound	RT	0.00	45	0	0.000	E-W(2):	0.066 *
	TH	1.00	23	1,600	0.060 *		
	LT	0.00	28	1,600	0.018	V/C:	0.236
Northbound	RT	0.00	42	0	0.000	Lost Time:	0.100
	TH	2.00	413	3,200	0.145 *		
	LT	0.00	9	1,600	0.006		
Eastbound	RT	0.00	13	0	0.000	ICU:	0.336
	TH	1.00	23	1,600	0.028		
	LT	0.00	9	1,600	0.006 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **120TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	144	0	0.000	N-S(1):	0.201
	TH	2.00	301	3,200	0.139 *	N-S(2):	0.213 *
	LT	1.00	132	1,600	0.083	E-W(1):	0.214
Westbound	RT	0.00	168	0	0.000	E-W(2):	0.297 *
	TH	2.00	453	3,200	0.194 *		
	LT	1.00	70	1,600	0.044	V/C:	0.510
Northbound	RT	0.00	63	0	0.000	Lost Time:	0.100
	TH	2.00	314	3,200	0.118		
	LT	1.00	119	1,600	0.074 *		
Eastbound	RT	0.00	96	0	0.000	ICU:	0.610
	TH	2.00	448	3,200	0.170		
	LT	1.00	165	1,600	0.103 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	74	0	0.000	N-S(1):	0.170
	TH	2.00	292	3,200	0.114 *	N-S(2):	0.177 *
	LT	1.00	112	1,600	0.070	E-W(1):	0.234
Westbound	RT	0.00	95	0	0.000	E-W(2):	0.250 *
	TH	2.00	466	3,200	0.175 *		
	LT	1.00	50	1,600	0.031	V/C:	0.427
Northbound	RT	0.00	51	0	0.000	Lost Time:	0.100
	TH	2.00	269	3,200	0.100		
	LT	1.00	101	1,600	0.063 *		
Eastbound	RT	0.00	136	0	0.000	ICU:	0.527
	TH	2.00	513	3,200	0.203		
	LT	1.00	120	1,600	0.075 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **124TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase : N
Left-Turn Lane:	1600 vph	E-W Split Phase : N
Dual LT Penalty:	10 %	Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	12	0	0.000	N-S(1):	0.141
	TH	2.00	414	3,200	0.146 *	N-S(2):	0.147 *
	LT	0.00	41	1,600	0.026	E-W(1):	0.038
Westbound	RT	0.00	56	0	0.000	E-W(2):	0.083 *
	TH	1.00	29	1,600	0.078 *		
	LT	0.00	39	1,600	0.024	V/C:	0.230
Northbound	RT	0.00	18	0	0.000	Lost Time:	0.100
	TH	2.00	347	3,200	0.115		
	LT	0.00	2	1,600	0.001 *		
Eastbound	RT	0.00	2	0	0.000	ICU:	0.330
	TH	1.00	12	1,600	0.014		
	LT	0.00	8	1,600	0.005 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	9	0	0.000	N-S(1):	0.134 *
	TH	2.00	350	3,200	0.126	N-S(2):	0.127
	LT	0.00	43	1,600	0.027 *	E-W(1):	0.022
Westbound	RT	0.00	33	0	0.000	E-W(2):	0.040 *
	TH	1.00	11	1,600	0.039 *		
	LT	0.00	18	1,600	0.011	V/C:	0.174
Northbound	RT	0.00	17	0	0.000	Lost Time:	0.100
	TH	2.00	324	3,200	0.107 *		
	LT	0.00	1	1,600	0.001		
Eastbound	RT	0.00	5	0	0.000	ICU:	0.274
	TH	1.00	10	1,600	0.011		
	LT	0.00	2	1,600	0.001 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: IMPERIAL HIGHWAY-WILLOWBROOK AVE

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	126	0	0.000	N-S(1):	0.167
	TH	2.00	916	3,200	0.326 *	N-S(2):	0.419 *
	LT	1.00	25	1,600	0.016	E-W(1):	0.051
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.073 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.492
Northbound	RT	0.00	57	0	0.000	Lost Time:	0.100
	TH	2.00	426	3,200	0.151	ATSAC/ATCS:	-0.100
	LT	1.00	148	1,600	0.093 *		
Eastbound	RT	1.00	230	1,600	0.051	ICU:	0.492
	TH	1.00	24	1,600	0.015		
	LT	1.00	116	1,600	0.073 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	114	0	0.000	N-S(1):	0.202
	TH	2.00	839	3,200	0.298 *	N-S(2):	0.416 *
	LT	1.00	33	1,600	0.021	E-W(1):	0.064
Westbound	RT	0.00	2	0	0.000	E-W(2):	0.090 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.506
Northbound	RT	0.00	43	0	0.000	Lost Time:	0.100
	TH	2.00	536	3,200	0.181	ATSAC/ATCS:	-0.100
	LT	1.00	189	1,600	0.118 *		
Eastbound	RT	1.00	291	1,600	0.064	ICU:	0.506
	TH	1.00	25	1,600	0.016		
	LT	1.00	144	1,600	0.090 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: I-105 EASTBOUND ON/OFF RAMPS

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	463	3,200	0.015	N-S(1):	0.175
	TH	2.00	702	3,200	0.219 *	N-S(2):	0.453 *
	LT	0.00	0	0	0.000	E-W(1):	0.187
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.259 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.712
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	839	4,800	0.175		
	LT	1.00	374	1,600	0.234 *		
Eastbound	RT	1.00	673	1,600	0.187	ICU:	0.812
	TH	0.00	0	0	0.000		
	LT	1.00	415	1,600	0.259 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	368	3,200	0.003	N-S(1):	0.239
	TH	2.00	782	3,200	0.244 *	N-S(2):	0.506 *
	LT	0.00	0	0	0.000	E-W(1):	0.000
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.224 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.730
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,149	4,800	0.239		
	LT	1.00	419	1,600	0.262 *		
Eastbound	RT	1.00	292	1,600	0.000	ICU:	0.830
	TH	0.00	0	0	0.000		
	LT	1.00	358	1,600	0.224 *	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **118TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	79	0	0.000	N-S(1):	0.265
	TH	2.00	1,201	3,200	0.400 *	N-S(2):	0.468 *
	LT	2.00	105	2,880	0.036	E-W(1):	0.178 *
Westbound	RT	0.00	72	0	0.000	E-W(2):	0.140
	TH	1.00	29	1,600	0.084		
	LT	0.00	34	1,600	0.021 *	V/C:	0.646
Northbound	RT	0.00	48	0	0.000	Lost Time:	0.100
	TH	3.00	1,051	4,800	0.229		
	LT	1.00	108	1,600	0.068 *		
Eastbound	RT	0.00	126	0	0.000	ICU:	0.746
	TH	1.00	35	1,600	0.157 *		
	LT	0.00	90	1,600	0.056	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	39	0	0.000	N-S(1):	0.355 *
	TH	2.00	834	3,200	0.273	N-S(2):	0.304
	LT	2.00	190	2,880	0.066 *	E-W(1):	0.200
Westbound	RT	0.00	202	0	0.000	E-W(2):	0.280 *
	TH	1.00	60	1,600	0.217 *		
	LT	0.00	85	1,600	0.053	V/C:	0.635
Northbound	RT	0.00	125	0	0.000	Lost Time:	0.100
	TH	3.00	1,264	4,800	0.289 *		
	LT	1.00	50	1,600	0.031		
Eastbound	RT	0.00	58	0	0.000	ICU:	0.735
	TH	1.00	77	1,600	0.147		
	LT	0.00	100	1,600	0.063 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **120TH ST-119TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	384	0	0.000	N-S(1):	0.382
	TH	2.00	829	3,200	0.379 *	N-S(2):	0.471 *
	LT	1.00	147	1,600	0.092	E-W(1):	0.137
Westbound	RT	0.00	172	0	0.000	E-W(2):	0.229 *
	TH	2.00	253	3,200	0.133 *		
	LT	1.00	82	1,600	0.051	V/C:	0.700
Northbound	RT	0.00	44	0	0.000	Lost Time:	0.100
	TH	2.00	883	3,200	0.290		
	LT	1.00	147	1,600	0.092 *		
Eastbound	RT	1.00	90	1,600	0.000	ICU:	0.800
	TH	1.00	138	1,600	0.086		
	LT	1.00	154	1,600	0.096 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	141	0	0.000	N-S(1):	0.403 *
	TH	2.00	729	3,200	0.272	N-S(2):	0.338
	LT	1.00	92	1,600	0.058 *	E-W(1):	0.260
Westbound	RT	0.00	160	0	0.000	E-W(2):	0.289 *
	TH	2.00	184	3,200	0.108 *		
	LT	1.00	121	1,600	0.076	V/C:	0.692
Northbound	RT	0.00	124	0	0.000	Lost Time:	0.100
	TH	2.00	979	3,200	0.345 *		
	LT	1.00	106	1,600	0.066		
Eastbound	RT	1.00	177	1,600	0.044	ICU:	0.792
	TH	1.00	294	1,600	0.184		
	LT	1.00	289	1,600	0.181 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: MLK HOSPITAL DWY-120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	150	0	0.000	N-S(1):	0.289
	TH	2.00	846	3,200	0.311 *	N-S(2):	0.364 *
	LT	1.00	35	1,600	0.022	E-W(1):	0.095
Westbound	RT	0.00	45	0	0.000	E-W(2):	0.121 *
	TH	1.00	12	1,600	0.043 *		
	LT	0.00	11	1,600	0.007	V/C:	0.485
Northbound	RT	0.00	9	0	0.000	Lost Time:	0.100
	TH	2.00	845	3,200	0.267		
	LT	1.00	84	1,600	0.053 *		
Eastbound	RT	1.00	83	1,600	0.000	ICU:	0.585
	TH	1.00	16	1,600	0.088		
	LT	0.00	125	1,600	0.078 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	97	0	0.000	N-S(1):	0.350
	TH	2.00	893	3,200	0.309 *	N-S(2):	0.367 *
	LT	1.00	31	1,600	0.019	E-W(1):	0.097
Westbound	RT	0.00	29	0	0.000	E-W(2):	0.116 *
	TH	1.00	17	1,600	0.034 *		
	LT	0.00	9	1,600	0.006	V/C:	0.483
Northbound	RT	0.00	23	0	0.000	Lost Time:	0.100
	TH	2.00	1,036	3,200	0.331		
	LT	1.00	93	1,600	0.058 *		
Eastbound	RT	1.00	85	1,600	0.000	ICU:	0.583
	TH	1.00	14	1,600	0.091		
	LT	0.00	131	1,600	0.082 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 124TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.341 *
	TH	2.00	804	3,200	0.257	N-S(2):	0.271
	LT	1.00	76	1,600	0.048 *	E-W(1):	0.087
Westbound	RT	0.00	77	0	0.000	E-W(2):	0.140 *
	TH	1.00	74	1,600	0.131 *		
	LT	0.00	58	1,600	0.036	V/C:	0.481
Northbound	RT	0.00	39	0	0.000	Lost Time:	0.100
	TH	2.00	899	3,200	0.293 *		
	LT	1.00	23	1,600	0.014		
Eastbound	RT	0.00	28	0	0.000	ICU:	0.581
	TH	1.00	40	1,600	0.051		
	LT	0.00	14	1,600	0.009 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.349 *
	TH	2.00	762	3,200	0.244	N-S(2):	0.261
	LT	1.00	87	1,600	0.054 *	E-W(1):	0.066
Westbound	RT	0.00	65	0	0.000	E-W(2):	0.084 *
	TH	1.00	25	1,600	0.075 *		
	LT	0.00	30	1,600	0.019	V/C:	0.433
Northbound	RT	0.00	36	0	0.000	Lost Time:	0.100
	TH	2.00	907	3,200	0.295 *		
	LT	1.00	27	1,600	0.017		
Eastbound	RT	0.00	25	0	0.000	ICU:	0.533
	TH	1.00	35	1,600	0.047		
	LT	0.00	15	1,600	0.009 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	110	0	0.000	N-S(1):	0.359
	TH	2.00	646	3,200	0.236 *	N-S(2):	0.396 *
	LT	1.00	162	1,600	0.101	E-W(1):	0.255
Westbound	RT	0.00	124	0	0.000	E-W(2):	0.323 *
	TH	2.00	599	3,200	0.226 *		
	LT	1.00	69	1,600	0.043	V/C:	0.719
Northbound	RT	0.00	72	0	0.000	Lost Time:	0.100
	TH	2.00	752	3,200	0.258		
	LT	1.00	256	1,600	0.160 *		
Eastbound	RT	0.00	282	0	0.000	ICU:	0.819
	TH	2.00	397	3,200	0.212		
	LT	1.00	155	1,600	0.097 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	95	0	0.000	N-S(1):	0.371 *
	TH	2.00	645	3,200	0.231	N-S(2):	0.339
	LT	1.00	164	1,600	0.103 *	E-W(1):	0.408 *
Westbound	RT	0.00	106	0	0.000	E-W(2):	0.254
	TH	2.00	362	3,200	0.146		
	LT	1.00	103	1,600	0.064 *	V/C:	0.779
Northbound	RT	0.00	89	0	0.000	Lost Time:	0.100
	TH	2.00	768	3,200	0.268 *		
	LT	1.00	173	1,600	0.108		
Eastbound	RT	0.00	279	0	0.000	ICU:	0.879
	TH	2.00	822	3,200	0.344 *		
	LT	1.00	172	1,600	0.108	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: I-105 WESTBOUND ON/OFF RAMPS
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	45	0	0.000	N-S(1):	0.297 *
	TH	1.00	71	1,600	0.081 *	N-S(2):	0.000
	LT	0.00	13	1,600	0.008	E-W(1):	0.482 *
Westbound	RT	0.00	26	0	0.000	E-W(2):	0.267
	TH	3.00	1,111	4,800	0.237		
	LT	2.00	920	2,880	0.319 *	V/C:	0.779
Northbound	RT	1.00	161	1,600	0.000	Lost Time:	0.100
	TH	0.01	3	15	0.194	ATSAC/ATCS:	-0.100
	LT	1.99	619	2,866	0.216 *		
Eastbound	RT	1.84	481	2,951	0.058	ICU:	0.779
	TH	3.16	823	5,049	0.163 *		
	LT	1.00	48	1,600	0.030	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	28	0	0.000	N-S(1):	0.282 *
	TH	1.00	29	1,600	0.047 *	N-S(2):	0.000
	LT	0.00	18	1,600	0.011	E-W(1):	0.477 *
Westbound	RT	0.00	14	0	0.000	E-W(2):	0.192
	TH	3.00	819	4,800	0.174		
	LT	2.00	605	2,880	0.210 *	V/C:	0.759
Northbound	RT	1.00	244	1,600	0.000	Lost Time:	0.100
	TH	0.06	19	90	0.212	ATSAC/ATCS:	-0.100
	LT	1.94	658	2,799	0.235 *		
Eastbound	RT	1.00	297	1,600	0.000	ICU:	0.759
	TH	4.00	1,707	6,400	0.267 *		
	LT	1.00	29	1,600	0.018	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MONA BOULEVARD**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	116	0	0.000	N-S(1):	0.155
	TH	1.00	99	1,600	0.151 *	N-S(2):	0.252 *
	LT	0.00	27	1,600	0.017	E-W(1):	0.345
Westbound	RT	0.00	31	0	0.000	E-W(2):	0.421 *
	TH	3.00	1,783	4,800	0.378 *		
	LT	1.00	198	1,600	0.124	V/C:	0.673
Northbound	RT	1.00	151	1,600	0.000	Lost Time:	0.100
	TH	1.00	59	1,600	0.138	ATSAC/ATCS:	-0.100
	LT	0.00	161	1,600	0.101 *		
Eastbound	RT	0.00	154	0	0.000	ICU:	0.673
	TH	3.00	907	4,800	0.221		
	LT	1.00	69	1,600	0.043 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	95	0	0.000	N-S(1):	0.162
	TH	1.00	60	1,600	0.117 *	N-S(2):	0.218 *
	LT	0.00	32	1,600	0.020	E-W(1):	0.516 *
Westbound	RT	0.00	34	0	0.000	E-W(2):	0.325
	TH	3.00	1,115	4,800	0.239		
	LT	1.00	159	1,600	0.099 *	V/C:	0.734
Northbound	RT	1.00	223	1,600	0.040	Lost Time:	0.100
	TH	1.00	65	1,600	0.142	ATSAC/ATCS:	-0.100
	LT	0.00	162	1,600	0.101 *		
Eastbound	RT	0.00	275	0	0.000	ICU:	0.734
	TH	3.00	1,727	4,800	0.417 *		
	LT	1.00	137	1,600	0.086	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MONA BOULEVARD**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	88	1,600	0.023	N-S(1):	0.225 *
	TH	1.00	140	1,600	0.137	N-S(2):	0.169
	LT	0.00	79	1,600	0.049 *	E-W(1):	0.186
Westbound	RT	0.00	41	0	0.000	E-W(2):	0.249 *
	TH	2.00	653	3,200	0.217 *		
	LT	1.00	30	1,600	0.019	V/C:	0.474
Northbound	RT	0.00	81	0	0.000	Lost Time:	0.100
	TH	1.00	150	1,600	0.176 *		
	LT	0.00	51	1,600	0.032		
Eastbound	RT	0.00	43	0	0.000	ICU:	0.574
	TH	2.00	491	3,200	0.167		
	LT	1.00	51	1,600	0.032 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	79	1,600	0.001	N-S(1):	0.170 *
	TH	1.00	137	1,600	0.130	N-S(2):	0.150
	LT	0.00	71	1,600	0.044 *	E-W(1):	0.329 *
Westbound	RT	0.00	55	0	0.000	E-W(2):	0.201
	TH	2.00	436	3,200	0.153		
	LT	1.00	41	1,600	0.026 *	V/C:	0.499
Northbound	RT	0.00	60	0	0.000	Lost Time:	0.100
	TH	1.00	110	1,600	0.126 *		
	LT	0.00	32	1,600	0.020		
Eastbound	RT	0.00	87	0	0.000	ICU:	0.599
	TH	2.00	881	3,200	0.303 *		
	LT	1.00	77	1,600	0.048	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: S ALAMEDA STREET
East/West Street: 103RD STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	254	0	0.000	N-S(1):	0.365
	TH	2.00	1,075	3,200	0.415 *	N-S(2):	0.469 *
	LT	0.00	0	0	0.000	E-W(1):	0.243 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.180
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.712
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,169	3,200	0.365		
	LT	1.00	86	1,600	0.054 *		
Eastbound	RT	0.00	100	0	0.000	ICU:	0.812
	TH	1.00	0	1,600	0.243 *		
	LT	0.00	288	1,600	0.180	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	279	0	0.000	N-S(1):	0.378
	TH	2.00	1,205	3,200	0.464 *	N-S(2):	0.533 *
	LT	0.00	0	0	0.000	E-W(1):	0.247 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.179
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.780
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,210	3,200	0.378		
	LT	1.00	111	1,600	0.069 *		
Eastbound	RT	0.00	109	0	0.000	ICU:	0.880
	TH	1.00	0	1,600	0.247 *		
	LT	0.00	286	1,600	0.179	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	588	1,600	0.236 *	N-S(1):	0.291
	TH	2.00	623	3,200	0.195	N-S(2):	0.303 *
	LT	1.00	94	1,600	0.059	E-W(1):	0.202
Westbound	RT	1.00	59	1,600	0.037	E-W(2):	0.382 *
	TH	3.00	1,133	4,800	0.236 *		
	LT	1.00	130	1,600	0.081	V/C:	0.685
Northbound	RT	0.00	85	0	0.000	Lost Time:	0.100
	TH	2.00	656	3,200	0.232		
	LT	2.00	192	2,880	0.067 *		
Eastbound	RT	0.00	149	0	0.000	ICU:	0.785
	TH	3.00	434	4,800	0.121		
	LT	2.00	421	2,880	0.146 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	514	1,600	0.163	N-S(1):	0.392 *
	TH	2.00	744	3,200	0.233	N-S(2):	0.310
	LT	1.00	178	1,600	0.111 *	E-W(1):	0.380 *
Westbound	RT	1.00	49	1,600	0.031	E-W(2):	0.324
	TH	3.00	711	4,800	0.148		
	LT	1.00	106	1,600	0.066 *	V/C:	0.772
Northbound	RT	0.00	159	0	0.000	Lost Time:	0.100
	TH	2.00	741	3,200	0.281 *		
	LT	2.00	223	2,880	0.077		
Eastbound	RT	0.00	190	0	0.000	ICU:	0.872
	TH	3.00	1,316	4,800	0.314 *		
	LT	2.00	508	2,880	0.176	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	109	0	0.000	N-S(1): 0.233
	TH	2.00	576	3,200	0.214 *	N-S(2): 0.313 *
	LT	1.00	59	1,600	0.037	E-W(1): 0.126
Westbound	RT	1.00	87	1,600	0.018	E-W(2): 0.248 *
	TH	1.00	286	1,600	0.179 *	
	LT	1.00	57	1,600	0.036	V/C: 0.561
Northbound	RT	0.00	49	0	0.000	Lost Time: 0.100
	TH	2.00	577	3,200	0.196	
	LT	1.00	158	1,600	0.099 *	
Eastbound	RT	1.00	119	1,600	0.000	ICU: 0.661
	TH	2.00	287	3,200	0.090	
	LT	1.00	110	1,600	0.069 *	LOS: B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	125	0	0.000	N-S(1): 0.308
	TH	2.00	765	3,200	0.278 *	N-S(2): 0.382 *
	LT	1.00	104	1,600	0.065	E-W(1): 0.225
Westbound	RT	1.00	79	1,600	0.000	E-W(2): 0.299 *
	TH	1.00	297	1,600	0.186 *	
	LT	1.00	45	1,600	0.028	V/C: 0.681
Northbound	RT	0.00	43	0	0.000	Lost Time: 0.100
	TH	2.00	734	3,200	0.243	
	LT	1.00	167	1,600	0.104 *	
Eastbound	RT	1.00	189	1,600	0.014	ICU: 0.781
	TH	2.00	629	3,200	0.197	
	LT	1.00	180	1,600	0.113 *	LOS: C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **119TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	36	0	0.000	N-S(1):	0.015
	TH	1.00	10	1,600	0.029 *	N-S(2):	0.108 *
	LT	1.00	2	1,120	0.002	E-W(1):	0.263
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.271 *
	TH	1.00	294	1,120	0.271 *		
	LT	0.00	9	1,120	0.008		
Northbound	RT	1.00	24	1,120	0.013		
	TH	0.00	0	0	0.000		
	LT	1.00	126	1,600	0.079 *		
Eastbound	RT	0.00	59	0	0.000		
	TH	1.00	227	1,120	0.255		
	LT	0.00	0	0	0.000 *		

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	60	0	0.000	N-S(1):	0.134
	TH	1.00	39	1,120	0.092 *	N-S(2):	0.148 *
	LT	0.00	4	1,120	0.004	E-W(1):	0.206 *
Westbound	RT	0.00	3	0	0.000	E-W(2):	0.200
	TH	1.00	179	1,120	0.163		
	LT	1.00	21	1,600	0.013 *		
Northbound	RT	0.00	38	0	0.000		
	TH	1.00	45	1,120	0.130		
	LT	0.00	63	1,120	0.056 *		
Eastbound	RT	0.00	96	0	0.000		
	TH	1.00	120	1,120	0.193 *		
	LT	1.00	41	1,120	0.037		

* = Critical Movement

Observed				N-S:	0.148
Gate Lost Time (sec)-	57	40	60	E-W:	0.271
	59	41	41		
Total Seconds-	298			V/C:	0.419
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.519
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **119TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase : N
Left-Turn Lane:	1600 vph	E-W Split Phase : N
Dual LT Penalty:	10 %	Lost Time (% of cycle) : 10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	43	0	0.000	N-S(1): 0.006
	TH	1.00	23	1,600	0.041 *	N-S(2): 0.109 *
	LT	1.00	2	1,120	0.002	E-W(1): 0.444 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.258
	TH	1.00	265	1,120	0.258	
	LT	0.00	24	1,120	0.021 *	
Northbound	RT	1.00	28	1,120	0.004	
	TH	0.00	0	0	0.000	
	LT	1.00	108	1,600	0.068 *	
Eastbound	RT	0.00	70	0	0.000	
	TH	1.00	404	1,120	0.423 *	
	LT	0.00	0	0	0.000	

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	60	0	0.000	N-S(1): 0.130
	TH	1.00	27	1,120	0.081 *	N-S(2): 0.155 *
	LT	0.00	4	1,120	0.004	E-W(1): 0.330 *
Westbound	RT	0.00	1	0	0.000	E-W(2): 0.183
	TH	1.00	143	1,120	0.129	
	LT	1.00	15	1,600	0.009 *	
Northbound	RT	0.00	27	0	0.000	
	TH	1.00	31	1,120	0.126	
	LT	0.00	83	1,120	0.074 *	
Eastbound	RT	0.00	118	0	0.000	
	TH	1.00	242	1,120	0.321 *	
	LT	1.00	60	1,120	0.054	

* = Critical Movement

Observed				N-S:	0.155
Gate Lost Time (sec)-	57	40	60	E-W:	0.444
	59	41	41		
Total Seconds-	298			V/C:	0.599
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.699
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	B
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	33	0	0.000	N-S(1):	0.175 *
	TH	1.00	147	1,600	0.113	N-S(2):	0.156
	LT	1.00	31	1,232	0.025 *	E-W(1):	0.202
Westbound	RT	1.00	40	1,232	0.007	E-W(2):	0.292 *
	TH	2.00	652	2,464	0.265 *		
	LT	0.00	0	0	0.000		
Northbound	RT	0.00	12	0	0.000		
	TH	1.00	173	1,232	0.150 *		
	LT	1.00	69	1,600	0.043		
Eastbound	RT	1.00	90	1,600	0.013		
	TH	2.00	497	2,464	0.202		
	LT	1.00	43	1,600	0.027 *		

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	28	0	0.000	N-S(1):	0.108
	TH	1.00	90	1,232	0.096 *	N-S(2):	0.113 *
	LT	1.00	47	1,600	0.029	E-W(1):	0.223
Westbound	RT	0.00	40	0	0.000	E-W(2):	0.278 *
	TH	2.00	643	2,464	0.277 *		
	LT	1.00	28	1,600	0.018		
Northbound	RT	0.00	38	0	0.000		
	TH	1.00	89	1,600	0.079		
	LT	1.00	21	1,232	0.017 *		
Eastbound	RT	1.00	23	1,232	0.002		
	TH	2.00	504	2,464	0.205		
	LT	0.00	1	1,232	0.001 *		

* = Critical Movement

Observed				N-S:	0.175
Gate Lost Time (sec)-	42	40	44	E-W:	0.292
	82	68	62		
Total Seconds-	338			V/C:	0.467
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.567
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	20	0	0.000	N-S(1):	0.122 *
	TH	1.00	104	1,600	0.078	N-S(2):	0.107
	LT	1.00	17	1,232	0.014 *	E-W(1):	0.379 *
Westbound	RT	1.00	39	1,232	0.018	E-W(2):	0.206
	TH	2.00	461	2,464	0.187		
	LT	0.00	0	0	0.000 *		
Northbound	RT	0.00	11	0	0.000		
	TH	1.00	122	1,232	0.108 *		
	LT	1.00	46	1,600	0.029		
Eastbound	RT	1.00	78	1,600	0.020		
	TH	2.00	933	2,464	0.379 *		
	LT	1.00	31	1,600	0.019		

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.117 *
	TH	1.00	81	1,232	0.081	N-S(2):	0.104
	LT	1.00	66	1,600	0.041 *	E-W(1):	0.419 *
Westbound	RT	0.00	41	0	0.000	E-W(2):	0.207
	TH	2.00	465	2,464	0.205		
	LT	1.00	65	1,600	0.041 *		
Northbound	RT	0.00	53	0	0.000		
	TH	1.00	68	1,600	0.076 *		
	LT	1.00	28	1,232	0.023		
Eastbound	RT	1.00	42	1,232	0.011		
	TH	2.00	929	2,464	0.378 *		
	LT	0.00	2	1,232	0.002		

* = Critical Movement

Observed				N-S:	0.122
Gate Lost Time (sec)-	42	40	44	E-W:	0.419
	82	68	62		
Total Seconds-	338			V/C:	0.541
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.641
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	B
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

APPENDIX L

ICU Worksheets – Cumulative (2020) Base Conditions

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: I-110 SOUTHBOUND RAMPS
East/West Street: EL SEGUNDO BOULEVARD

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.71	753	2,740	0.275	N-S(1):	0.305 *
	TH	0.00	0	0	0.000	N-S(2):	0.275
	LT	1.29	566	1,854	0.305 *	E-W(1):	0.540 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.360
	TH	3.00	1,730	4,800	0.360		
	LT	1.00	386	1,600	0.241 *	V/C:	0.845
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	479	1,600	0.299 *	ICU:	0.845
	TH	3.00	651	3,200	0.203		
	LT	0.00	0	0	0.000	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.50	390	2,406	0.162	N-S(1):	0.180 *
	TH	0.00	0	0	0.000	N-S(2):	0.162
	LT	1.50	388	2,154	0.180 *	E-W(1):	0.543 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.219
	TH	3.00	1,049	4,800	0.219		
	LT	1.00	222	1,600	0.139 *	V/C:	0.723
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	602	0	0.000	ICU:	0.723
	TH	3.00	1,335	4,800	0.404 *		
	LT	0.00	0	0	0.000	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: I-110 NORTHBOUND RAMPS
East/West Street: EL SEGUNDO BOULEVARD

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.173
	TH	0.00	0	0	0.000 *	N-S(2):	0.400 *
	LT	0.00	0	0	0.000	E-W(1):	0.401 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.263
	TH	3.00	1,262	4,800	0.263		
	LT	1.00	151	1,600	0.094 *	V/C:	0.801
Northbound	RT	0.50	290	806	0.173	Lost Time:	0.100
	TH	0.00	0	0	0.000	ATSAC/ATCS:	-0.100
	LT	1.50	862	2,155	0.400 *		
Eastbound	RT	1.00	230	1,600	0.000	ICU:	0.801
	TH	2.00	983	3,200	0.307 *		
	LT	0.00	0	0	0.000	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.000
	TH	0.00	0	0	0.000 *	N-S(2):	0.278 *
	LT	0.00	0	0	0.000	E-W(1):	0.636 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.164
	TH	3.00	787	4,800	0.164		
	LT	1.00	363	1,600	0.227 *	V/C:	0.914
Northbound	RT	0.79	314	1,256	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000	ATSAC/ATCS:	-0.100
	LT	1.22	486	1,750	0.278 *		
Eastbound	RT	1.00	412	1,600	0.008	ICU:	0.914
	TH	2.00	1,309	3,200	0.409 *		
	LT	0.00	0	0	0.000	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: FIGUEROA STREET
East/West Street: EL SEGUNDO BOULEVARD

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	126	1,600	0.006	N-S(1):	0.167 *
	TH	2.00	299	3,200	0.093	N-S(2):	0.162
	LT	1.00	69	1,600	0.043 *	E-W(1):	0.316
Westbound	RT	0.00	84	0	0.000	E-W(2):	0.331 *
	TH	3.00	1,153	4,800	0.258 *		
	LT	1.00	62	1,600	0.039	V/C:	0.498
Northbound	RT	0.00	28	0	0.000	Lost Time:	0.100
	TH	2.00	370	3,200	0.124 *		
	LT	1.00	110	1,600	0.069		
Eastbound	RT	1.00	270	1,600	0.100	ICU:	0.598
	TH	2.00	885	3,200	0.277		
	LT	1.00	117	1,600	0.073 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	116	1,600	0.000	N-S(1):	0.222
	TH	2.00	344	3,200	0.108 *	N-S(2):	0.227 *
	LT	1.00	93	1,600	0.058	E-W(1):	0.450 *
Westbound	RT	0.00	110	0	0.000	E-W(2):	0.288
	TH	3.00	822	4,800	0.194		
	LT	1.00	47	1,600	0.029 *	V/C:	0.677
Northbound	RT	0.00	120	0	0.000	Lost Time:	0.100
	TH	2.00	405	3,200	0.164		
	LT	1.00	190	1,600	0.119 *		
Eastbound	RT	1.00	154	1,600	0.000	ICU:	0.777
	TH	2.00	1,348	3,200	0.421 *		
	LT	1.00	151	1,600	0.094	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SAN PEDRO STREET**
East/West Street: **120TH STREET**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	98	0	0.000	N-S(1):	0.140
	TH	2.00	287	3,200	0.133 *	N-S(2):	0.171 *
	LT	0.00	41	1,600	0.026	E-W(1):	0.375 *
Westbound	RT	0.00	58	0	0.000	E-W(2):	0.245
	TH	1.00	306	1,600	0.228		
	LT	1.00	51	1,600	0.032 *	V/C:	0.546
Northbound	RT	0.00	70	0	0.000	Lost Time:	0.100
	TH	2.00	234	3,200	0.114		
	LT	0.00	61	1,600	0.038 *		
Eastbound	RT	0.00	71	0	0.000	ICU:	0.646
	TH	1.00	478	1,600	0.343 *		
	LT	1.00	27	1,600	0.017	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	116	0	0.000	N-S(1):	0.135
	TH	2.00	289	3,200	0.137 *	N-S(2):	0.181 *
	LT	0.00	32	1,600	0.020	E-W(1):	0.290
Westbound	RT	0.00	44	0	0.000	E-W(2):	0.361 *
	TH	1.00	490	1,600	0.334 *		
	LT	1.00	63	1,600	0.039	V/C:	0.542
Northbound	RT	0.00	43	0	0.000	Lost Time:	0.100
	TH	2.00	254	3,200	0.115		
	LT	0.00	70	1,600	0.044 *		
Eastbound	RT	0.00	73	0	0.000	ICU:	0.642
	TH	1.00	329	1,600	0.251		
	LT	1.00	43	1,600	0.027 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **CENTURY BOULEVARD**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	96	0	0.000	N-S(1):	0.249
	TH	2.00	508	3,200	0.189 *	N-S(2):	0.292 *
	LT	1.00	58	1,600	0.036	E-W(1):	0.320 *
Westbound	RT	0.00	58	0	0.000	E-W(2):	0.291
	TH	2.00	715	3,200	0.242		
	LT	1.00	126	1,600	0.079 *	V/C:	0.612
Northbound	RT	0.00	57	0	0.000	Lost Time:	0.100
	TH	2.00	624	3,200	0.213	ATSAC/ATCS:	-0.100
	LT	1.00	165	1,600	0.103 *		
Eastbound	RT	0.00	121	0	0.000	ICU:	0.612
	TH	2.00	650	3,200	0.241 *		
	LT	1.00	79	1,600	0.049	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.253
	TH	2.00	580	3,200	0.210 *	N-S(2):	0.304 *
	LT	1.00	83	1,600	0.052	E-W(1):	0.382 *
Westbound	RT	0.00	78	0	0.000	E-W(2):	0.303
	TH	2.00	622	3,200	0.219		
	LT	1.00	104	1,600	0.065 *	V/C:	0.686
Northbound	RT	0.00	82	0	0.000	Lost Time:	0.100
	TH	2.00	562	3,200	0.201	ATSAC/ATCS:	-0.100
	LT	1.00	151	1,600	0.094 *		
Eastbound	RT	0.00	174	0	0.000	ICU:	0.686
	TH	2.00	839	3,200	0.317 *		
	LT	1.00	134	1,600	0.084	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	69	0	0.000	N-S(1):	0.337 *
	TH	2.00	603	3,200	0.210	N-S(2):	0.310
	LT	1.00	184	1,600	0.115 *	E-W(1):	0.234
Westbound	RT	0.00	263	0	0.000	E-W(2):	0.325 *
	TH	3.00	908	4,800	0.244 *		
	LT	1.00	140	1,600	0.088	V/C:	0.662
Northbound	RT	0.00	100	0	0.000	Lost Time:	0.100
	TH	2.00	610	3,200	0.222 *	ATSAC/ATCS:	-0.100
	LT	1.00	160	1,600	0.100		
Eastbound	RT	0.00	137	0	0.000	ICU:	0.662
	TH	3.00	563	4,800	0.146		
	LT	1.00	130	1,600	0.081 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	105	0	0.000	N-S(1):	0.368 *
	TH	2.00	581	3,200	0.214	N-S(2):	0.292
	LT	1.00	200	1,600	0.125 *	E-W(1):	0.412 *
Westbound	RT	0.00	191	0	0.000	E-W(2):	0.287
	TH	3.00	657	4,800	0.177		
	LT	1.00	119	1,600	0.074 *	V/C:	0.780
Northbound	RT	0.00	97	0	0.000	Lost Time:	0.100
	TH	2.00	680	3,200	0.243 *	ATSAC/ATCS:	-0.100
	LT	1.00	125	1,600	0.078		
Eastbound	RT	0.00	168	0	0.000	ICU:	0.780
	TH	3.00	1,452	4,800	0.338 *		
	LT	1.00	176	1,600	0.110	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: AVALON BOULEVARD
East/West Street: 120TH STREET

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	35	0	0.000	N-S(1):	0.267 *
	TH	2.00	623	3,200	0.206	N-S(2):	0.239
	LT	1.00	91	1,600	0.057 *	E-W(1):	0.346 *
Westbound	RT	0.00	126	0	0.000	E-W(2):	0.344
	TH	1.00	342	1,600	0.293		
	LT	1.00	171	1,600	0.107 *	V/C:	0.613
Northbound	RT	0.00	146	0	0.000	Lost Time:	0.100
	TH	2.00	526	3,200	0.210 *	ATSAC/ATCS:	-0.100
	LT	1.00	53	1,600	0.033		
Eastbound	RT	0.00	80	0	0.000	ICU:	0.613
	TH	1.00	303	1,600	0.239 *		
	LT	1.00	81	1,600	0.051	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	66	0	0.000	N-S(1):	0.362 *
	TH	2.00	599	3,200	0.208	N-S(2):	0.248
	LT	1.00	128	1,600	0.080 *	E-W(1):	0.367 *
Westbound	RT	0.00	93	0	0.000	E-W(2):	0.318
	TH	1.00	312	1,600	0.253		
	LT	1.00	137	1,600	0.086 *	V/C:	0.729
Northbound	RT	0.00	191	0	0.000	Lost Time:	0.100
	TH	2.00	710	3,200	0.282 *	ATSAC/ATCS:	-0.100
	LT	1.00	64	1,600	0.040		
Eastbound	RT	0.00	52	0	0.000	ICU:	0.729
	TH	1.00	398	1,600	0.281 *		
	LT	1.00	104	1,600	0.065	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **CENTURY BOULEVARD**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	94	0	0.000	N-S(1): 0.349
	TH	2.00	827	3,200	0.288 *	N-S(2): 0.438 *
	LT	1.00	45	1,600	0.028	E-W(1): 0.277
Westbound	RT	0.00	46	0	0.000	E-W(2): 0.349 *
	TH	1.00	417	1,600	0.289 *	
	LT	1.00	59	1,600	0.037	V/C: 0.787
Northbound	RT	0.00	52	0	0.000	Lost Time: 0.100
	TH	2.00	976	3,200	0.321	ATSAC/ATCS: -0.100
	LT	1.00	240	1,600	0.150 *	
Eastbound	RT	1.00	197	1,600	0.000	ICU: 0.787
	TH	1.00	384	1,600	0.240	
	LT	1.00	96	1,600	0.060 *	LOS: C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	76	0	0.000	N-S(1): 0.385
	TH	2.00	909	3,200	0.308 *	N-S(2): 0.431 *
	LT	1.00	91	1,600	0.057	E-W(1): 0.395 *
Westbound	RT	0.00	57	0	0.000	E-W(2): 0.375
	TH	1.00	411	1,600	0.293	
	LT	1.00	83	1,600	0.052 *	V/C: 0.826
Northbound	RT	0.00	77	0	0.000	Lost Time: 0.100
	TH	2.00	973	3,200	0.328	ATSAC/ATCS: -0.100
	LT	1.00	197	1,600	0.123 *	
Eastbound	RT	1.00	236	1,600	0.024	ICU: 0.826
	TH	1.00	548	1,600	0.343 *	
	LT	1.00	131	1,600	0.082	LOS: D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: 103RD STREET

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	13	0	0.000	N-S(1):	0.470 *
	TH	2.00	947	3,200	0.300	N-S(2):	0.334
	LT	1.00	123	1,600	0.077 *	E-W(1):	0.271 *
Westbound	RT	0.00	147	0	0.000	E-W(2):	0.238
	TH	1.00	192	1,600	0.212		
	LT	1.00	186	1,600	0.116 *	V/C:	0.741
Northbound	RT	0.00	217	0	0.000	Lost Time:	0.100
	TH	2.00	1,039	3,200	0.393 *	ATSAC/ATCS:	-0.100
	LT	1.00	54	1,600	0.034		
Eastbound	RT	0.00	62	0	0.000	ICU:	0.741
	TH	1.00	186	1,600	0.155 *		
	LT	1.00	42	1,600	0.026	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	40	0	0.000	N-S(1):	0.509 *
	TH	2.00	1,041	3,200	0.338	N-S(2):	0.379
	LT	1.00	185	1,600	0.116 *	E-W(1):	0.271
Westbound	RT	0.00	178	0	0.000	E-W(2):	0.307 *
	TH	1.00	265	1,600	0.277 *		
	LT	1.00	171	1,600	0.107	V/C:	0.816
Northbound	RT	0.00	245	0	0.000	Lost Time:	0.100
	TH	2.00	1,014	3,200	0.393 *	ATSAC/ATCS:	-0.100
	LT	1.00	65	1,600	0.041		
Eastbound	RT	0.00	50	0	0.000	ICU:	0.816
	TH	1.00	213	1,600	0.164		
	LT	1.00	48	1,600	0.030 *	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	44	0	0.000	N-S(1):	0.385
	TH	2.00	1,024	3,200	0.334 *	N-S(2):	0.411 *
	LT	2.00	150	2,880	0.052	E-W(1):	0.304 *
Westbound	RT	0.00	238	0	0.000	E-W(2):	0.238
	TH	3.00	816	4,800	0.220		
	LT	2.00	310	2,880	0.108 *	V/C:	0.715
Northbound	RT	1.00	293	1,600	0.086	Lost Time:	0.100
	TH	2.00	1,064	3,200	0.333	ATSAC/ATCS:	-0.100
	LT	2.00	221	2,880	0.077 *		
Eastbound	RT	0.00	313	1,600	0.196 *	ICU:	0.715
	TH	3.00	513	3,200	0.160		
	LT	2.00	52	2,880	0.018	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	62	0	0.000	N-S(1):	0.360
	TH	2.00	989	3,200	0.328 *	N-S(2):	0.421 *
	LT	2.00	176	2,880	0.061	E-W(1):	0.396 *
Westbound	RT	0.00	150	0	0.000	E-W(2):	0.184
	TH	3.00	566	4,800	0.149		
	LT	2.00	247	2,880	0.086 *	V/C:	0.817
Northbound	RT	1.00	342	1,600	0.137	Lost Time:	0.100
	TH	2.00	956	3,200	0.299	ATSAC/ATCS:	-0.100
	LT	2.00	269	2,880	0.093 *		
Eastbound	RT	0.00	360	0	0.000	ICU:	0.817
	TH	3.00	1,129	4,800	0.310 *		
	LT	2.00	101	2,880	0.035	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: I-105 WESTBOUND ON/OFF RAMPS

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	747	1,600	0.467 *	N-S(1):	0.370
	TH	2.00	940	3,200	0.294	N-S(2):	0.630 *
	LT	0.00	0	0	0.000	E-W(1):	0.093
Westbound	RT	2.00	405	3,192	0.127	E-W(2):	0.127 *
	TH	0.00	1	8	0.127 *		
	LT	1.00	149	1,600	0.093	V/C:	0.757
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,184	3,200	0.370	ATSAC/ATCS:	-0.100
	LT	2.00	468	2,880	0.163 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.757
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	588	1,600	0.368 *	N-S(1):	0.318
	TH	2.00	1,060	3,200	0.331	N-S(2):	0.532 *
	LT	0.00	0	0	0.000	E-W(1):	0.188 *
Westbound	RT	1.79	485	2,867	0.169	E-W(2):	0.169
	TH	0.00	0	0	0.000		
	LT	1.21	327	1,740	0.188 *	V/C:	0.720
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,018	3,200	0.318	ATSAC/ATCS:	-0.100
	LT	2.00	471	2,880	0.164 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.720
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **I-105 EASTBOUND ON/OFF RAMPS**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.366 *
	TH	2.00	568	3,200	0.178	N-S(2):	0.178
	LT	2.00	528	2,880	0.183 *	E-W(1):	0.307
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.341 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.707
Northbound	RT	1.12	326	1,786	0.183	Lost Time:	0.100
	TH	2.88	842	4,614	0.183 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	1.33	653	2,126	0.307	ICU:	0.707
	TH	0.04	20	65	0.307		
	LT	1.63	801	2,348	0.341 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.390 *
	TH	2.00	866	3,200	0.271	N-S(2):	0.271
	LT	2.00	518	2,880	0.180 *	E-W(1):	0.236
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.262 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.652
Northbound	RT	1.19	399	1,900	0.210	Lost Time:	0.100
	TH	2.81	945	4,500	0.210 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	1.14	430	1,822	0.236	ICU:	0.652
	TH	0.44	165	699	0.236		
	LT	1.42	538	2,051	0.262 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **120TH STREET**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	85	0	0.000	N-S(1):	0.411 *
	TH	2.00	845	3,200	0.291	N-S(2):	0.345
	LT	1.00	213	1,600	0.133 *	E-W(1):	0.236
Westbound	RT	0.00	218	0	0.000	E-W(2):	0.303 *
	TH	2.00	498	3,200	0.224 *		
	LT	1.00	159	1,600	0.099	V/C:	0.714
Northbound	RT	0.00	167	0	0.000	Lost Time:	0.100
	TH	2.00	722	3,200	0.278 *	ATSAC/ATCS:	-0.100
	LT	1.00	86	1,600	0.054		
Eastbound	RT	0.00	42	0	0.000	ICU:	0.714
	TH	2.00	397	3,200	0.137		
	LT	1.00	126	1,600	0.079 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	105	0	0.000	N-S(1):	0.430 *
	TH	2.00	964	3,200	0.334	N-S(2):	0.387
	LT	1.00	166	1,600	0.104 *	E-W(1):	0.226
Westbound	RT	0.00	219	0	0.000	E-W(2):	0.268 *
	TH	2.00	338	3,200	0.174 *		
	LT	1.00	105	1,600	0.066	V/C:	0.698
Northbound	RT	0.00	112	0	0.000	Lost Time:	0.100
	TH	2.00	932	3,200	0.326 *	ATSAC/ATCS:	-0.100
	LT	1.00	85	1,600	0.053		
Eastbound	RT	0.00	88	0	0.000	ICU:	0.698
	TH	2.00	424	3,200	0.160		
	LT	1.00	151	1,600	0.094 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **COMPTON BOULEVARD**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	79	0	0.000	N-S(1):	0.362 *
	TH	2.00	687	3,200	0.239	N-S(2):	0.317
	LT	1.00	164	1,600	0.103 *	E-W(1):	0.243
Westbound	RT	0.00	123	0	0.000	E-W(2):	0.268 *
	TH	2.00	450	3,200	0.179 *		
	LT	1.00	106	1,600	0.066	V/C:	0.630
Northbound	RT	0.00	159	0	0.000	Lost Time:	0.100
	TH	2.00	669	3,200	0.259 *		
	LT	1.00	124	1,600	0.078		
Eastbound	RT	1.00	129	1,600	0.003	ICU:	0.730
	TH	2.00	565	3,200	0.177		
	LT	1.00	142	1,600	0.089 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	138	0	0.000	N-S(1):	0.381 *
	TH	2.00	814	3,200	0.298	N-S(2):	0.348
	LT	1.00	162	1,600	0.101 *	E-W(1):	0.235
Westbound	RT	0.00	184	0	0.000	E-W(2):	0.273 *
	TH	2.00	377	3,200	0.175 *		
	LT	1.00	88	1,600	0.055	V/C:	0.654
Northbound	RT	0.00	111	0	0.000	Lost Time:	0.100
	TH	2.00	784	3,200	0.280 *		
	LT	1.00	80	1,600	0.050		
Eastbound	RT	1.00	131	1,600	0.032	ICU:	0.754
	TH	2.00	577	3,200	0.180		
	LT	1.00	156	1,600	0.098 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: ALONDRA BOULEVARD

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	130	0	0.000	N-S(1):	0.300
	TH	2.00	758	3,200	0.278 *	N-S(2):	0.362 *
	LT	1.00	139	1,600	0.087	E-W(1):	0.199
Westbound	RT	0.00	149	0	0.000	E-W(2):	0.231 *
	TH	2.00	443	3,200	0.185 *		
	LT	1.00	104	1,600	0.065	V/C:	0.593
Northbound	RT	0.00	76	0	0.000	Lost Time:	0.100
	TH	2.00	604	3,200	0.213		
	LT	1.00	134	1,600	0.084 *		
Eastbound	RT	0.00	107	0	0.000	ICU:	0.693
	TH	2.00	322	3,200	0.134		
	LT	1.00	73	1,600	0.046 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	97	0	0.000	N-S(1):	0.374 *
	TH	2.00	690	3,200	0.246	N-S(2):	0.312
	LT	1.00	187	1,600	0.117 *	E-W(1):	0.270 *
Westbound	RT	0.00	189	0	0.000	E-W(2):	0.243
	TH	2.00	303	3,200	0.154		
	LT	1.00	75	1,600	0.047 *	V/C:	0.644
Northbound	RT	0.00	109	0	0.000	Lost Time:	0.100
	TH	2.00	714	3,200	0.257 *		
	LT	1.00	105	1,600	0.066		
Eastbound	RT	0.00	132	0	0.000	ICU:	0.744
	TH	2.00	580	3,200	0.223 *		
	LT	1.00	143	1,600	0.089	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **103RD AVENUE**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	83	0	0.000	N-S(1):	0.208
	TH	2.00	452	3,200	0.167 *	N-S(2):	0.225 *
	LT	1.00	57	1,600	0.036	E-W(1):	0.197
Westbound	RT	1.00	95	1,600	0.024	E-W(2):	0.270 *
	TH	1.00	326	1,600	0.204 *		
	LT	1.00	119	1,600	0.074	V/C:	0.495
Northbound	RT	0.00	120	0	0.000	Lost Time:	0.100
	TH	2.00	431	3,200	0.172	ATSAC/ATCS:	-0.100
	LT	1.00	93	1,600	0.058 *		
Eastbound	RT	0.00	115	0	0.000	ICU:	0.495
	TH	2.00	279	3,200	0.123		
	LT	1.00	105	1,600	0.066 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	83	0	0.000	N-S(1):	0.246 *
	TH	2.00	426	3,200	0.159	N-S(2):	0.244
	LT	1.00	92	1,600	0.058 *	E-W(1):	0.228
Westbound	RT	1.00	94	1,600	0.001	E-W(2):	0.328 *
	TH	1.00	438	1,600	0.274 *		
	LT	1.00	117	1,600	0.073	V/C:	0.574
Northbound	RT	0.00	122	0	0.000	Lost Time:	0.100
	TH	2.00	478	3,200	0.188 *	ATSAC/ATCS:	-0.100
	LT	1.00	136	1,600	0.085		
Eastbound	RT	0.00	97	0	0.000	ICU:	0.574
	TH	2.00	399	3,200	0.155		
	LT	1.00	86	1,600	0.054 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	246	1,600	0.154 *	N-S(1):	0.101
	TH	2.00	67	1,600	0.042	N-S(2):	0.240 *
	LT	1.00	117	1,600	0.073	E-W(1):	0.239
Westbound	RT	0.00	91	0	0.000	E-W(2):	0.452 *
	TH	2.00	993	3,200	0.339 *		
	LT	1.00	8	1,600	0.005	V/C:	0.692
Northbound	RT	0.00	16	0	0.000	Lost Time:	0.100
	TH	2.00	74	3,200	0.028		
	LT	1.00	138	1,600	0.086 *		
Eastbound	RT	0.00	71	0	0.000	ICU:	0.792
	TH	2.00	679	3,200	0.234		
	LT	1.00	181	1,600	0.113 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	123	1,600	0.077 *	N-S(1):	0.098
	TH	2.00	68	1,600	0.043	N-S(2):	0.123 *
	LT	1.00	125	1,600	0.078	E-W(1):	0.384 *
Westbound	RT	0.00	85	0	0.000	E-W(2):	0.298
	TH	2.00	469	3,200	0.173		
	LT	1.00	13	1,600	0.008 *	V/C:	0.507
Northbound	RT	0.00	19	0	0.000	Lost Time:	0.100
	TH	2.00	46	3,200	0.020		
	LT	1.00	74	1,600	0.046 *		
Eastbound	RT	0.00	124	0	0.000	ICU:	0.607
	TH	2.00	1,078	3,200	0.376 *		
	LT	1.00	200	1,600	0.125	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 103RD STREET

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	59	0	0.000	N-S(1):	0.245
	TH	2.00	407	3,200	0.146 *	N-S(2):	0.255 *
	LT	1.00	89	1,600	0.056	E-W(1):	0.284
Westbound	RT	0.00	79	0	0.000	E-W(2):	0.311 *
	TH	1.00	350	1,600	0.268 *		
	LT	1.00	153	1,600	0.096	V/C:	0.566
Northbound	RT	0.00	147	0	0.000	Lost Time:	0.100
	TH	2.00	458	3,200	0.189		
	LT	1.00	175	1,600	0.109 *		
Eastbound	RT	1.00	102	1,600	0.000	ICU:	0.666
	TH	1.00	300	1,600	0.188		
	LT	1.00	69	1,600	0.043 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	48	0	0.000	N-S(1):	0.244 *
	TH	2.00	348	3,200	0.124	N-S(2):	0.212
	LT	1.00	93	1,600	0.058 *	E-W(1):	0.280 *
Westbound	RT	0.00	50	0	0.000	E-W(2):	0.217
	TH	1.00	264	1,600	0.196		
	LT	1.00	161	1,600	0.101 *	V/C:	0.524
Northbound	RT	0.00	183	0	0.000	Lost Time:	0.100
	TH	2.00	413	3,200	0.186 *		
	LT	1.00	141	1,600	0.088		
Eastbound	RT	1.00	150	1,600	0.006	ICU:	0.624
	TH	1.00	287	1,600	0.179 *		
	LT	1.00	33	1,600	0.021	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: SANTA ANA BOULEVARD(N)

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : N
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	5	0	0.000	N-S(1):	0.402
	TH	1.00	639	1,600	0.403 *	N-S(2):	0.411 *
	LT	1.00	19	1,600	0.012	E-W(1):	0.085
Westbound	RT	0.00	101	0	0.000	E-W(2):	0.148 *
	TH	1.00	31	1,600	0.143 *		
	LT	0.00	97	1,600	0.061	V/C:	0.559
Northbound	RT	0.00	30	0	0.000	Lost Time:	0.100
	TH	1.00	594	1,600	0.390		
	LT	1.00	12	1,600	0.008 *		
Eastbound	RT	0.00	14	0	0.000	ICU:	0.659
	TH	1.00	16	1,600	0.024		
	LT	0.00	8	1,600	0.005 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.509 *
	TH	1.00	606	1,600	0.381	N-S(2):	0.391
	LT	1.00	34	1,600	0.021 *	E-W(1):	0.061
Westbound	RT	0.00	81	0	0.000	E-W(2):	0.097 *
	TH	1.00	22	1,600	0.096 *		
	LT	0.00	51	1,600	0.032	V/C:	0.606
Northbound	RT	0.00	54	0	0.000	Lost Time:	0.100
	TH	1.00	726	1,600	0.488 *		
	LT	1.00	16	1,600	0.010		
Eastbound	RT	0.00	18	0	0.000	ICU:	0.706
	TH	1.00	27	1,600	0.029		
	LT	0.00	1	1,600	0.001 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: SANTA ANA BOULEVARD(S)

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	60	0	0.000	N-S(1):	0.404
	TH	1.00	662	1,600	0.451 *	N-S(2):	0.469 *
	LT	1.00	29	1,600	0.018	E-W(1):	0.130 *
Westbound	RT	0.00	11	0	0.000	E-W(2):	0.111
	TH	1.00	74	1,600	0.090		
	LT	0.00	59	1,600	0.037 *	V/C:	0.599
Northbound	RT	0.00	27	0	0.000	Lost Time:	0.100
	TH	1.00	590	1,600	0.386		
	LT	1.00	28	1,600	0.018 *		
Eastbound	RT	0.00	23	0	0.000	ICU:	0.699
	TH	1.00	92	1,600	0.093 *		
	LT	0.00	34	1,600	0.021	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	29	0	0.000	N-S(1):	0.512 *
	TH	1.00	607	1,600	0.398	N-S(2):	0.416
	LT	1.00	42	1,600	0.026 *	E-W(1):	0.138 *
Westbound	RT	0.00	12	0	0.000	E-W(2):	0.100
	TH	1.00	46	1,600	0.076		
	LT	0.00	64	1,600	0.040 *	V/C:	0.650
Northbound	RT	0.00	35	0	0.000	Lost Time:	0.100
	TH	1.00	743	1,600	0.486 *		
	LT	1.00	29	1,600	0.018		
Eastbound	RT	0.00	30	0	0.000	ICU:	0.750
	TH	1.00	88	1,600	0.098 *		
	LT	0.00	38	1,600	0.024	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	143	0	0.000	N-S(1):	0.377
	TH	2.00	778	3,200	0.288 *	N-S(2):	0.381 *
	LT	1.00	175	1,600	0.109	E-W(1):	0.246
Westbound	RT	0.00	162	0	0.000	E-W(2):	0.403 *
	TH	2.00	876	3,200	0.324 *		
	LT	1.00	133	1,600	0.083	V/C:	0.784
Northbound	RT	0.00	139	0	0.000	Lost Time:	0.100
	TH	2.00	718	3,200	0.268		
	LT	1.00	149	1,600	0.093 *		
Eastbound	RT	1.00	136	1,600	0.000	ICU:	0.884
	TH	2.00	523	3,200	0.163		
	LT	1.00	126	1,600	0.079 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	155	0	0.000	N-S(1):	0.391 *
	TH	2.00	672	3,200	0.258	N-S(2):	0.362
	LT	1.00	173	1,600	0.108 *	E-W(1):	0.422 *
Westbound	RT	0.00	174	0	0.000	E-W(2):	0.360
	TH	2.00	630	3,200	0.251		
	LT	1.00	149	1,600	0.093 *	V/C:	0.813
Northbound	RT	0.00	171	0	0.000	Lost Time:	0.100
	TH	2.00	734	3,200	0.283 *		
	LT	1.00	167	1,600	0.104		
Eastbound	RT	1.00	180	1,600	0.008	ICU:	0.913
	TH	2.00	1,053	3,200	0.329 *		
	LT	1.00	175	1,600	0.109	LOS:	E

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **COMPTON BOULEVARD**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	130	0	0.000	N-S(1):	0.289
	TH	2.00	611	3,200	0.232 *	N-S(2):	0.290 *
	LT	1.00	183	1,600	0.114	E-W(1):	0.308 *
Westbound	RT	1.00	161	1,600	0.000	E-W(2):	0.213
	TH	2.00	479	3,200	0.150		
	LT	1.00	166	1,600	0.104 *	V/C:	0.598
Northbound	RT	1.00	156	1,600	0.000	Lost Time:	0.100
	TH	2.00	561	3,200	0.175		
	LT	1.00	93	1,600	0.058 *		
Eastbound	RT	0.00	88	0	0.000	ICU:	0.698
	TH	2.00	564	3,200	0.204 *		
	LT	1.00	101	1,600	0.063	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	109	0	0.000	N-S(1):	0.325 *
	TH	2.00	583	3,200	0.216	N-S(2):	0.299
	LT	1.00	155	1,600	0.097 *	E-W(1):	0.326 *
Westbound	RT	1.00	205	1,600	0.031	E-W(2):	0.248
	TH	2.00	543	3,200	0.170		
	LT	1.00	164	1,600	0.103 *	V/C:	0.651
Northbound	RT	1.00	152	1,600	0.000	Lost Time:	0.100
	TH	2.00	731	3,200	0.228 *		
	LT	1.00	133	1,600	0.083		
Eastbound	RT	0.00	108	0	0.000	ICU:	0.751
	TH	2.00	605	3,200	0.223 *		
	LT	1.00	125	1,600	0.078	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: ALONDRA BOULEVARD

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	73	0	0.000	N-S(1):	0.270
	TH	2.00	795	3,200	0.271 *	N-S(2):	0.311 *
	LT	1.00	95	1,600	0.059	E-W(1):	0.224
Westbound	RT	0.00	83	0	0.000	E-W(2):	0.230 *
	TH	2.00	483	3,200	0.177 *		
	LT	1.00	109	1,600	0.068	V/C:	0.541
Northbound	RT	0.00	57	0	0.000	Lost Time:	0.100
	TH	2.00	618	3,200	0.211		
	LT	1.00	64	1,600	0.040 *		
Eastbound	RT	0.00	56	0	0.000	ICU:	0.641
	TH	2.00	444	3,200	0.156		
	LT	1.00	84	1,600	0.053 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	100	0	0.000	N-S(1):	0.334 *
	TH	2.00	580	3,200	0.213	N-S(2):	0.264
	LT	1.00	106	1,600	0.066 *	E-W(1):	0.290 *
Westbound	RT	0.00	112	0	0.000	E-W(2):	0.263
	TH	2.00	420	3,200	0.166		
	LT	1.00	99	1,600	0.062 *	V/C:	0.624
Northbound	RT	0.00	96	0	0.000	Lost Time:	0.100
	TH	2.00	760	3,200	0.268 *		
	LT	1.00	82	1,600	0.051		
Eastbound	RT	0.00	104	0	0.000	ICU:	0.724
	TH	2.00	627	3,200	0.228 *		
	LT	1.00	155	1,600	0.097	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: GREEN LEAF BOULEVARD

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : N
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	28	0	0.000	N-S(1):	0.247
	TH	2.00	912	3,200	0.294 *	N-S(2):	0.319 *
	LT	1.00	105	1,600	0.066	E-W(1):	0.290 *
Westbound	RT	0.00	62	0	0.000	E-W(2):	0.257
	TH	1.00	300	1,600	0.226		
	LT	1.00	202	1,600	0.126 *	V/C:	0.609
Northbound	RT	1.00	126	1,600	0.000	Lost Time:	0.100
	TH	2.00	579	3,200	0.181		
	LT	1.00	40	1,600	0.025 *		
Eastbound	RT	0.00	68	0	0.000	ICU:	0.709
	TH	1.00	195	1,600	0.164 *		
	LT	1.00	49	1,600	0.031	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	17	0	0.000	N-S(1):	0.359 *
	TH	2.00	677	3,200	0.217	N-S(2):	0.261
	LT	1.00	194	1,600	0.121 *	E-W(1):	0.302 *
Westbound	RT	0.00	159	0	0.000	E-W(2):	0.256
	TH	1.00	212	1,600	0.232		
	LT	1.00	114	1,600	0.071 *	V/C:	0.661
Northbound	RT	1.00	240	1,600	0.079	Lost Time:	0.100
	TH	2.00	762	3,200	0.238 *		
	LT	1.00	71	1,600	0.044		
Eastbound	RT	0.00	19	0	0.000	ICU:	0.761
	TH	1.00	351	1,600	0.231 *		
	LT	1.00	38	1,600	0.024	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON BOULEVARD**
East/West Street: **ARTESIA BOULEVARD(NORTH)**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	285	0	0.000	N-S(1):	0.154
	TH	3.00	872	4,800	0.241 *	N-S(2):	0.405 *
	LT	0.00	0	0	0.000	E-W(1):	0.329 *
Westbound	RT	0.00	343	0	0.000	E-W(2):	0.296
	TH	1.48	357	2,366	0.296		
	LT	1.52	720	2,190	0.329 *	V/C:	0.734
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	492	3,200	0.154		
	LT	1.00	262	1,600	0.164 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.834
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	269	0	0.000	N-S(1):	0.235
	TH	3.00	601	4,800	0.181 *	N-S(2):	0.497 *
	LT	0.00	0	0	0.000	E-W(1):	0.223
Westbound	RT	0.00	373	1,600	0.233 *	E-W(2):	0.233 *
	TH	1.56	180	897	0.201		
	LT	1.44	462	2,073	0.223	V/C:	0.730
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	753	3,200	0.235		
	LT	1.00	506	1,600	0.316 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.830
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON BOULEVARD
East/West Street: ARTESIA BOULEVARD (SOUTH)

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase : N
Left-Turn Lane:	1600 vph	E-W Split Phase : N
Dual LT Penalty:	10 %	Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.318
	TH	2.00	1,065	3,200	0.333 *	N-S(2):	0.333 *
	LT	2.00	523	2,880	0.182	E-W(1):	0.313 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.141
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.646
Northbound	RT	2.00	382	3,200	0.119	Lost Time:	0.100
	TH	2.00	436	3,200	0.136		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	0.00	500	1,600	0.313 *	ICU:	0.746
	TH	1.44	89	703	0.127		
	LT	1.56	316	2,247	0.141	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.418 *
	TH	2.00	699	3,200	0.218	N-S(2):	0.218
	LT	2.00	355	2,880	0.123 *	E-W(1):	0.263 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.194
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.681
Northbound	RT	2.00	802	3,200	0.251	Lost Time:	0.100
	TH	2.00	943	3,200	0.295 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	282	0	0.000	ICU:	0.781
	TH	2.00	561	3,200	0.263 *		
	LT	1.00	310	1,600	0.194	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **MARTIN LUTHER KING JR BOULEVARD**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	18	0	0.000	N-S(1):	0.348
	TH	2.00	913	3,200	0.291 *	N-S(2):	0.444 *
	LT	1.00	151	1,600	0.094	E-W(1):	0.261
Westbound	RT	0.00	163	0	0.000	E-W(2):	0.305 *
	TH	2.00	741	3,200	0.283 *		
	LT	1.00	130	1,600	0.081	V/C:	0.749
Northbound	RT	1.00	69	1,600	0.000	Lost Time:	0.100
	TH	2.00	813	3,200	0.254		
	LT	1.00	245	1,600	0.153 *		
Eastbound	RT	0.00	123	0	0.000	ICU:	0.849
	TH	2.00	453	3,200	0.180		
	LT	1.00	35	1,600	0.022 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	41	0	0.000	N-S(1):	0.478 *
	TH	2.00	1,061	3,200	0.344	N-S(2):	0.453
	LT	1.00	197	1,600	0.123 *	E-W(1):	0.316 *
Westbound	RT	0.00	190	0	0.000	E-W(2):	0.219
	TH	2.00	422	3,200	0.191		
	LT	1.00	109	1,600	0.068 *	V/C:	0.794
Northbound	RT	1.00	153	1,600	0.028	Lost Time:	0.100
	TH	2.00	1,137	3,200	0.355 *		
	LT	1.00	175	1,600	0.109		
Eastbound	RT	0.00	191	0	0.000	ICU:	0.894
	TH	2.00	601	3,200	0.248 *		
	LT	1.00	44	1,600	0.028	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase : N
Left-Turn Lane:	1600 vph	E-W Split Phase : N
Dual LT Penalty:	10 %	Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	51	0	0.000	N-S(1):	0.281
	TH	3.00	1,069	4,800	0.233 *	N-S(2):	0.392 *
	LT	1.00	101	1,600	0.063	E-W(1):	0.522 *
Westbound	RT	0.00	57	0	0.000	E-W(2):	0.387
	TH	2.00	1,090	3,200	0.358		
	LT	1.00	394	1,600	0.246 *	V/C:	0.914
Northbound	RT	1.00	439	1,600	0.028	Lost Time:	0.100
	TH	3.00	1,045	4,800	0.218		
	LT	1.00	254	1,600	0.159 *		
Eastbound	RT	0.00	218	0	0.000	ICU:	1.014
	TH	2.00	665	3,200	0.276 *		
	LT	1.00	47	1,600	0.029	LOS:	F

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	89	0	0.000	N-S(1):	0.351
	TH	3.00	1,176	4,800	0.264 *	N-S(2):	0.406 *
	LT	1.00	124	1,600	0.078	E-W(1):	0.626 *
Westbound	RT	0.00	92	0	0.000	E-W(2):	0.387
	TH	2.00	862	3,200	0.298		
	LT	1.00	308	1,600	0.193 *	V/C:	1.032
Northbound	RT	1.00	446	1,600	0.086	Lost Time:	0.100
	TH	3.00	1,312	4,800	0.273		
	LT	1.00	227	1,600	0.142 *		
Eastbound	RT	0.00	294	0	0.000	ICU:	1.132
	TH	2.00	1,091	3,200	0.433 *		
	LT	1.00	143	1,600	0.089	LOS:	F

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **I-105 WESTBOUND RAMPS**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	10	0	0.000	N-S(1):	0.268
	TH	3.00	1,334	4,800	0.280 *	N-S(2):	0.285 *
	LT	0.00	0	0	0.000	E-W(1):	0.130 *
Westbound	RT	1.96	714	3,143	0.227	E-W(2):	0.000
	TH	0.04	13	57	0.227		
	LT	1.00	208	1,600	0.130 *	V/C:	0.415
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,288	4,800	0.268		
	LT	1.00	8	1,600	0.005 *		
Eastbound	RT	1.00	5	1,600	0.000	ICU:	0.515
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	8	0	0.000	N-S(1):	0.256
	TH	3.00	1,479	4,800	0.310 *	N-S(2):	0.312 *
	LT	0.00	0	0	0.000	E-W(1):	0.305 *
Westbound	RT	1.98	1,053	3,164	0.333	E-W(2):	0.000
	TH	0.02	12	36	0.333		
	LT	1.00	479	1,600	0.299 *	V/C:	0.617
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,228	4,800	0.256		
	LT	1.00	3	1,600	0.002 *		
Eastbound	RT	1.00	13	1,600	0.006 *	ICU:	0.717
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: LONG BEACH BOULEVARD
East/West Street: I-105 EASTBOUND RAMPS

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.365 *
	TH	2.00	548	3,200	0.171	N-S(2):	0.171
	LT	1.00	26	1,600	0.016 *	E-W(1):	0.248 *
Westbound	RT	1.00	8	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.613
Northbound	RT	0.00	559	1,600	0.349 *	Lost Time:	0.100
	TH	3.00	1,096	3,200	0.343		
	LT	0.00	0	0	0.000		
Eastbound	RT	1.00	396	1,600	0.248 *	ICU:	0.713
	TH	0.01	2	9	0.219		
	LT	1.99	698	2,872	0.243	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.340
	TH	2.00	1,141	3,200	0.357 *	N-S(2):	0.357 *
	LT	1.00	16	1,600	0.010	E-W(1):	0.182 *
Westbound	RT	1.00	10	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.539
Northbound	RT	0.00	492	0	0.000	Lost Time:	0.100
	TH	3.00	1,094	4,800	0.330		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	1.00	291	1,600	0.182 *	ICU:	0.639
	TH	0.03	8	51	0.158		
	LT	1.97	497	2,834	0.175	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SLATER AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	106	1,600	0.026 *	N-S(1):	0.018
	TH	0.00	0	0	0.000	N-S(2):	0.026 *
	LT	1.00	29	1,600	0.018	E-W(1):	0.287
Westbound	RT	0.00	16	0	0.000	E-W(2):	0.470 *
	TH	2.00	1,361	3,200	0.430 *		
	LT	0.00	0	0	0.000	V/C:	0.496
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.596
	TH	2.00	917	3,200	0.287		
	LT	1.00	64	1,600	0.040 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	55	1,600	0.004	N-S(1):	0.010 *
	TH	0.00	0	0	0.000	N-S(2):	0.004
	LT	1.00	16	1,600	0.010 *	E-W(1):	0.428 *
Westbound	RT	0.00	16	0	0.000	E-W(2):	0.236
	TH	2.00	639	3,200	0.205		
	LT	0.00	0	0	0.000 *	V/C:	0.438
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.538
	TH	2.00	1,369	3,200	0.428 *		
	LT	1.00	49	1,600	0.031	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **108TH STREET**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	49	0	0.000	N-S(1):	0.510 *
	TH	1.00	506	1,600	0.363	N-S(2):	0.391
	LT	0.00	25	1,600	0.016 *	E-W(1):	0.197
Westbound	RT	0.00	78	0	0.000	E-W(2):	0.221 *
	TH	1.00	92	1,600	0.177 *		
	LT	0.00	113	1,600	0.071	V/C:	0.731
Northbound	RT	0.00	73	0	0.000	Lost Time:	0.100
	TH	1.00	672	1,600	0.494 *	ATSAC/ATCS:	-0.100
	LT	0.00	45	1,600	0.028		
Eastbound	RT	0.00	52	0	0.000	ICU:	0.731
	TH	1.00	79	1,600	0.126		
	LT	0.00	70	1,600	0.044 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	50	0	0.000	N-S(1):	0.439
	TH	1.00	602	1,600	0.434 *	N-S(2):	0.457 *
	LT	0.00	42	1,600	0.026	E-W(1):	0.163 *
Westbound	RT	0.00	28	0	0.000	E-W(2):	0.115
	TH	1.00	68	1,600	0.097		
	LT	0.00	59	1,600	0.037 *	V/C:	0.620
Northbound	RT	0.00	72	0	0.000	Lost Time:	0.100
	TH	1.00	552	1,600	0.413	ATSAC/ATCS:	-0.100
	LT	0.00	37	1,600	0.023 *		
Eastbound	RT	0.00	64	0	0.000	ICU:	0.620
	TH	1.00	109	1,600	0.126 *		
	LT	0.00	29	1,600	0.018	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **111TH STREET**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	57	0	0.000	N-S(1):	0.457 *
	TH	1.00	548	1,600	0.432	N-S(2):	0.443
	LT	0.00	86	1,600	0.054 *	E-W(1):	0.119
Westbound	RT	0.00	87	0	0.000	E-W(2):	0.151 *
	TH	1.00	38	1,600	0.108 *		
	LT	0.00	48	1,600	0.030	V/C:	0.608
Northbound	RT	0.00	40	0	0.000	Lost Time:	0.100
	TH	1.00	586	1,600	0.403 *	ATSAC/ATCS:	-0.100
	LT	0.00	18	1,600	0.011		
Eastbound	RT	0.00	18	0	0.000	ICU:	0.608
	TH	1.00	56	1,600	0.089		
	LT	0.00	68	1,600	0.043 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	50	0	0.000	N-S(1):	0.412
	TH	1.00	643	1,600	0.469 *	N-S(2):	0.480 *
	LT	0.00	57	1,600	0.036	E-W(1):	0.054
Westbound	RT	0.00	70	0	0.000	E-W(2):	0.086 *
	TH	1.00	5	1,600	0.062 *		
	LT	0.00	24	1,600	0.015	V/C:	0.566
Northbound	RT	0.00	25	0	0.000	Lost Time:	0.100
	TH	1.00	559	1,600	0.376	ATSAC/ATCS:	-0.100
	LT	0.00	17	1,600	0.011 *		
Eastbound	RT	0.00	18	0	0.000	ICU:	0.566
	TH	1.00	6	1,600	0.039		
	LT	0.00	38	1,600	0.024 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **111TH STREET**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.487
	TH	1.00	779	1,600	0.528 *	N-S(2):	0.536 *
	LT	0.00	62	1,600	0.039	E-W(1):	0.082
Westbound	RT	0.00	59	0	0.000	E-W(2):	0.106 *
	TH	1.00	29	1,600	0.106 *		
	LT	0.00	81	1,600	0.051	V/C:	0.642
Northbound	RT	0.00	82	0	0.000	Lost Time:	0.100
	TH	1.00	621	1,600	0.448		
	LT	0.00	13	1,600	0.008 *		
Eastbound	RT	0.00	14	0	0.000	ICU:	0.742
	TH	1.00	36	1,600	0.031		
	LT	0.00	0	0	0.000 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.581 *
	TH	1.00	671	1,600	0.436	N-S(2):	0.446
	LT	0.00	24	1,600	0.015 *	E-W(1):	0.043
Westbound	RT	0.00	45	0	0.000	E-W(2):	0.063 *
	TH	1.00	17	1,600	0.061 *		
	LT	0.00	35	1,600	0.022	V/C:	0.644
Northbound	RT	0.00	54	0	0.000	Lost Time:	0.100
	TH	1.00	835	1,600	0.566 *		
	LT	0.00	16	1,600	0.010		
Eastbound	RT	0.00	17	0	0.000	ICU:	0.744
	TH	1.00	13	1,600	0.021		
	LT	0.00	3	1,600	0.002 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	31	0	0.000	N-S(1):	0.230 *
	TH	1.00	121	1,600	0.174	N-S(2):	0.190
	LT	0.00	127	1,600	0.079 *	E-W(1):	0.294
Westbound	RT	0.00	140	0	0.000	E-W(2):	0.422 *
	TH	2.00	1,150	3,200	0.403 *		
	LT	1.00	47	1,600	0.029		
Northbound	RT	0.00	90	0	0.000		
	TH	1.00	125	1,600	0.151 *		
	LT	0.00	26	1,600	0.016		
Eastbound	RT	0.00	25	0	0.000		
	TH	2.00	823	3,200	0.265		
	LT	1.00	31	1,600	0.019 *		

WILLOWBROOK AV (E)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	86	0	0.000	N-S(1):	0.117
	TH	1.00	71	1,600	0.098 *	N-S(2):	0.127 *
	LT	1.00	141	1,600	0.088	E-W(1):	0.322
Westbound	RT	0.00	100	0	0.000	E-W(2):	0.463 *
	TH	2.00	1,242	3,200	0.419 *		
	LT	1.00	36	1,600	0.023		
Northbound	RT	0.00	25	0	0.000		
	TH	1.00	21	1,600	0.029		
	LT	1.00	47	1,600	0.029 *		
Eastbound	RT	0.00	41	0	0.000		
	TH	2.00	916	3,200	0.299		
	LT	1.00	71	1,600	0.044 *		

* = Critical Movement

N-S:	0.230
E-W:	0.463
V/C:	0.693
Lost Time:	0.100
ICU:	0.793
LOS:	C

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	29	0	0.000	N-S(1):	0.242 *
	TH	1.00	91	1,600	0.156	N-S(2):	0.175
	LT	0.00	130	1,600	0.081 *	E-W(1):	0.477 *
Westbound	RT	0.00	46	0	0.000	E-W(2):	0.335
	TH	2.00	994	3,200	0.325		
	LT	1.00	48	1,600	0.030 *		
Northbound	RT	0.00	110	0	0.000		
	TH	1.00	118	1,600	0.161 *		
	LT	0.00	30	1,600	0.019		
Eastbound	RT	0.00	28	0	0.000		
	TH	2.00	1,401	3,200	0.447 *		
	LT	1.00	16	1,600	0.010		

WILLOWBROOK AV (E)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	50	0	0.000	N-S(1):	0.103 *
	TH	1.00	64	1,600	0.071	N-S(2):	0.089
	LT	1.00	128	1,600	0.080 *	E-W(1):	0.492 *
Westbound	RT	0.00	121	0	0.000	E-W(2):	0.404
	TH	2.00	971	3,200	0.341		
	LT	1.00	27	1,600	0.017 *		
Northbound	RT	0.00	20	0	0.000		
	TH	1.00	17	1,600	0.023 *		
	LT	1.00	29	1,600	0.018		
Eastbound	RT	0.00	52	0	0.000		
	TH	2.00	1,467	3,200	0.475 *		
	LT	1.00	100	1,600	0.063		

* = Critical Movement

N-S:	0.242
E-W:	0.492
V/C:	0.734
Lost Time:	0.100
ICU:	0.834
LOS:	D

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **ALAMEDA STREET**
East/West Street: **MARTIN LUTHER KING JR BOULEVARD**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

S. ALAMEDA ST (W)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C		ICU ANALYSIS	
Southbound	RT	0.00	2	0	0.000		N-S(1):	0.473
	TH	2.00	1,121	3,200	0.351		N-S(2):	0.351
	LT	1.00	139	1,600	0.087	*	E-W(1):	0.156
Westbound	RT	1.00	388	1,600	0.156	*	E-W(2):	0.006
	TH	0.04	9	67	0.134			
	LT	1.96	421	2,820	0.149			
Northbound	RT	0.00	194	0	0.000			
	TH	2.00	1,040	3,200	0.386	*		
	LT	0.00	0	0	0.000			
Eastbound	RT	0.00	4	0	0.000			
	TH	1.00	1	1,600	0.006	*		
	LT	0.00	5	1,600	0.003			

S. ALAMEDA ST (E)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C		ICU ANALYSIS	
Southbound	RT	0.00	62	0	0.000		N-S(1):	0.178
	TH	1.00	71	1,600	0.108		N-S(2):	0.111
	LT	0.00	39	1,600	0.024	*	E-W(1):	0.261
Westbound	RT	0.00	87	0	0.000		E-W(2):	0.104
	TH	2.00	749	3,200	0.261	*		
	LT	1.00	13	1,600	0.008			
Northbound	RT	0.00	62	0	0.000			
	TH	1.00	180	1,600	0.154	*		
	LT	0.00	4	1,600	0.003			
Eastbound	RT	0.00	3	0	0.000			
	TH	2.00	234	3,200	0.104	*		
	LT	0.00	97	1,600	0.061			

* = Critical Movement

N-S:	0.473
E-W:	0.261
V/C:	0.734
Lost Time:	0.100
ICU:	0.834
LOS:	D

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: ALAMEDA STREET
East/West Street: MARTIN LUTHER KING JR BOULEVARD

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

S. ALAMEDA ST (W)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.537
	TH	2.00	1,300	3,200	0.406	N-S(2):	0.406
	LT	1.00	183	1,600	0.114 *	E-W(1):	0.093
Westbound	RT	1.00	259	1,600	0.048	E-W(2):	0.016
	TH	0.03	4	48	0.084		
	LT	1.97	265	2,837	0.093 *		
Northbound	RT	0.00	191	0	0.000		
	TH	2.00	1,164	3,200	0.423 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	3	0	0.000		
	TH	1.00	14	1,600	0.016 *		
	LT	0.00	8	1,600	0.005		

S. ALAMEDA ST (E)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	74	0	0.000	N-S(1):	0.160
	TH	1.00	54	1,600	0.098	N-S(2):	0.101
	LT	0.00	29	1,600	0.018 *	E-W(1):	0.147
Westbound	RT	0.00	34	0	0.000	E-W(2):	0.128
	TH	2.00	436	3,200	0.147 *		
	LT	1.00	6	1,600	0.004		
Northbound	RT	0.00	100	0	0.000		
	TH	1.00	123	1,600	0.142 *		
	LT	0.00	4	1,600	0.003		
Eastbound	RT	0.00	10	0	0.000		
	TH	2.00	357	3,200	0.128 *		
	LT	0.00	41	1,600	0.026		

* = Critical Movement

N-S:	0.537
E-W:	0.147
V/C:	0.684
Lost Time:	0.100
ICU:	0.784
LOS:	C

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: ALAMEDA STREET
East/West Street: COMPTON BOULEVARD

Scenario: CUMULATIVE (2020) BASE CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

S. ALAMEDA ST (W)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	80	0	0.000	N-S(1): 0.222
	TH	2.00	760	3,200	0.263 *	N-S(2): 0.319 *
	LT	1.00	109	1,600	0.068	E-W(1): 0.189
Westbound	RT	0.00	128	0	0.000	E-W(2): 0.285 *
	TH	2.00	621	3,200	0.234 *	
	LT	1.00	34	1,600	0.021	
Northbound	RT	0.00	38	0	0.000	
	TH	2.00	456	3,200	0.154	
	LT	1.00	90	1,600	0.056 *	
Eastbound	RT	0.00	76	0	0.000	
	TH	2.00	460	3,200	0.168	
	LT	1.00	82	1,600	0.051 *	

S. ALAMEDA ST (E)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	10	0	0.000	N-S(1): 0.141 *
	TH	1.00	158	1,600	0.105	N-S(2): 0.129
	LT	1.00	30	1,600	0.019 *	E-W(1): 0.196
Westbound	RT	1.00	57	1,600	0.017	E-W(2): 0.238 *
	TH	2.00	737	3,200	0.230 *	
	LT	1.00	16	1,600	0.010	
Northbound	RT	0.00	65	0	0.000	
	TH	1.00	130	1,600	0.122 *	
	LT	1.00	38	1,600	0.024	
Eastbound	RT	0.00	45	0	0.000	
	TH	2.00	549	3,200	0.186	
	LT	1.00	13	1,600	0.008 *	

* = Critical Movement

N-S:	0.319
E-W:	0.285
V/C:	0.604
Lost Time:	0.100
ICU:	0.704
LOS:	C

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **ALAMEDA STREET**
East/West Street: **COMPTON BOULEVARD**

Scenario: **CUMULATIVE (2020) BASE CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

S. ALAMEDA ST (W)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	73	0	0.000	N-S(1): 0.314 *
	TH	2.00	708	3,200	0.244	N-S(2): 0.303
	LT	1.00	113	1,600	0.071 *	E-W(1): 0.268 *
Westbound	RT	0.00	97	0	0.000	E-W(2): 0.268 *
	TH	2.00	566	3,200	0.207 *	
	LT	1.00	42	1,600	0.026 *	
Northbound	RT	0.00	62	0	0.000	
	TH	2.00	716	3,200	0.243 *	
	LT	1.00	95	1,600	0.059	
Eastbound	RT	0.00	70	0	0.000	
	TH	2.00	704	3,200	0.242 *	
	LT	1.00	97	1,600	0.061 *	

S. ALAMEDA ST (E)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	15	0	0.000	N-S(1): 0.130 *
	TH	1.00	92	1,600	0.067	N-S(2): 0.080
	LT	1.00	28	1,600	0.018 *	E-W(1): 0.282 *
Westbound	RT	1.00	21	1,600	0.000	E-W(2): 0.220
	TH	2.00	670	3,200	0.209	
	LT	1.00	19	1,600	0.012 *	
Northbound	RT	0.00	50	0	0.000	
	TH	1.00	129	1,600	0.112 *	
	LT	1.00	21	1,600	0.013	
Eastbound	RT	0.00	24	0	0.000	
	TH	2.00	839	3,200	0.270 *	
	LT	1.00	17	1,600	0.011	

* = Critical Movement

N-S:	0.314
E-W:	0.282
V/C:	0.596
Lost Time:	0.100
ICU:	0.696
LOS:	B

APPENDIX M

ICU Worksheets – Existing (Baseline) With Ambient Growth (2020) Plus Tier I And II Project Conditions

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **BROADWAY**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.120 *
	TH	2.00	200	3,200	0.091	N-S(2):	0.114
	LT	1.00	57	1,600	0.036 *	E-W(1):	0.230
Westbound	RT	0.00	92	0	0.000	E-W(2):	0.303 *
	TH	3.00	1,154	4,800	0.260 *		
	LT	1.00	74	1,600	0.046	V/C:	0.423
Northbound	RT	0.00	23	0	0.000	Lost Time:	0.100
	TH	2.00	247	3,200	0.084 *		
	LT	1.00	36	1,600	0.023		
Eastbound	RT	0.00	125	0	0.000	ICU:	0.523
	TH	3.00	759	4,800	0.184		
	LT	1.00	69	1,600	0.043 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	69	0	0.000	N-S(1):	0.176 *
	TH	2.00	189	3,200	0.081	N-S(2):	0.164
	LT	1.00	85	1,600	0.053 *	E-W(1):	0.297 *
Westbound	RT	0.00	78	0	0.000	E-W(2):	0.252
	TH	3.00	790	4,800	0.181		
	LT	1.00	23	1,600	0.014 *	V/C:	0.473
Northbound	RT	0.00	93	0	0.000	Lost Time:	0.100
	TH	2.00	301	3,200	0.123 *		
	LT	1.00	132	1,600	0.083		
Eastbound	RT	0.00	63	0	0.000	ICU:	0.573
	TH	3.00	1,295	4,800	0.283 *		
	LT	1.00	114	1,600	0.071	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MAIN STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	94	0	0.000	N-S(1):	0.129
	TH	2.00	269	3,200	0.113 *	N-S(2):	0.152 *
	LT	1.00	83	1,600	0.052	E-W(1):	0.194
Westbound	RT	0.00	54	0	0.000	E-W(2):	0.312 *
	TH	3.00	1,163	4,800	0.254 *		
	LT	1.00	84	1,600	0.053	V/C:	0.464
Northbound	RT	0.00	27	0	0.000	Lost Time:	0.100
	TH	2.00	219	3,200	0.077		
	LT	1.00	63	1,600	0.039 *		
Eastbound	RT	0.00	108	0	0.000	ICU:	0.564
	TH	3.00	570	4,800	0.141		
	LT	1.00	92	1,600	0.058 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	57	0	0.000	N-S(1):	0.223 *
	TH	2.00	188	3,200	0.077	N-S(2):	0.138
	LT	1.00	122	1,600	0.076 *	E-W(1):	0.309 *
Westbound	RT	0.00	71	0	0.000	E-W(2):	0.240
	TH	3.00	714	4,800	0.164		
	LT	1.00	38	1,600	0.024 *	V/C:	0.532
Northbound	RT	0.00	114	0	0.000	Lost Time:	0.100
	TH	2.00	356	3,200	0.147 *		
	LT	1.00	98	1,600	0.061		
Eastbound	RT	0.00	55	0	0.000	ICU:	0.632
	TH	3.00	1,313	4,800	0.285 *		
	LT	1.00	121	1,600	0.076	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SAN PEDRO STREET
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	138	0	0.000	N-S(1):	0.130
	TH	2.00	180	3,200	0.099 *	N-S(2):	0.170 *
	LT	1.00	76	1,600	0.048	E-W(1):	0.190
Westbound	RT	0.00	66	0	0.000	E-W(2):	0.286 *
	TH	3.00	1,053	4,800	0.233 *		
	LT	1.00	108	1,600	0.068	V/C:	0.456
Northbound	RT	0.00	68	0	0.000	Lost Time:	0.100
	TH	2.00	194	3,200	0.082		
	LT	1.00	113	1,600	0.071 *		
Eastbound	RT	0.00	65	0	0.000	ICU:	0.556
	TH	3.00	521	4,800	0.122		
	LT	1.00	85	1,600	0.053 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	101	0	0.000	N-S(1):	0.145 *
	TH	2.00	176	3,200	0.087	N-S(2):	0.141
	LT	1.00	91	1,600	0.057 *	E-W(1):	0.321 *
Westbound	RT	0.00	108	0	0.000	E-W(2):	0.228
	TH	3.00	653	4,800	0.159		
	LT	1.00	54	1,600	0.034 *	V/C:	0.466
Northbound	RT	0.00	49	0	0.000	Lost Time:	0.100
	TH	2.00	232	3,200	0.088 *		
	LT	1.00	87	1,600	0.054		
Eastbound	RT	0.00	79	0	0.000	ICU:	0.566
	TH	3.00	1,298	4,800	0.287 *		
	LT	1.00	111	1,600	0.069	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	136	0	0.000	N-S(1):	0.241 *
	TH	2.00	509	3,200	0.202 *	N-S(2):	0.241 *
	LT	1.00	107	1,600	0.067	E-W(1):	0.171
Westbound	RT	0.00	146	0	0.000	E-W(2):	0.306 *
	TH	3.00	938	4,800	0.226 *		
	LT	1.00	85	1,600	0.053	V/C:	0.547
Northbound	RT	0.00	96	0	0.000	Lost Time:	0.100
	TH	2.00	461	3,200	0.174		
	LT	1.00	63	1,600	0.039 *		
Eastbound	RT	0.00	59	0	0.000	ICU:	0.647
	TH	3.00	508	4,800	0.118		
	LT	1.00	128	1,600	0.080 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	94	0	0.000	N-S(1):	0.352 *
	TH	2.00	515	3,200	0.190	N-S(2):	0.271
	LT	1.00	151	1,600	0.094 *	E-W(1):	0.343 *
Westbound	RT	0.00	120	0	0.000	E-W(2):	0.213
	TH	3.00	522	4,800	0.134		
	LT	1.00	101	1,600	0.063 *	V/C:	0.695
Northbound	RT	0.00	157	0	0.000	Lost Time:	0.100
	TH	2.00	668	3,200	0.258 *		
	LT	1.00	129	1,600	0.081		
Eastbound	RT	0.00	132	0	0.000	ICU:	0.795
	TH	3.00	1,214	4,800	0.280 *		
	LT	1.00	126	1,600	0.079	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	95	0	0.000	N-S(1):	0.269 *
	TH	2.00	392	3,200	0.152	N-S(2):	0.236
	LT	1.00	161	1,600	0.101 *	E-W(1):	0.194
Westbound	RT	0.00	151	0	0.000	E-W(2):	0.269 *
	TH	3.00	975	4,800	0.235 *		
	LT	1.00	120	1,600	0.075	V/C:	0.538
Northbound	RT	0.00	87	0	0.000	Lost Time:	0.100
	TH	2.00	449	3,200	0.168 *		
	LT	1.00	134	1,600	0.084		
Eastbound	RT	0.00	72	0	0.000	ICU:	0.638
	TH	3.00	497	4,800	0.119		
	LT	1.00	55	1,600	0.034 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	72	0	0.000	N-S(1):	0.365 *
	TH	2.00	424	3,200	0.155	N-S(2):	0.240
	LT	1.00	217	1,600	0.136 *	E-W(1):	0.290 *
Westbound	RT	0.00	149	0	0.000	E-W(2):	0.227
	TH	3.00	614	4,800	0.159		
	LT	1.00	79	1,600	0.049 *	V/C:	0.655
Northbound	RT	0.00	150	0	0.000	Lost Time:	0.100
	TH	2.00	584	3,200	0.229 *		
	LT	1.00	136	1,600	0.085		
Eastbound	RT	0.00	92	0	0.000	ICU:	0.755
	TH	3.00	1,067	4,800	0.241 *		
	LT	1.00	109	1,600	0.068	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	202	0	0.000	N-S(1):	0.375 *
	TH	2.00	673	3,200	0.273	N-S(2):	0.374
	LT	1.00	109	1,600	0.068 *	E-W(1):	0.232
Westbound	RT	0.00	75	0	0.000	E-W(2):	0.347 *
	TH	2.00	752	3,200	0.258 *		
	LT	1.00	166	1,600	0.104	V/C:	0.722
Northbound	RT	0.00	262	0	0.000	Lost Time:	0.100
	TH	2.00	720	3,200	0.307 *		
	LT	1.00	162	1,600	0.101		
Eastbound	RT	1.00	110	1,600	0.000	ICU:	0.822
	TH	2.00	411	3,200	0.128		
	LT	1.00	142	1,600	0.089 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	168	0	0.000	N-S(1):	0.393 *
	TH	2.00	796	3,200	0.301	N-S(2):	0.374
	LT	1.00	144	1,600	0.090 *	E-W(1):	0.395 *
Westbound	RT	0.00	115	0	0.000	E-W(2):	0.368
	TH	2.00	529	3,200	0.201		
	LT	1.00	126	1,600	0.079 *	V/C:	0.788
Northbound	RT	0.00	206	0	0.000	Lost Time:	0.100
	TH	2.00	765	3,200	0.303 *		
	LT	1.00	117	1,600	0.073		
Eastbound	RT	1.00	174	1,600	0.036	ICU:	0.888
	TH	2.00	1,011	3,200	0.316 *		
	LT	1.00	267	1,600	0.167	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase : N
Left-Turn Lane:	1600 vph	E-W Split Phase : N
Dual LT Penalty:	10 %	Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	158	1,600	0.000	N-S(1):	0.298
	TH	2.00	671	3,200	0.210 *	N-S(2):	0.304 *
	LT	1.00	135	1,600	0.084	E-W(1):	0.227
Westbound	RT	0.00	155	0	0.000	E-W(2):	0.426 *
	TH	2.00	874	3,200	0.322 *		
	LT	1.00	159	1,600	0.099	V/C:	0.730
Northbound	RT	0.00	64	0	0.000	Lost Time:	0.100
	TH	2.00	621	3,200	0.214		
	LT	1.00	150	1,600	0.094 *		
Eastbound	RT	0.00	159	0	0.000	ICU:	0.830
	TH	3.00	457	4,800	0.128		
	LT	1.00	166	1,600	0.104 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	139	1,600	0.000	N-S(1):	0.465 *
	TH	2.00	766	3,200	0.239	N-S(2):	0.363
	LT	1.00	283	1,600	0.177 *	E-W(1):	0.372
Westbound	RT	0.00	153	0	0.000	E-W(2):	0.399 *
	TH	2.00	666	3,200	0.256 *		
	LT	1.00	169	1,600	0.106	V/C:	0.864
Northbound	RT	0.00	123	0	0.000	Lost Time:	0.100
	TH	2.00	798	3,200	0.288 *		
	LT	1.00	199	1,600	0.124		
Eastbound	RT	0.00	200	0	0.000	ICU:	0.964
	TH	3.00	1,076	4,800	0.266		
	LT	1.00	228	1,600	0.143 *	LOS:	E

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SUCCESS AVENUE-SLATER AVENUE**
East/West Street: **120TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	41	0	0.000	N-S(1):	0.103 *
	TH	1.00	32	1,600	0.079	N-S(2):	0.096
	LT	0.00	53	1,600	0.033 *	E-W(1):	0.246
Westbound	RT	0.00	49	0	0.000	E-W(2):	0.288 *
	TH	2.00	798	3,200	0.265 *		
	LT	1.00	33	1,600	0.021	V/C:	0.391
Northbound	RT	0.00	37	0	0.000	Lost Time:	0.100
	TH	1.00	48	1,600	0.070 *		
	LT	0.00	27	1,600	0.017		
Eastbound	RT	0.00	8	0	0.000	ICU:	0.491
	TH	2.00	713	3,200	0.225		
	LT	1.00	36	1,600	0.023 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	35	0	0.000	N-S(1):	0.055 *
	TH	1.00	13	1,600	0.049 *	N-S(2):	0.055 *
	LT	0.00	30	1,600	0.019	E-W(1):	0.278
Westbound	RT	0.00	26	0	0.000	E-W(2):	0.287 *
	TH	2.00	831	3,200	0.268 *		
	LT	1.00	43	1,600	0.027	V/C:	0.342
Northbound	RT	0.00	38	0	0.000	Lost Time:	0.100
	TH	1.00	9	1,600	0.036		
	LT	0.00	10	1,600	0.006 *		
Eastbound	RT	0.00	12	0	0.000	ICU:	0.442
	TH	2.00	791	3,200	0.251		
	LT	1.00	31	1,600	0.019 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	128	0	0.000	N-S(1):	0.332
	TH	1.00	355	1,600	0.302 *	N-S(2):	0.385 *
	LT	1.00	162	1,600	0.101	E-W(1):	0.274
Westbound	RT	0.00	187	0	0.000	E-W(2):	0.502 *
	TH	2.00	1,198	3,200	0.433 *		
	LT	1.00	151	1,600	0.094	V/C:	0.887
Northbound	RT	1.00	160	1,600	0.006	Lost Time:	0.100
	TH	1.00	369	1,600	0.231	ATSAC/ATCS:	-0.100
	LT	1.00	132	1,600	0.083 *		
Eastbound	RT	0.00	155	0	0.000	ICU:	0.887
	TH	3.00	710	4,800	0.180		
	LT	1.00	111	1,600	0.069 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	159	0	0.000	N-S(1):	0.349
	TH	1.00	308	1,600	0.292 *	N-S(2):	0.358 *
	LT	1.00	208	1,600	0.130	E-W(1):	0.394 *
Westbound	RT	0.00	195	0	0.000	E-W(2):	0.369
	TH	2.00	756	3,200	0.297		
	LT	1.00	94	1,600	0.059 *	V/C:	0.752
Northbound	RT	1.00	121	1,600	0.017	Lost Time:	0.100
	TH	1.00	350	1,600	0.219	ATSAC/ATCS:	-0.100
	LT	1.00	106	1,600	0.066 *		
Eastbound	RT	0.00	105	0	0.000	ICU:	0.752
	TH	3.00	1,502	4,800	0.335 *		
	LT	1.00	115	1,600	0.072	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: 118TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	11	0	0.000	N-S(1):	0.196
	TH	2.00	552	3,200	0.188 *	N-S(2):	0.199 *
	LT	0.00	40	1,600	0.025	E-W(1):	0.100
Westbound	RT	0.00	55	0	0.000	E-W(2):	0.101 *
	TH	1.00	16	1,600	0.084 *		
	LT	0.00	63	1,600	0.039	V/C:	0.300
Northbound	RT	0.00	73	0	0.000	Lost Time:	0.100
	TH	2.00	456	3,200	0.171		
	LT	0.00	17	1,600	0.011 *		
Eastbound	RT	0.00	54	0	0.000	ICU:	0.400
	TH	1.00	17	1,600	0.061		
	LT	0.00	27	1,600	0.017 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	6	0	0.000	N-S(1):	0.190 *
	TH	2.00	405	3,200	0.141	N-S(2):	0.155
	LT	0.00	40	1,600	0.025 *	E-W(1):	0.051
Westbound	RT	0.00	45	0	0.000	E-W(2):	0.066 *
	TH	1.00	23	1,600	0.060 *		
	LT	0.00	28	1,600	0.018	V/C:	0.256
Northbound	RT	0.00	42	0	0.000	Lost Time:	0.100
	TH	2.00	465	3,200	0.165 *		
	LT	0.00	22	1,600	0.014		
Eastbound	RT	0.00	20	0	0.000	ICU:	0.356
	TH	1.00	23	1,600	0.033		
	LT	0.00	9	1,600	0.006 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	144	0	0.000	N-S(1):	0.245 *
	TH	2.00	301	3,200	0.139	N-S(2):	0.213
	LT	1.00	185	1,600	0.116 *	E-W(1):	0.309
Westbound	RT	0.00	187	0	0.000	E-W(2):	0.332 *
	TH	2.00	545	3,200	0.229 *		
	LT	1.00	86	1,600	0.054	V/C:	0.577
Northbound	RT	0.00	100	0	0.000	Lost Time:	0.100
	TH	2.00	314	3,200	0.129 *		
	LT	1.00	119	1,600	0.074		
Eastbound	RT	0.00	96	0	0.000	ICU:	0.677
	TH	2.00	720	3,200	0.255		
	LT	1.00	165	1,600	0.103 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	74	0	0.000	N-S(1):	0.199 *
	TH	2.00	292	3,200	0.114	N-S(2):	0.177
	LT	1.00	146	1,600	0.091 *	E-W(1):	0.327
Westbound	RT	0.00	165	0	0.000	E-W(2):	0.380 *
	TH	2.00	810	3,200	0.305 *		
	LT	1.00	112	1,600	0.070	V/C:	0.579
Northbound	RT	0.00	76	0	0.000	Lost Time:	0.100
	TH	2.00	269	3,200	0.108 *		
	LT	1.00	101	1,600	0.063		
Eastbound	RT	0.00	136	0	0.000	ICU:	0.679
	TH	2.00	685	3,200	0.257		
	LT	1.00	120	1,600	0.075 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **124TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	12	0	0.000	N-S(1):	0.152 *
	TH	2.00	430	3,200	0.151 *	N-S(2):	0.152 *
	LT	0.00	41	1,600	0.026 *	E-W(1):	0.038
Westbound	RT	0.00	56	0	0.000	E-W(2):	0.083 *
	TH	1.00	29	1,600	0.078 *		
	LT	0.00	39	1,600	0.024	V/C:	0.235
Northbound	RT	0.00	18	0	0.000	Lost Time:	0.100
	TH	2.00	383	3,200	0.126 *		
	LT	0.00	2	1,600	0.001 *		
Eastbound	RT	0.00	2	0	0.000	ICU:	0.335
	TH	1.00	12	1,600	0.014		
	LT	0.00	8	1,600	0.005 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	9	0	0.000	N-S(1):	0.141
	TH	2.00	408	3,200	0.144 *	N-S(2):	0.145 *
	LT	0.00	43	1,600	0.027	E-W(1):	0.022
Westbound	RT	0.00	33	0	0.000	E-W(2):	0.040 *
	TH	1.00	11	1,600	0.039 *		
	LT	0.00	18	1,600	0.011	V/C:	0.185
Northbound	RT	0.00	17	0	0.000	Lost Time:	0.100
	TH	2.00	348	3,200	0.114		
	LT	0.00	1	1,600	0.001 *		
Eastbound	RT	0.00	5	0	0.000	ICU:	0.285
	TH	1.00	10	1,600	0.011		
	LT	0.00	2	1,600	0.001 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **IMPERIAL HIGHWAY-WILLOWBROOK AVE**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS		
Southbound	RT	0.00	126	0	0.000	N-S(1):	0.171	
	TH	2.00	1,139	3,200	0.395 *	N-S(2):	0.491	*
	LT	1.00	25	1,600	0.016	E-W(1):	0.059	
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.073	*
	TH	0.00	0	0	0.000 *			
	LT	0.00	0	0	0.000	V/C:	0.564	
Northbound	RT	0.00	57	0	0.000	Lost Time:	0.100	
	TH	2.00	440	3,200	0.155	ATSAC/ATCS:	-0.100	
	LT	1.00	154	1,600	0.096 *			
Eastbound	RT	1.00	248	1,600	0.059	ICU:	0.564	
	TH	1.00	24	1,600	0.015			
	LT	1.00	116	1,600	0.073 *	LOS:	A	

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS		
Southbound	RT	0.00	114	0	0.000	N-S(1):	0.219	
	TH	2.00	974	3,200	0.340 *	N-S(2):	0.473	*
	LT	1.00	33	1,600	0.021	E-W(1):	0.056	
Westbound	RT	0.00	2	0	0.000	E-W(2):	0.090	*
	TH	0.00	0	0	0.000 *			
	LT	0.00	0	0	0.000	V/C:	0.563	
Northbound	RT	0.00	43	0	0.000	Lost Time:	0.100	
	TH	2.00	589	3,200	0.198	ATSAC/ATCS:	-0.100	
	LT	1.00	213	1,600	0.133 *			
Eastbound	RT	1.00	302	1,600	0.056	ICU:	0.563	
	TH	1.00	25	1,600	0.016			
	LT	1.00	144	1,600	0.090 *	LOS:	A	

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: I-105 EASTBOUND ON/OFF RAMPS

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	463	3,200	0.015	N-S(1):	0.189
	TH	2.00	942	3,200	0.294 *	N-S(2):	0.558 *
	LT	0.00	0	0	0.000	E-W(1):	0.210
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.259 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.817
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	907	4,800	0.189		
	LT	1.00	423	1,600	0.264 *		
Eastbound	RT	1.00	759	1,600	0.210	ICU:	0.917
	TH	0.00	0	0	0.000		
	LT	1.00	415	1,600	0.259 *	LOS:	E

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	368	3,200	0.003	N-S(1):	0.291
	TH	2.00	928	3,200	0.290 *	N-S(2):	0.666 *
	LT	0.00	0	0	0.000	E-W(1):	0.000
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.224 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.890
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,398	4,800	0.291		
	LT	1.00	601	1,600	0.376 *		
Eastbound	RT	1.00	343	1,600	0.000	ICU:	0.990
	TH	0.00	0	0	0.000		
	LT	1.00	358	1,600	0.224 *	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 118TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	79	0	0.000	N-S(1):	0.289
	TH	2.00	1,528	3,200	0.502 *	N-S(2):	0.570 *
	LT	2.00	105	2,880	0.036	E-W(1):	0.178 *
Westbound	RT	0.00	72	0	0.000	E-W(2):	0.140
	TH	1.00	29	1,600	0.084		
	LT	0.00	34	1,600	0.021 *	V/C:	0.748
Northbound	RT	0.00	48	0	0.000	Lost Time:	0.100
	TH	3.00	1,168	4,800	0.253		
	LT	1.00	108	1,600	0.068 *		
Eastbound	RT	0.00	126	0	0.000	ICU:	0.848
	TH	1.00	35	1,600	0.157 *		
	LT	0.00	90	1,600	0.056	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	39	0	0.000	N-S(1):	0.446 *
	TH	2.00	1,031	3,200	0.334	N-S(2):	0.365
	LT	2.00	190	2,880	0.066 *	E-W(1):	0.200
Westbound	RT	0.00	202	0	0.000	E-W(2):	0.280 *
	TH	1.00	60	1,600	0.217 *		
	LT	0.00	85	1,600	0.053	V/C:	0.726
Northbound	RT	0.00	125	0	0.000	Lost Time:	0.100
	TH	3.00	1,697	4,800	0.380 *		
	LT	1.00	50	1,600	0.031		
Eastbound	RT	0.00	58	0	0.000	ICU:	0.826
	TH	1.00	77	1,600	0.147		
	LT	0.00	100	1,600	0.063 *	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 120TH ST-119TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	575	0	0.000	N-S(1):	0.410
	TH	2.00	982	3,200	0.487 *	N-S(2):	0.579 *
	LT	1.00	147	1,600	0.092	E-W(1):	0.149
Westbound	RT	0.00	172	0	0.000	E-W(2):	0.254 *
	TH	2.00	269	3,200	0.138 *		
	LT	1.00	95	1,600	0.059	V/C:	0.833
Northbound	RT	0.00	44	0	0.000	Lost Time:	0.100
	TH	2.00	973	3,200	0.318		
	LT	1.00	147	1,600	0.092 *		
Eastbound	RT	1.00	90	1,600	0.000	ICU:	0.933
	TH	1.00	144	1,600	0.090		
	LT	1.00	185	1,600	0.116 *	LOS:	E

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	251	0	0.000	N-S(1):	0.506 *
	TH	2.00	830	3,200	0.338	N-S(2):	0.404
	LT	1.00	92	1,600	0.058 *	E-W(1):	0.278
Westbound	RT	0.00	160	0	0.000	E-W(2):	0.372 *
	TH	2.00	196	3,200	0.111 *		
	LT	1.00	128	1,600	0.080	V/C:	0.878
Northbound	RT	0.00	124	0	0.000	Lost Time:	0.100
	TH	2.00	1,311	3,200	0.448 *		
	LT	1.00	106	1,600	0.066		
Eastbound	RT	1.00	177	1,600	0.044	ICU:	0.978
	TH	1.00	316	1,600	0.198		
	LT	1.00	417	1,600	0.261 *	LOS:	E

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **MLK HOSPITAL DWY-120TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	316	0	0.000	N-S(1):	0.289
	TH	2.00	846	3,200	0.363 *	N-S(2):	0.532 *
	LT	1.00	35	1,600	0.022	E-W(1):	0.161
Westbound	RT	0.00	45	0	0.000	E-W(2):	0.203 *
	TH	1.00	54	1,600	0.069 *		
	LT	0.00	11	1,600	0.007	V/C:	0.735
Northbound	RT	0.00	9	0	0.000	Lost Time:	0.100
	TH	2.00	845	3,200	0.267		
	LT	1.00	270	1,600	0.169 *		
Eastbound	RT	1.00	152	1,600	0.000	ICU:	0.835
	TH	1.00	31	1,600	0.154		
	LT	0.00	215	1,600	0.134 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	205	0	0.000	N-S(1):	0.350
	TH	2.00	893	3,200	0.343 *	N-S(2):	0.477 *
	LT	1.00	31	1,600	0.019	E-W(1):	0.341 *
Westbound	RT	0.00	29	0	0.000	E-W(2):	0.340
	TH	1.00	44	1,600	0.051		
	LT	0.00	9	1,600	0.006 *	V/C:	0.818
Northbound	RT	0.00	23	0	0.000	Lost Time:	0.100
	TH	2.00	1,036	3,200	0.331		
	LT	1.00	215	1,600	0.134 *		
Eastbound	RT	1.00	331	1,600	0.073	ICU:	0.918
	TH	1.00	73	1,600	0.335 *		
	LT	0.00	463	1,600	0.289	LOS:	E

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **124TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.393 *
	TH	2.00	855	3,200	0.273	N-S(2):	0.287
	LT	1.00	88	1,600	0.055 *	E-W(1):	0.087
Westbound	RT	0.00	110	0	0.000	E-W(2):	0.160 *
	TH	1.00	74	1,600	0.151 *		
	LT	0.00	58	1,600	0.036	V/C:	0.553
Northbound	RT	0.00	39	0	0.000	Lost Time:	0.100
	TH	2.00	1,044	3,200	0.338 *		
	LT	1.00	23	1,600	0.014		
Eastbound	RT	0.00	28	0	0.000	ICU:	0.653
	TH	1.00	40	1,600	0.051		
	LT	0.00	14	1,600	0.009 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.404 *
	TH	2.00	950	3,200	0.303	N-S(2):	0.320
	LT	1.00	130	1,600	0.081 *	E-W(1):	0.066
Westbound	RT	0.00	86	0	0.000	E-W(2):	0.097 *
	TH	1.00	25	1,600	0.088 *		
	LT	0.00	30	1,600	0.019	V/C:	0.501
Northbound	RT	0.00	36	0	0.000	Lost Time:	0.100
	TH	2.00	998	3,200	0.323 *		
	LT	1.00	27	1,600	0.017		
Eastbound	RT	0.00	25	0	0.000	ICU:	0.601
	TH	1.00	35	1,600	0.047		
	LT	0.00	15	1,600	0.009 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	110	0	0.000	N-S(1):	0.400
	TH	2.00	685	3,200	0.248 *	N-S(2):	0.408 *
	LT	1.00	172	1,600	0.108	E-W(1):	0.255
Westbound	RT	0.00	152	0	0.000	E-W(2):	0.332 *
	TH	2.00	599	3,200	0.235 *		
	LT	1.00	69	1,600	0.043	V/C:	0.740
Northbound	RT	0.00	72	0	0.000	Lost Time:	0.100
	TH	2.00	863	3,200	0.292		
	LT	1.00	256	1,600	0.160 *		
Eastbound	RT	0.00	282	0	0.000	ICU:	0.840
	TH	2.00	397	3,200	0.212		
	LT	1.00	155	1,600	0.097 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	95	0	0.000	N-S(1):	0.415 *
	TH	2.00	789	3,200	0.276	N-S(2):	0.384
	LT	1.00	200	1,600	0.125 *	E-W(1):	0.408 *
Westbound	RT	0.00	123	0	0.000	E-W(2):	0.260
	TH	2.00	362	3,200	0.152		
	LT	1.00	103	1,600	0.064 *	V/C:	0.823
Northbound	RT	0.00	89	0	0.000	Lost Time:	0.100
	TH	2.00	838	3,200	0.290 *		
	LT	1.00	173	1,600	0.108		
Eastbound	RT	0.00	279	0	0.000	ICU:	0.923
	TH	2.00	822	3,200	0.344 *		
	LT	1.00	172	1,600	0.108	LOS:	E

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **I-105 WESTBOUND ON/OFF RAMPS**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	45	0	0.000	N-S(1): 0.342 *
	TH	1.00	71	1,600	0.081 *	N-S(2): 0.000
	LT	0.00	13	1,600	0.008	E-W(1): 0.488 *
Westbound	RT	0.00	26	0	0.000	E-W(2): 0.276
	TH	3.00	1,157	4,800	0.246	
	LT	2.00	920	2,880	0.319 *	V/C: 0.830
Northbound	RT	1.00	174	1,600	0.000	Lost Time: 0.100
	TH	0.01	3	13	0.235	ATSAC/ATCS: -0.100
	LT	1.99	748	2,868	0.261 *	
Eastbound	RT	1.89	511	3,024	0.045	ICU: 0.830
	TH	3.11	841	4,976	0.169 *	
	LT	1.00	48	1,600	0.030	LOS: D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	28	0	0.000	N-S(1): 0.308 *
	TH	1.00	29	1,600	0.047 *	N-S(2): 0.000
	LT	0.00	18	1,600	0.011	E-W(1): 0.487 *
Westbound	RT	0.00	14	0	0.000	E-W(2): 0.197
	TH	3.00	847	4,800	0.179	
	LT	2.00	605	2,880	0.210 *	V/C: 0.795
Northbound	RT	1.00	251	1,600	0.000	Lost Time: 0.100
	TH	0.05	19	81	0.235	ATSAC/ATCS: -0.100
	LT	1.95	734	2,807	0.261 *	
Eastbound	RT	1.00	405	1,600	0.018	ICU: 0.795
	TH	4.00	1,771	6,400	0.277 *	
	LT	1.00	29	1,600	0.018	LOS: C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: MONA BOULEVARD
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	116	0	0.000	N-S(1):	0.155
	TH	1.00	104	1,600	0.154 *	N-S(2):	0.255 *
	LT	0.00	27	1,600	0.017	E-W(1):	0.352
Westbound	RT	0.00	31	0	0.000	E-W(2):	0.431 *
	TH	3.00	1,829	4,800	0.388 *		
	LT	1.00	198	1,600	0.124	V/C:	0.686
Northbound	RT	1.00	151	1,600	0.000	Lost Time:	0.100
	TH	1.00	60	1,600	0.138	ATSAC/ATCS:	-0.100
	LT	0.00	161	1,600	0.101 *		
Eastbound	RT	0.00	167	0	0.000	ICU:	0.686
	TH	3.00	925	4,800	0.228		
	LT	1.00	69	1,600	0.043 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	95	0	0.000	N-S(1):	0.167
	TH	1.00	64	1,600	0.119 *	N-S(2):	0.220 *
	LT	0.00	32	1,600	0.020	E-W(1):	0.531 *
Westbound	RT	0.00	34	0	0.000	E-W(2):	0.331
	TH	3.00	1,143	4,800	0.245		
	LT	1.00	159	1,600	0.099 *	V/C:	0.751
Northbound	RT	1.00	223	1,600	0.040	Lost Time:	0.100
	TH	1.00	73	1,600	0.147	ATSAC/ATCS:	-0.100
	LT	0.00	162	1,600	0.101 *		
Eastbound	RT	0.00	282	0	0.000	ICU:	0.751
	TH	3.00	1,791	4,800	0.432 *		
	LT	1.00	137	1,600	0.086	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MONA BOULEVARD**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	88	1,600	0.023	N-S(1):	0.233 *
	TH	1.00	145	1,600	0.140	N-S(2):	0.172
	LT	0.00	79	1,600	0.049 *	E-W(1):	0.188
Westbound	RT	0.00	41	0	0.000	E-W(2):	0.255 *
	TH	2.00	672	3,200	0.223 *		
	LT	1.00	30	1,600	0.019	V/C:	0.488
Northbound	RT	0.00	81	0	0.000	Lost Time:	0.100
	TH	1.00	162	1,600	0.184 *		
	LT	0.00	51	1,600	0.032		
Eastbound	RT	0.00	43	0	0.000	ICU:	0.588
	TH	2.00	497	3,200	0.169		
	LT	1.00	51	1,600	0.032 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	79	1,600	0.001	N-S(1):	0.175 *
	TH	1.00	152	1,600	0.139	N-S(2):	0.159
	LT	0.00	71	1,600	0.044 *	E-W(1):	0.336 *
Westbound	RT	0.00	55	0	0.000	E-W(2):	0.205
	TH	2.00	447	3,200	0.157		
	LT	1.00	41	1,600	0.026 *	V/C:	0.511
Northbound	RT	0.00	60	0	0.000	Lost Time:	0.100
	TH	1.00	117	1,600	0.131 *		
	LT	0.00	32	1,600	0.020		
Eastbound	RT	0.00	87	0	0.000	ICU:	0.611
	TH	2.00	904	3,200	0.310 *		
	LT	1.00	77	1,600	0.048	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: S ALAMEDA STREET
East/West Street: 103RD STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	270	0	0.000	N-S(1):	0.367
	TH	2.00	1,081	3,200	0.422 *	N-S(2):	0.476 *
	LT	0.00	0	0	0.000	E-W(1):	0.244 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.182
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.720
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,175	3,200	0.367		
	LT	1.00	86	1,600	0.054 *		
Eastbound	RT	0.00	100	0	0.000	ICU:	0.820
	TH	1.00	0	1,600	0.244 *		
	LT	0.00	291	1,600	0.182	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	288	0	0.000	N-S(1):	0.384
	TH	2.00	1,209	3,200	0.468 *	N-S(2):	0.537 *
	LT	0.00	0	0	0.000	E-W(1):	0.253 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.184
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.790
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,228	3,200	0.384		
	LT	1.00	111	1,600	0.069 *		
Eastbound	RT	0.00	109	0	0.000	ICU:	0.890
	TH	1.00	0	1,600	0.253 *		
	LT	0.00	295	1,600	0.184	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SOUTH ALAMEDA STREET
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	608	1,600	0.245 *	N-S(1):	0.291
	TH	2.00	623	3,200	0.195	N-S(2):	0.312 *
	LT	1.00	94	1,600	0.059	E-W(1):	0.204
Westbound	RT	1.00	59	1,600	0.037	E-W(2):	0.391 *
	TH	3.00	1,158	4,800	0.241 *		
	LT	1.00	130	1,600	0.081	V/C:	0.703
Northbound	RT	0.00	85	0	0.000	Lost Time:	0.100
	TH	2.00	656	3,200	0.232		
	LT	2.00	192	2,880	0.067 *		
Eastbound	RT	0.00	149	0	0.000	ICU:	0.803
	TH	3.00	443	4,800	0.123		
	LT	2.00	432	2,880	0.150 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	527	1,600	0.157	N-S(1):	0.392 *
	TH	2.00	744	3,200	0.233	N-S(2):	0.310
	LT	1.00	178	1,600	0.111 *	E-W(1):	0.385 *
Westbound	RT	1.00	49	1,600	0.031	E-W(2):	0.342
	TH	3.00	727	4,800	0.151		
	LT	1.00	106	1,600	0.066 *	V/C:	0.777
Northbound	RT	0.00	159	0	0.000	Lost Time:	0.100
	TH	2.00	741	3,200	0.281 *		
	LT	2.00	223	2,880	0.077		
Eastbound	RT	0.00	190	0	0.000	ICU:	0.877
	TH	3.00	1,342	4,800	0.319 *		
	LT	2.00	551	2,880	0.191	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	109	0	0.000	N-S(1):	0.233
	TH	2.00	576	3,200	0.214 *	N-S(2):	0.321 *
	LT	1.00	59	1,600	0.037	E-W(1):	0.127
Westbound	RT	1.00	87	1,600	0.018	E-W(2):	0.251 *
	TH	1.00	291	1,600	0.182 *		
	LT	1.00	57	1,600	0.036	V/C:	0.572
Northbound	RT	0.00	49	0	0.000	Lost Time:	0.100
	TH	2.00	577	3,200	0.196		
	LT	1.00	171	1,600	0.107 *		
Eastbound	RT	1.00	123	1,600	0.000	ICU:	0.672
	TH	2.00	290	3,200	0.091		
	LT	1.00	110	1,600	0.069 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	125	0	0.000	N-S(1):	0.308
	TH	2.00	765	3,200	0.278 *	N-S(2):	0.387 *
	LT	1.00	104	1,600	0.065	E-W(1):	0.226
Westbound	RT	1.00	79	1,600	0.000	E-W(2):	0.301 *
	TH	1.00	300	1,600	0.188 *		
	LT	1.00	45	1,600	0.028	V/C:	0.688
Northbound	RT	0.00	43	0	0.000	Lost Time:	0.100
	TH	2.00	734	3,200	0.243		
	LT	1.00	175	1,600	0.109 *		
Eastbound	RT	1.00	206	1,600	0.019	ICU:	0.788
	TH	2.00	635	3,200	0.198		
	LT	1.00	180	1,600	0.113 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **119TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	36	0	0.000	N-S(1): 0.015
	TH	1.00	10	1,600	0.029 *	N-S(2): 0.108 *
	LT	1.00	2	1,120	0.002	E-W(1): 0.269
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.295 *
	TH	1.00	321	1,120	0.295 *	
	LT	0.00	9	1,120	0.008	
Northbound	RT	1.00	24	1,120	0.013	
	TH	0.00	0	0	0.000	
	LT	1.00	126	1,600	0.079 *	
Eastbound	RT	0.00	59	0	0.000	
	TH	1.00	233	1,120	0.261	
	LT	0.00	0	0	0.000 *	

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	60	0	0.000	N-S(1): 0.134
	TH	1.00	39	1,120	0.092 *	N-S(2): 0.148 *
	LT	0.00	4	1,120	0.004	E-W(1): 0.211
Westbound	RT	0.00	3	0	0.000	E-W(2): 0.224 *
	TH	1.00	206	1,120	0.187 *	
	LT	1.00	21	1,600	0.013	
Northbound	RT	0.00	38	0	0.000	
	TH	1.00	45	1,120	0.130	
	LT	0.00	63	1,120	0.056 *	
Eastbound	RT	0.00	96	0	0.000	
	TH	1.00	126	1,120	0.198	
	LT	1.00	41	1,120	0.037 *	

* = Critical Movement

Observed				N-S:	0.148
Gate Lost Time (sec)-	57	40	60	E-W:	0.295
	59	41	41		
Total Seconds-	298			V/C:	0.443
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.543
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: 119TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	43	0	0.000	N-S(1):	0.006
	TH	1.00	23	1,600	0.041 *	N-S(2):	0.109 *
	LT	1.00	2	1,120	0.002	E-W(1):	0.463 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.275
	TH	1.00	284	1,120	0.275		
	LT	0.00	24	1,120	0.021 *		
Northbound	RT	1.00	28	1,120	0.004		
	TH	0.00	0	0	0.000		
	LT	1.00	108	1,600	0.068 *		
Eastbound	RT	0.00	70	0	0.000		
	TH	1.00	425	1,120	0.442 *		
	LT	0.00	0	0	0.000		

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	60	0	0.000	N-S(1):	0.130
	TH	1.00	27	1,120	0.081 *	N-S(2):	0.155 *
	LT	0.00	4	1,120	0.004	E-W(1):	0.349 *
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.200
	TH	1.00	162	1,120	0.146		
	LT	1.00	15	1,600	0.009 *		
Northbound	RT	0.00	27	0	0.000		
	TH	1.00	31	1,120	0.126		
	LT	0.00	83	1,120	0.074 *		
Eastbound	RT	0.00	118	0	0.000		
	TH	1.00	263	1,120	0.340 *		
	LT	1.00	60	1,120	0.054		

* = Critical Movement

Observed				N-S:	0.155
Gate Lost Time (sec)-	57	40	60	E-W:	0.463
	59	41	41		
Total Seconds-	298			V/C:	0.618
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.718
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	C
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	33	0	0.000	N-S(1):	0.181 *
	TH	1.00	149	1,600	0.114	N-S(2):	0.157
	LT	1.00	31	1,232	0.025 *	E-W(1):	0.204
Westbound	RT	1.00	40	1,232	0.007	E-W(2):	0.299 *
	TH	2.00	671	2,464	0.272 *		
	LT	0.00	0	0	0.000		
Northbound	RT	0.00	12	0	0.000		
	TH	1.00	180	1,232	0.156 *		
	LT	1.00	69	1,600	0.043		
Eastbound	RT	1.00	90	1,600	0.013		
	TH	2.00	503	2,464	0.204		
	LT	1.00	43	1,600	0.027 *		

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	28	0	0.000	N-S(1):	0.112
	TH	1.00	93	1,232	0.098 *	N-S(2):	0.115 *
	LT	1.00	47	1,600	0.029	E-W(1):	0.225
Westbound	RT	0.00	40	0	0.000	E-W(2):	0.286 *
	TH	2.00	662	2,464	0.285 *		
	LT	1.00	28	1,600	0.018		
Northbound	RT	0.00	38	0	0.000		
	TH	1.00	94	1,600	0.083		
	LT	1.00	21	1,232	0.017 *		
Eastbound	RT	1.00	23	1,232	0.002		
	TH	2.00	510	2,464	0.207		
	LT	0.00	1	1,232	0.001 *		

* = Critical Movement

Observed				N-S:	0.181
Gate Lost Time (sec)-	42	40	44	E-W:	0.299
	82	68	62		
Total Seconds-	338			V/C:	0.480
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.580
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	20	0	0.000	N-S(1): 0.126 *
	TH	1.00	112	1,600	0.083	N-S(2): 0.112
	LT	1.00	17	1,232	0.014 *	E-W(1): 0.388 *
Westbound	RT	1.00	39	1,232	0.018	E-W(2): 0.211
	TH	2.00	472	2,464	0.192	
	LT	0.00	0	0	0.000 *	
Northbound	RT	0.00	11	0	0.000	
	TH	1.00	127	1,232	0.112 *	
	LT	1.00	46	1,600	0.029	
Eastbound	RT	1.00	78	1,600	0.020	
	TH	2.00	956	2,464	0.388 *	
	LT	1.00	31	1,600	0.019	

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	19	0	0.000	N-S(1): 0.119 *
	TH	1.00	88	1,232	0.087	N-S(2): 0.110
	LT	1.00	66	1,600	0.041 *	E-W(1): 0.428 *
Westbound	RT	0.00	41	0	0.000	E-W(2): 0.212
	TH	2.00	476	2,464	0.210	
	LT	1.00	65	1,600	0.041 *	
Northbound	RT	0.00	53	0	0.000	
	TH	1.00	71	1,600	0.078 *	
	LT	1.00	28	1,232	0.023	
Eastbound	RT	1.00	42	1,232	0.011	
	TH	2.00	952	2,464	0.387 *	
	LT	0.00	2	1,232	0.002	

* = Critical Movement

Observed				N-S:	0.126
Gate Lost Time (sec)-	42	40	44	E-W:	0.428
	82	68	62		
Total Seconds-	338			V/C:	0.554
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.654
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	B
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

APPENDIX N

ICU Worksheets – Existing (Baseline) With Ambient Growth (2020) Plus Tier I And II Project And Related Projects/Cumulative (2020) Plus Tier I And II Project Conditions

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **I-110 SOUTHBOUND RAMPS**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.70	753	2,728	0.276	N-S(1):	0.307 *
	TH	0.00	0	0	0.000	N-S(2):	0.276
	LT	1.30	572	1,865	0.307 *	E-W(1):	0.543 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.361
	TH	3.00	1,733	4,800	0.361		
	LT	1.00	390	1,600	0.244 *	V/C:	0.850
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	479	1,600	0.299 *	ICU:	0.850
	TH	3.00	660	3,200	0.206		
	LT	0.00	0	0	0.000	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.50	390	2,394	0.163	N-S(1):	0.181 *
	TH	0.00	0	0	0.000	N-S(2):	0.163
	LT	1.50	392	2,166	0.181 *	E-W(1):	0.554 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.221
	TH	3.00	1,062	4,800	0.221		
	LT	1.00	238	1,600	0.149 *	V/C:	0.735
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	602	0	0.000	ICU:	0.735
	TH	3.00	1,341	4,800	0.405 *		
	LT	0.00	0	0	0.000	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **I-110 NORTHBOUND RAMPS**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.179
	TH	0.00	0	0	0.000 *	N-S(2):	0.405 *
	LT	0.00	0	0	0.000	E-W(1):	0.408 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.264
	TH	3.00	1,269	4,800	0.264		
	LT	1.00	154	1,600	0.096 *	V/C:	0.813
Northbound	RT	0.52	303	832	0.179	Lost Time:	0.100
	TH	0.00	0	0	0.000	ATSAC/ATCS:	-0.100
	LT	1.48	862	2,131	0.405 *		
Eastbound	RT	1.00	230	1,600	0.000	ICU:	0.813
	TH	2.00	999	3,200	0.312 *		
	LT	0.00	0	0	0.000	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.000
	TH	0.00	0	0	0.000 *	N-S(2):	0.280 *
	LT	0.00	0	0	0.000	E-W(1):	0.643 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.170
	TH	3.00	816	4,800	0.170		
	LT	1.00	369	1,600	0.231 *	V/C:	0.923
Northbound	RT	0.80	321	1,273	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000	ATSAC/ATCS:	-0.100
	LT	1.20	486	1,734	0.280 *		
Eastbound	RT	1.00	412	1,600	0.005	ICU:	0.923
	TH	2.00	1,318	3,200	0.412 *		
	LT	0.00	0	0	0.000	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: FIGUEROA STREET
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	126	1,600	0.006	N-S(1):	0.167 *
	TH	2.00	299	3,200	0.093	N-S(2):	0.162
	LT	1.00	69	1,600	0.043 *	E-W(1):	0.324
Westbound	RT	0.00	84	0	0.000	E-W(2):	0.333 *
	TH	3.00	1,163	4,800	0.260 *		
	LT	1.00	62	1,600	0.039	V/C:	0.500
Northbound	RT	0.00	28	0	0.000	Lost Time:	0.100
	TH	2.00	370	3,200	0.124 *		
	LT	1.00	110	1,600	0.069		
Eastbound	RT	1.00	270	1,600	0.100	ICU:	0.600
	TH	2.00	913	3,200	0.285		
	LT	1.00	117	1,600	0.073 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	116	1,600	0.000	N-S(1):	0.222
	TH	2.00	344	3,200	0.108 *	N-S(2):	0.227 *
	LT	1.00	93	1,600	0.058	E-W(1):	0.455 *
Westbound	RT	0.00	110	0	0.000	E-W(2):	0.295
	TH	3.00	857	4,800	0.201		
	LT	1.00	47	1,600	0.029 *	V/C:	0.682
Northbound	RT	0.00	120	0	0.000	Lost Time:	0.100
	TH	2.00	405	3,200	0.164		
	LT	1.00	190	1,600	0.119 *		
Eastbound	RT	1.00	154	1,600	0.000	ICU:	0.782
	TH	2.00	1,364	3,200	0.426 *		
	LT	1.00	151	1,600	0.094	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **BROADWAY**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.120 *
	TH	2.00	200	3,200	0.091	N-S(2):	0.114
	LT	1.00	57	1,600	0.036 *	E-W(1):	0.238
Westbound	RT	0.00	92	0	0.000	E-W(2):	0.310 *
	TH	3.00	1,190	4,800	0.267 *		
	LT	1.00	74	1,600	0.046	V/C:	0.430
Northbound	RT	0.00	23	0	0.000	Lost Time:	0.100
	TH	2.00	247	3,200	0.084 *		
	LT	1.00	36	1,600	0.023		
Eastbound	RT	0.00	125	0	0.000	ICU:	0.530
	TH	3.00	797	4,800	0.192		
	LT	1.00	69	1,600	0.043 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	69	0	0.000	N-S(1):	0.176 *
	TH	2.00	189	3,200	0.081	N-S(2):	0.164
	LT	1.00	85	1,600	0.053 *	E-W(1):	0.305 *
Westbound	RT	0.00	78	0	0.000	E-W(2):	0.259
	TH	3.00	822	4,800	0.188		
	LT	1.00	23	1,600	0.014 *	V/C:	0.481
Northbound	RT	0.00	93	0	0.000	Lost Time:	0.100
	TH	2.00	301	3,200	0.123 *		
	LT	1.00	132	1,600	0.083		
Eastbound	RT	0.00	63	0	0.000	ICU:	0.581
	TH	3.00	1,335	4,800	0.291 *		
	LT	1.00	114	1,600	0.071	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MAIN STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	94	0	0.000	N-S(1):	0.130
	TH	2.00	269	3,200	0.113 *	N-S(2):	0.152 *
	LT	1.00	83	1,600	0.052	E-W(1):	0.202
Westbound	RT	0.00	54	0	0.000	E-W(2):	0.319 *
	TH	3.00	1,199	4,800	0.261 *		
	LT	1.00	85	1,600	0.053	V/C:	0.471
Northbound	RT	0.00	31	0	0.000	Lost Time:	0.100
	TH	2.00	220	3,200	0.078		
	LT	1.00	63	1,600	0.039 *		
Eastbound	RT	0.00	108	0	0.000	ICU:	0.571
	TH	3.00	608	4,800	0.149		
	LT	1.00	92	1,600	0.058 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	57	0	0.000	N-S(1):	0.223 *
	TH	2.00	188	3,200	0.077	N-S(2):	0.138
	LT	1.00	122	1,600	0.076 *	E-W(1):	0.317 *
Westbound	RT	0.00	71	0	0.000	E-W(2):	0.246
	TH	3.00	746	4,800	0.170		
	LT	1.00	39	1,600	0.024 *	V/C:	0.540
Northbound	RT	0.00	115	0	0.000	Lost Time:	0.100
	TH	2.00	356	3,200	0.147 *		
	LT	1.00	98	1,600	0.061		
Eastbound	RT	0.00	55	0	0.000	ICU:	0.640
	TH	3.00	1,353	4,800	0.293 *		
	LT	1.00	121	1,600	0.076	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SAN PEDRO STREET
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	98	0	0.000	N-S(1):	0.146
	TH	2.00	287	3,200	0.135 *	N-S(2):	0.173 *
	LT	0.00	48	1,600	0.030	E-W(1):	0.385 *
Westbound	RT	0.00	60	0	0.000	E-W(2):	0.249
	TH	1.00	311	1,600	0.232		
	LT	1.00	52	1,600	0.033 *	V/C:	0.558
Northbound	RT	0.00	75	0	0.000	Lost Time:	0.100
	TH	2.00	234	3,200	0.116		
	LT	0.00	61	1,600	0.038 *		
Eastbound	RT	0.00	71	0	0.000	ICU:	0.658
	TH	1.00	492	1,600	0.352 *		
	LT	1.00	27	1,600	0.017	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	116	0	0.000	N-S(1):	0.139
	TH	2.00	289	3,200	0.138 *	N-S(2):	0.182 *
	LT	0.00	37	1,600	0.023	E-W(1):	0.300
Westbound	RT	0.00	53	0	0.000	E-W(2):	0.378 *
	TH	1.00	508	1,600	0.351 *		
	LT	1.00	71	1,600	0.044	V/C:	0.560
Northbound	RT	0.00	47	0	0.000	Lost Time:	0.100
	TH	2.00	254	3,200	0.116		
	LT	0.00	70	1,600	0.044 *		
Eastbound	RT	0.00	73	0	0.000	ICU:	0.660
	TH	1.00	337	1,600	0.256		
	LT	1.00	43	1,600	0.027 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SAN PEDRO STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	140	0	0.000	N-S(1):	0.131
	TH	2.00	180	3,200	0.100 *	N-S(2):	0.171 *
	LT	1.00	78	1,600	0.049	E-W(1):	0.199
Westbound	RT	0.00	67	0	0.000	E-W(2):	0.295 *
	TH	3.00	1,088	4,800	0.241 *		
	LT	1.00	108	1,600	0.068	V/C:	0.466
Northbound	RT	0.00	68	0	0.000	Lost Time:	0.100
	TH	2.00	194	3,200	0.082		
	LT	1.00	113	1,600	0.071 *		
Eastbound	RT	0.00	65	0	0.000	ICU:	0.566
	TH	3.00	562	4,800	0.131		
	LT	1.00	86	1,600	0.054 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	102	0	0.000	N-S(1):	0.146 *
	TH	2.00	176	3,200	0.087	N-S(2):	0.141
	LT	1.00	92	1,600	0.058 *	E-W(1):	0.329 *
Westbound	RT	0.00	110	0	0.000	E-W(2):	0.236
	TH	3.00	684	4,800	0.165		
	LT	1.00	54	1,600	0.034 *	V/C:	0.475
Northbound	RT	0.00	49	0	0.000	Lost Time:	0.100
	TH	2.00	232	3,200	0.088 *		
	LT	1.00	87	1,600	0.054		
Eastbound	RT	0.00	79	0	0.000	ICU:	0.575
	TH	3.00	1,337	4,800	0.295 *		
	LT	1.00	113	1,600	0.071	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **CENTURY BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	96	0	0.000	N-S(1):	0.250
	TH	2.00	516	3,200	0.191 *	N-S(2):	0.294 *
	LT	1.00	58	1,600	0.036	E-W(1):	0.321 *
Westbound	RT	0.00	58	0	0.000	E-W(2):	0.291
	TH	2.00	716	3,200	0.242		
	LT	1.00	126	1,600	0.079 *	V/C:	0.615
Northbound	RT	0.00	57	0	0.000	Lost Time:	0.100
	TH	2.00	627	3,200	0.214	ATSAC/ATCS:	-0.100
	LT	1.00	165	1,600	0.103 *		
Eastbound	RT	0.00	121	0	0.000	ICU:	0.615
	TH	2.00	653	3,200	0.242 *		
	LT	1.00	79	1,600	0.049	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	91	0	0.000	N-S(1):	0.256
	TH	2.00	585	3,200	0.211 *	N-S(2):	0.305 *
	LT	1.00	83	1,600	0.052	E-W(1):	0.383 *
Westbound	RT	0.00	78	0	0.000	E-W(2):	0.304
	TH	2.00	626	3,200	0.220		
	LT	1.00	104	1,600	0.065 *	V/C:	0.688
Northbound	RT	0.00	82	0	0.000	Lost Time:	0.100
	TH	2.00	572	3,200	0.204	ATSAC/ATCS:	-0.100
	LT	1.00	151	1,600	0.094 *		
Eastbound	RT	0.00	174	0	0.000	ICU:	0.688
	TH	2.00	842	3,200	0.318 *		
	LT	1.00	134	1,600	0.084	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: AVALON BOULEVARD
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	69	0	0.000	N-S(1):	0.338 *
	TH	2.00	613	3,200	0.213	N-S(2):	0.313
	LT	1.00	184	1,600	0.115 *	E-W(1):	0.237
Westbound	RT	0.00	263	0	0.000	E-W(2):	0.326 *
	TH	3.00	912	4,800	0.245 *		
	LT	1.00	140	1,600	0.088	V/C:	0.664
Northbound	RT	0.00	100	0	0.000	Lost Time:	0.100
	TH	2.00	615	3,200	0.223 *	ATSAC/ATCS:	-0.100
	LT	1.00	160	1,600	0.100		
Eastbound	RT	0.00	137	0	0.000	ICU:	0.664
	TH	3.00	576	4,800	0.149		
	LT	1.00	130	1,600	0.081 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	105	0	0.000	N-S(1):	0.372 *
	TH	2.00	589	3,200	0.217	N-S(2):	0.295
	LT	1.00	200	1,600	0.125 *	E-W(1):	0.413 *
Westbound	RT	0.00	191	0	0.000	E-W(2):	0.290
	TH	3.00	673	4,800	0.180		
	LT	1.00	119	1,600	0.074 *	V/C:	0.785
Northbound	RT	0.00	97	0	0.000	Lost Time:	0.100
	TH	2.00	694	3,200	0.247 *	ATSAC/ATCS:	-0.100
	LT	1.00	125	1,600	0.078		
Eastbound	RT	0.00	168	0	0.000	ICU:	0.785
	TH	3.00	1,459	4,800	0.339 *		
	LT	1.00	176	1,600	0.110	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: AVALON BOULEVARD
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	35	0	0.000	N-S(1):	0.280 *
	TH	2.00	623	3,200	0.206	N-S(2):	0.239
	LT	1.00	105	1,600	0.066 *	E-W(1):	0.368 *
Westbound	RT	0.00	131	0	0.000	E-W(2):	0.354
	TH	1.00	353	1,600	0.303		
	LT	1.00	175	1,600	0.109 *	V/C:	0.648
Northbound	RT	0.00	160	0	0.000	Lost Time:	0.100
	TH	2.00	526	3,200	0.214 *	ATSAC/ATCS:	-0.100
	LT	1.00	53	1,600	0.033		
Eastbound	RT	0.00	80	0	0.000	ICU:	0.648
	TH	1.00	334	1,600	0.259 *		
	LT	1.00	81	1,600	0.051	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	66	0	0.000	N-S(1):	0.370 *
	TH	2.00	599	3,200	0.208	N-S(2):	0.248
	LT	1.00	137	1,600	0.086 *	E-W(1):	0.391 *
Westbound	RT	0.00	112	0	0.000	E-W(2):	0.355
	TH	1.00	352	1,600	0.290		
	LT	1.00	155	1,600	0.097 *	V/C:	0.761
Northbound	RT	0.00	199	0	0.000	Lost Time:	0.100
	TH	2.00	710	3,200	0.284 *	ATSAC/ATCS:	-0.100
	LT	1.00	64	1,600	0.040		
Eastbound	RT	0.00	52	0	0.000	ICU:	0.761
	TH	1.00	418	1,600	0.294 *		
	LT	1.00	104	1,600	0.065	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **AVALON BOULEVARD**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	145	0	0.000	N-S(1):	0.253
	TH	2.00	523	3,200	0.209 *	N-S(2):	0.256 *
	LT	1.00	113	1,600	0.071	E-W(1):	0.177
Westbound	RT	0.00	158	0	0.000	E-W(2):	0.326 *
	TH	3.00	955	4,800	0.232 *		
	LT	1.00	86	1,600	0.054	V/C:	0.582
Northbound	RT	0.00	99	0	0.000	Lost Time:	0.100
	TH	2.00	484	3,200	0.182		
	LT	1.00	75	1,600	0.047 *		
Eastbound	RT	0.00	62	0	0.000	ICU:	0.682
	TH	3.00	530	4,800	0.123		
	LT	1.00	151	1,600	0.094 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	99	0	0.000	N-S(1):	0.360 *
	TH	2.00	534	3,200	0.198	N-S(2):	0.284
	LT	1.00	154	1,600	0.096 *	E-W(1):	0.354 *
Westbound	RT	0.00	123	0	0.000	E-W(2):	0.222
	TH	3.00	545	4,800	0.139		
	LT	1.00	105	1,600	0.066 *	V/C:	0.714
Northbound	RT	0.00	159	0	0.000	Lost Time:	0.100
	TH	2.00	687	3,200	0.264 *		
	LT	1.00	137	1,600	0.086		
Eastbound	RT	0.00	147	0	0.000	ICU:	0.814
	TH	3.00	1,235	4,800	0.288 *		
	LT	1.00	132	1,600	0.083	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: AVALON BOULEVARD
East/West Street: ROSECRANS AVENUE

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	98	0	0.000	N-S(1):	0.275 *
	TH	2.00	404	3,200	0.157	N-S(2):	0.241
	LT	1.00	165	1,600	0.103 *	E-W(1):	0.197
Westbound	RT	0.00	156	0	0.000	E-W(2):	0.274 *
	TH	3.00	988	4,800	0.238 *		
	LT	1.00	121	1,600	0.076	V/C:	0.549
Northbound	RT	0.00	88	0	0.000	Lost Time:	0.100
	TH	2.00	463	3,200	0.172 *		
	LT	1.00	134	1,600	0.084		
Eastbound	RT	0.00	72	0	0.000	ICU:	0.649
	TH	3.00	507	4,800	0.121		
	LT	1.00	58	1,600	0.036 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	74	0	0.000	N-S(1):	0.374 *
	TH	2.00	438	3,200	0.160	N-S(2):	0.245
	LT	1.00	222	1,600	0.139 *	E-W(1):	0.297 *
Westbound	RT	0.00	156	0	0.000	E-W(2):	0.236
	TH	3.00	634	4,800	0.165		
	LT	1.00	81	1,600	0.051 *	V/C:	0.671
Northbound	RT	0.00	152	0	0.000	Lost Time:	0.100
	TH	2.00	600	3,200	0.235 *		
	LT	1.00	136	1,600	0.085		
Eastbound	RT	0.00	92	0	0.000	ICU:	0.771
	TH	3.00	1,089	4,800	0.246 *		
	LT	1.00	113	1,600	0.071	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **CENTURY BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	94	0	0.000	N-S(1):	0.350
	TH	2.00	832	3,200	0.289 *	N-S(2):	0.439 *
	LT	1.00	45	1,600	0.028	E-W(1):	0.279
Westbound	RT	0.00	46	0	0.000	E-W(2):	0.350 *
	TH	1.00	418	1,600	0.290 *		
	LT	1.00	59	1,600	0.037	V/C:	0.789
Northbound	RT	0.00	52	0	0.000	Lost Time:	0.100
	TH	2.00	979	3,200	0.322	ATSAC/ATCS:	-0.100
	LT	1.00	240	1,600	0.150 *		
Eastbound	RT	1.00	197	1,600	0.000	ICU:	0.789
	TH	1.00	387	1,600	0.242		
	LT	1.00	96	1,600	0.060 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	76	0	0.000	N-S(1):	0.387
	TH	2.00	912	3,200	0.309 *	N-S(2):	0.432 *
	LT	1.00	91	1,600	0.057	E-W(1):	0.396 *
Westbound	RT	0.00	57	0	0.000	E-W(2):	0.377
	TH	1.00	415	1,600	0.295		
	LT	1.00	83	1,600	0.052 *	V/C:	0.828
Northbound	RT	0.00	77	0	0.000	Lost Time:	0.100
	TH	2.00	979	3,200	0.330	ATSAC/ATCS:	-0.100
	LT	1.00	197	1,600	0.123 *		
Eastbound	RT	1.00	236	1,600	0.024	ICU:	0.828
	TH	1.00	551	1,600	0.344 *		
	LT	1.00	131	1,600	0.082	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **103RD STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	13	0	0.000	N-S(1):	0.470 *
	TH	2.00	952	3,200	0.302	N-S(2):	0.336
	LT	1.00	123	1,600	0.077 *	E-W(1):	0.273 *
Westbound	RT	0.00	147	0	0.000	E-W(2):	0.239
	TH	1.00	193	1,600	0.213		
	LT	1.00	186	1,600	0.116 *	V/C:	0.743
Northbound	RT	0.00	217	0	0.000	Lost Time:	0.100
	TH	2.00	1,042	3,200	0.393 *	ATSAC/ATCS:	-0.100
	LT	1.00	54	1,600	0.034		
Eastbound	RT	0.00	62	0	0.000	ICU:	0.743
	TH	1.00	189	1,600	0.157 *		
	LT	1.00	42	1,600	0.026	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	40	0	0.000	N-S(1):	0.511 *
	TH	2.00	1,044	3,200	0.339	N-S(2):	0.380
	LT	1.00	185	1,600	0.116 *	E-W(1):	0.273
Westbound	RT	0.00	178	0	0.000	E-W(2):	0.309 *
	TH	1.00	269	1,600	0.279 *		
	LT	1.00	171	1,600	0.107	V/C:	0.820
Northbound	RT	0.00	245	0	0.000	Lost Time:	0.100
	TH	2.00	1,020	3,200	0.395 *	ATSAC/ATCS:	-0.100
	LT	1.00	65	1,600	0.041		
Eastbound	RT	0.00	50	0	0.000	ICU:	0.820
	TH	1.00	216	1,600	0.166		
	LT	1.00	48	1,600	0.030 *	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	44	0	0.000	N-S(1):	0.386
	TH	2.00	1,039	3,200	0.338 *	N-S(2):	0.416 *
	LT	2.00	150	2,880	0.052	E-W(1):	0.310 *
Westbound	RT	0.00	238	0	0.000	E-W(2):	0.238
	TH	3.00	820	4,800	0.220		
	LT	2.00	310	2,880	0.108 *	V/C:	0.726
Northbound	RT	1.00	293	1,600	0.086	Lost Time:	0.100
	TH	2.00	1,069	3,200	0.334	ATSAC/ATCS:	-0.100
	LT	2.00	225	2,880	0.078 *		
Eastbound	RT	0.00	323	1,600	0.202 *	ICU:	0.726
	TH	3.00	526	3,200	0.164		
	LT	2.00	52	2,880	0.018	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	62	0	0.000	N-S(1):	0.366
	TH	2.00	998	3,200	0.331 *	N-S(2):	0.429 *
	LT	2.00	176	2,880	0.061	E-W(1):	0.399 *
Westbound	RT	0.00	150	0	0.000	E-W(2):	0.188
	TH	3.00	582	4,800	0.153		
	LT	2.00	247	2,880	0.086 *	V/C:	0.828
Northbound	RT	1.00	342	1,600	0.137	Lost Time:	0.100
	TH	2.00	975	3,200	0.305	ATSAC/ATCS:	-0.100
	LT	2.00	282	2,880	0.098 *		
Eastbound	RT	0.00	367	0	0.000	ICU:	0.828
	TH	3.00	1,136	4,800	0.313 *		
	LT	2.00	101	2,880	0.035	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **I-105 WESTBOUND ON/OFF RAMPS**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	747	1,600	0.467 *	N-S(1):	0.373
	TH	2.00	965	3,200	0.302	N-S(2):	0.637 *
	LT	0.00	0	0	0.000	E-W(1):	0.093
Westbound	RT	2.00	405	3,192	0.127	E-W(2):	0.127 *
	TH	0.00	1	8	0.127 *		
	LT	1.00	149	1,600	0.093	V/C:	0.764
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,193	3,200	0.373	ATSAC/ATCS:	-0.100
	LT	2.00	489	2,880	0.170 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.764
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	588	1,600	0.368 *	N-S(1):	0.328
	TH	2.00	1,075	3,200	0.336	N-S(2):	0.560 *
	LT	0.00	0	0	0.000	E-W(1):	0.188 *
Westbound	RT	1.79	485	2,867	0.169	E-W(2):	0.169
	TH	0.00	0	0	0.000		
	LT	1.21	327	1,740	0.188 *	V/C:	0.748
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,050	3,200	0.328	ATSAC/ATCS:	-0.100
	LT	2.00	553	2,880	0.192 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.748
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **I-105 EASTBOUND ON/OFF RAMPS**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.370 *
	TH	2.00	593	3,200	0.185	N-S(2):	0.185
	LT	2.00	528	2,880	0.183 *	E-W(1):	0.320
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.356 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.726
Northbound	RT	1.09	326	1,743	0.187	Lost Time:	0.100
	TH	2.91	871	4,657	0.187 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	1.40	717	2,238	0.320	ICU:	0.726
	TH	0.04	20	62	0.320		
	LT	1.56	801	2,250	0.356 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.408 *
	TH	2.00	881	3,200	0.275	N-S(2):	0.275
	LT	2.00	518	2,880	0.180 *	E-W(1):	0.244
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.271 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.679
Northbound	RT	1.10	399	1,753	0.228	Lost Time:	0.100
	TH	2.90	1,058	4,647	0.228 *	ATSAC/ATCS:	-0.100
	LT	0.00	0	0	0.000		
Eastbound	RT	1.20	468	1,918	0.244	ICU:	0.679
	TH	0.42	165	676	0.244		
	LT	1.38	538	1,985	0.271 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **120TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	85	0	0.000	N-S(1):	0.491 *
	TH	2.00	845	3,200	0.291	N-S(2):	0.345
	LT	1.00	311	1,600	0.194 *	E-W(1):	0.270
Westbound	RT	0.00	252	0	0.000	E-W(2):	0.321 *
	TH	2.00	523	3,200	0.242 *		
	LT	1.00	178	1,600	0.111	V/C:	0.812
Northbound	RT	0.00	228	0	0.000	Lost Time:	0.100
	TH	2.00	722	3,200	0.297 *	ATSAC/ATCS:	-0.100
	LT	1.00	86	1,600	0.054		
Eastbound	RT	0.00	42	0	0.000	ICU:	0.812
	TH	2.00	467	3,200	0.159		
	LT	1.00	126	1,600	0.079 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	105	0	0.000	N-S(1):	0.480 *
	TH	2.00	964	3,200	0.334	N-S(2):	0.387
	LT	1.00	227	1,600	0.142 *	E-W(1):	0.282
Westbound	RT	0.00	345	0	0.000	E-W(2):	0.336 *
	TH	2.00	430	3,200	0.242 *		
	LT	1.00	172	1,600	0.108	V/C:	0.816
Northbound	RT	0.00	151	0	0.000	Lost Time:	0.100
	TH	2.00	932	3,200	0.338 *	ATSAC/ATCS:	-0.100
	LT	1.00	85	1,600	0.053		
Eastbound	RT	0.00	88	0	0.000	ICU:	0.816
	TH	2.00	468	3,200	0.174		
	LT	1.00	151	1,600	0.094 *	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	202	0	0.000	N-S(1):	0.381 *
	TH	2.00	683	3,200	0.277	N-S(2):	0.380
	LT	1.00	109	1,600	0.068 *	E-W(1):	0.242
Westbound	RT	0.00	75	0	0.000	E-W(2):	0.356 *
	TH	2.00	779	3,200	0.267 *		
	LT	1.00	167	1,600	0.104	V/C:	0.737
Northbound	RT	0.00	265	0	0.000	Lost Time:	0.100
	TH	2.00	736	3,200	0.313 *		
	LT	1.00	164	1,600	0.103		
Eastbound	RT	1.00	111	1,600	0.000	ICU:	0.837
	TH	2.00	440	3,200	0.138		
	LT	1.00	143	1,600	0.089 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	170	0	0.000	N-S(1):	0.398 *
	TH	2.00	813	3,200	0.307	N-S(2):	0.381
	LT	1.00	144	1,600	0.090 *	E-W(1):	0.404 *
Westbound	RT	0.00	116	0	0.000	E-W(2):	0.378
	TH	2.00	556	3,200	0.210		
	LT	1.00	129	1,600	0.081 *	V/C:	0.802
Northbound	RT	0.00	207	0	0.000	Lost Time:	0.100
	TH	2.00	780	3,200	0.308 *		
	LT	1.00	118	1,600	0.074		
Eastbound	RT	1.00	175	1,600	0.036	ICU:	0.902
	TH	2.00	1,033	3,200	0.323 *		
	LT	1.00	269	1,600	0.168	LOS:	E

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	158	1,600	0.000	N-S(1):	0.303
	TH	2.00	680	3,200	0.213 *	N-S(2):	0.308 *
	LT	1.00	135	1,600	0.084	E-W(1):	0.232
Westbound	RT	0.00	156	0	0.000	E-W(2):	0.430 *
	TH	2.00	888	3,200	0.326 *		
	LT	1.00	162	1,600	0.101	V/C:	0.738
Northbound	RT	0.00	65	0	0.000	Lost Time:	0.100
	TH	2.00	637	3,200	0.219		
	LT	1.00	152	1,600	0.095 *		
Eastbound	RT	0.00	160	0	0.000	ICU:	0.838
	TH	3.00	470	4,800	0.131		
	LT	1.00	166	1,600	0.104 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	139	1,600	0.000	N-S(1):	0.471 *
	TH	2.00	784	3,200	0.245	N-S(2):	0.371
	LT	1.00	284	1,600	0.178 *	E-W(1):	0.382
Westbound	RT	0.00	154	0	0.000	E-W(2):	0.404 *
	TH	2.00	682	3,200	0.261 *		
	LT	1.00	177	1,600	0.111	V/C:	0.875
Northbound	RT	0.00	124	0	0.000	Lost Time:	0.100
	TH	2.00	814	3,200	0.293 *		
	LT	1.00	201	1,600	0.126		
Eastbound	RT	0.00	202	0	0.000	ICU:	0.975
	TH	3.00	1,100	4,800	0.271		
	LT	1.00	228	1,600	0.143 *	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: COMPTON BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: AM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	79	0	0.000	N-S(1):	0.366 *
	TH	2.00	691	3,200	0.241	N-S(2):	0.319
	LT	1.00	164	1,600	0.103 *	E-W(1):	0.243
Westbound	RT	0.00	123	0	0.000	E-W(2):	0.268 *
	TH	2.00	450	3,200	0.179 *		
	LT	1.00	106	1,600	0.066	V/C:	0.634
Northbound	RT	0.00	159	0	0.000	Lost Time:	0.100
	TH	2.00	682	3,200	0.263 *		
	LT	1.00	124	1,600	0.078		
Eastbound	RT	1.00	129	1,600	0.003	ICU:	0.734
	TH	2.00	566	3,200	0.177		
	LT	1.00	143	1,600	0.089 *	LOS:	C

Peak Period: PM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	139	0	0.000	N-S(1):	0.383 *
	TH	2.00	830	3,200	0.303	N-S(2):	0.353
	LT	1.00	162	1,600	0.101 *	E-W(1):	0.236
Westbound	RT	0.00	184	0	0.000	E-W(2):	0.274 *
	TH	2.00	378	3,200	0.176 *		
	LT	1.00	88	1,600	0.055	V/C:	0.657
Northbound	RT	0.00	111	0	0.000	Lost Time:	0.100
	TH	2.00	792	3,200	0.282 *		
	LT	1.00	80	1,600	0.050		
Eastbound	RT	1.00	131	1,600	0.032	ICU:	0.757
	TH	2.00	578	3,200	0.181		
	LT	1.00	157	1,600	0.098 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **ALONDRA BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	130	0	0.000	N-S(1):	0.301
	TH	2.00	761	3,200	0.278 *	N-S(2):	0.362 *
	LT	1.00	139	1,600	0.087	E-W(1):	0.199
Westbound	RT	0.00	149	0	0.000	E-W(2):	0.231 *
	TH	2.00	443	3,200	0.185 *		
	LT	1.00	104	1,600	0.065	V/C:	0.593
Northbound	RT	0.00	76	0	0.000	Lost Time:	0.100
	TH	2.00	609	3,200	0.214		
	LT	1.00	134	1,600	0.084 *		
Eastbound	RT	0.00	107	0	0.000	ICU:	0.693
	TH	2.00	323	3,200	0.134		
	LT	1.00	74	1,600	0.046 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	98	0	0.000	N-S(1):	0.375 *
	TH	2.00	696	3,200	0.248	N-S(2):	0.314
	LT	1.00	187	1,600	0.117 *	E-W(1):	0.270 *
Westbound	RT	0.00	189	0	0.000	E-W(2):	0.244
	TH	2.00	304	3,200	0.154		
	LT	1.00	75	1,600	0.047 *	V/C:	0.645
Northbound	RT	0.00	109	0	0.000	Lost Time:	0.100
	TH	2.00	717	3,200	0.258 *		
	LT	1.00	105	1,600	0.066		
Eastbound	RT	0.00	132	0	0.000	ICU:	0.745
	TH	2.00	581	3,200	0.223 *		
	LT	1.00	144	1,600	0.090	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SUCCESS AVENUE-SLATER AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	43	0	0.000	N-S(1):	0.104 *
	TH	1.00	32	1,600	0.080	N-S(2):	0.097
	LT	0.00	53	1,600	0.033 *	E-W(1):	0.251
Westbound	RT	0.00	49	0	0.000	E-W(2):	0.291 *
	TH	2.00	808	3,200	0.268 *		
	LT	1.00	33	1,600	0.021	V/C:	0.395
Northbound	RT	0.00	37	0	0.000	Lost Time:	0.100
	TH	1.00	49	1,600	0.071 *		
	LT	0.00	27	1,600	0.017		
Eastbound	RT	0.00	8	0	0.000	ICU:	0.495
	TH	2.00	729	3,200	0.230		
	LT	1.00	37	1,600	0.023 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	36	0	0.000	N-S(1):	0.055 *
	TH	1.00	13	1,600	0.049 *	N-S(2):	0.055 *
	LT	0.00	30	1,600	0.019	E-W(1):	0.281
Westbound	RT	0.00	26	0	0.000	E-W(2):	0.292 *
	TH	2.00	846	3,200	0.273 *		
	LT	1.00	43	1,600	0.027	V/C:	0.347
Northbound	RT	0.00	38	0	0.000	Lost Time:	0.100
	TH	1.00	9	1,600	0.036		
	LT	0.00	10	1,600	0.006 *		
Eastbound	RT	0.00	12	0	0.000	ICU:	0.447
	TH	2.00	800	3,200	0.254		
	LT	1.00	31	1,600	0.019 *	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **103RD AVENUE**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	83	0	0.000	N-S(1):	0.209
	TH	2.00	459	3,200	0.169 *	N-S(2):	0.229 *
	LT	1.00	57	1,600	0.036	E-W(1):	0.200
Westbound	RT	1.00	95	1,600	0.024	E-W(2):	0.270 *
	TH	1.00	326	1,600	0.204 *		
	LT	1.00	119	1,600	0.074	V/C:	0.499
Northbound	RT	0.00	120	0	0.000	Lost Time:	0.100
	TH	2.00	433	3,200	0.173	ATSAC/ATCS:	-0.100
	LT	1.00	96	1,600	0.060 *		
Eastbound	RT	0.00	125	0	0.000	ICU:	0.499
	TH	2.00	279	3,200	0.126		
	LT	1.00	105	1,600	0.066 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	83	0	0.000	N-S(1):	0.248
	TH	2.00	429	3,200	0.160 *	N-S(2):	0.253 *
	LT	1.00	92	1,600	0.058	E-W(1):	0.230
Westbound	RT	1.00	94	1,600	0.001	E-W(2):	0.328 *
	TH	1.00	438	1,600	0.274 *		
	LT	1.00	117	1,600	0.073	V/C:	0.581
Northbound	RT	0.00	122	0	0.000	Lost Time:	0.100
	TH	2.00	486	3,200	0.190	ATSAC/ATCS:	-0.100
	LT	1.00	148	1,600	0.093 *		
Eastbound	RT	0.00	102	0	0.000	ICU:	0.581
	TH	2.00	399	3,200	0.157		
	LT	1.00	86	1,600	0.054 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	129	0	0.000	N-S(1):	0.339
	TH	1.00	365	1,600	0.309 *	N-S(2):	0.392 *
	LT	1.00	162	1,600	0.101	E-W(1):	0.288
Westbound	RT	0.00	188	0	0.000	E-W(2):	0.513 *
	TH	2.00	1,230	3,200	0.443 *		
	LT	1.00	156	1,600	0.098	V/C:	0.905
Northbound	RT	1.00	169	1,600	0.008	Lost Time:	0.100
	TH	1.00	381	1,600	0.238	ATSAC/ATCS:	-0.100
	LT	1.00	133	1,600	0.083 *		
Eastbound	RT	0.00	159	0	0.000	ICU:	0.905
	TH	3.00	751	4,800	0.190		
	LT	1.00	112	1,600	0.070 *	LOS:	E

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	160	0	0.000	N-S(1):	0.354
	TH	1.00	313	1,600	0.296 *	N-S(2):	0.365 *
	LT	1.00	208	1,600	0.130	E-W(1):	0.404 *
Westbound	RT	0.00	195	0	0.000	E-W(2):	0.381
	TH	2.00	791	3,200	0.308		
	LT	1.00	97	1,600	0.061 *	V/C:	0.769
Northbound	RT	1.00	123	1,600	0.016	Lost Time:	0.100
	TH	1.00	359	1,600	0.224	ATSAC/ATCS:	-0.100
	LT	1.00	111	1,600	0.069 *		
Eastbound	RT	0.00	107	0	0.000	ICU:	0.769
	TH	3.00	1,538	4,800	0.343 *		
	LT	1.00	117	1,600	0.073	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **118TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	11	0	0.000	N-S(1):	0.213 *
	TH	2.00	563	3,200	0.195	N-S(2):	0.206
	LT	0.00	49	1,600	0.031 *	E-W(1):	0.105
Westbound	RT	0.00	57	0	0.000	E-W(2):	0.106 *
	TH	1.00	16	1,600	0.088 *		
	LT	0.00	67	1,600	0.042	V/C:	0.319
Northbound	RT	0.00	88	0	0.000	Lost Time:	0.100
	TH	2.00	476	3,200	0.182 *		
	LT	0.00	17	1,600	0.011		
Eastbound	RT	0.00	54	0	0.000	ICU:	0.419
	TH	1.00	19	1,600	0.063		
	LT	0.00	28	1,600	0.018 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	6	0	0.000	N-S(1):	0.197 *
	TH	2.00	411	3,200	0.144	N-S(2):	0.158
	LT	0.00	44	1,600	0.028 *	E-W(1):	0.062
Westbound	RT	0.00	56	0	0.000	E-W(2):	0.085 *
	TH	1.00	25	1,600	0.079 *		
	LT	0.00	46	1,600	0.029	V/C:	0.282
Northbound	RT	0.00	49	0	0.000	Lost Time:	0.100
	TH	2.00	471	3,200	0.169 *		
	LT	0.00	22	1,600	0.014		
Eastbound	RT	0.00	20	0	0.000	ICU:	0.382
	TH	1.00	24	1,600	0.033		
	LT	0.00	9	1,600	0.006 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	149	0	0.000	N-S(1):	0.252 *
	TH	2.00	310	3,200	0.143	N-S(2):	0.217
	LT	1.00	185	1,600	0.116 *	E-W(1):	0.310
Westbound	RT	0.00	187	0	0.000	E-W(2):	0.341 *
	TH	2.00	550	3,200	0.230 *		
	LT	1.00	86	1,600	0.054	V/C:	0.593
Northbound	RT	0.00	100	0	0.000	Lost Time:	0.100
	TH	2.00	336	3,200	0.136 *		
	LT	1.00	119	1,600	0.074		
Eastbound	RT	0.00	96	0	0.000	ICU:	0.693
	TH	2.00	724	3,200	0.256		
	LT	1.00	177	1,600	0.111 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	84	0	0.000	N-S(1):	0.201 *
	TH	2.00	306	3,200	0.122	N-S(2):	0.185
	LT	1.00	146	1,600	0.091 *	E-W(1):	0.328
Westbound	RT	0.00	165	0	0.000	E-W(2):	0.384 *
	TH	2.00	815	3,200	0.306 *		
	LT	1.00	112	1,600	0.070	V/C:	0.585
Northbound	RT	0.00	76	0	0.000	Lost Time:	0.100
	TH	2.00	277	3,200	0.110 *		
	LT	1.00	101	1,600	0.063		
Eastbound	RT	0.00	136	0	0.000	ICU:	0.685
	TH	2.00	690	3,200	0.258		
	LT	1.00	125	1,600	0.078 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **124TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	13	0	0.000	N-S(1):	0.158 *
	TH	2.00	438	3,200	0.154	N-S(2):	0.155
	LT	0.00	41	1,600	0.026 *	E-W(1):	0.040
Westbound	RT	0.00	56	0	0.000	E-W(2):	0.085 *
	TH	1.00	29	1,600	0.078 *		
	LT	0.00	39	1,600	0.024	V/C:	0.243
Northbound	RT	0.00	18	0	0.000	Lost Time:	0.100
	TH	2.00	402	3,200	0.132 *		
	LT	0.00	2	1,600	0.001		
Eastbound	RT	0.00	2	0	0.000	ICU:	0.343
	TH	1.00	12	1,600	0.016		
	LT	0.00	11	1,600	0.007 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	11	0	0.000	N-S(1):	0.144
	TH	2.00	420	3,200	0.148 *	N-S(2):	0.149 *
	LT	0.00	43	1,600	0.027	E-W(1):	0.022
Westbound	RT	0.00	33	0	0.000	E-W(2):	0.041 *
	TH	1.00	11	1,600	0.039 *		
	LT	0.00	18	1,600	0.011	V/C:	0.190
Northbound	RT	0.00	17	0	0.000	Lost Time:	0.100
	TH	2.00	355	3,200	0.117		
	LT	0.00	1	1,600	0.001 *		
Eastbound	RT	0.00	5	0	0.000	ICU:	0.290
	TH	1.00	10	1,600	0.011		
	LT	0.00	3	1,600	0.002 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	256	1,600	0.160 *	N-S(1): 0.107
	TH	2.00	74	1,600	0.046	N-S(2): 0.246 *
	LT	1.00	117	1,600	0.073	E-W(1): 0.239
Westbound	RT	0.00	91	0	0.000	E-W(2): 0.463 *
	TH	2.00	993	3,200	0.339 *	
	LT	1.00	8	1,600	0.005	V/C: 0.709
Northbound	RT	0.00	16	0	0.000	Lost Time: 0.100
	TH	2.00	93	3,200	0.034	
	LT	1.00	138	1,600	0.086 *	
Eastbound	RT	0.00	71	0	0.000	ICU: 0.809
	TH	2.00	679	3,200	0.234	
	LT	1.00	198	1,600	0.124 *	LOS: D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	156	1,600	0.098 *	N-S(1): 0.102
	TH	2.00	93	1,600	0.058	N-S(2): 0.144 *
	LT	1.00	125	1,600	0.078	E-W(1): 0.384 *
Westbound	RT	0.00	85	0	0.000	E-W(2): 0.304
	TH	2.00	469	3,200	0.173	
	LT	1.00	13	1,600	0.008 *	V/C: 0.528
Northbound	RT	0.00	19	0	0.000	Lost Time: 0.100
	TH	2.00	58	3,200	0.024	
	LT	1.00	74	1,600	0.046 *	
Eastbound	RT	0.00	124	0	0.000	ICU: 0.628
	TH	2.00	1,078	3,200	0.376 *	
	LT	1.00	210	1,600	0.131	LOS: B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **103RD STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	59	0	0.000	N-S(1):	0.247
	TH	2.00	414	3,200	0.148 *	N-S(2):	0.257 *
	LT	1.00	89	1,600	0.056	E-W(1):	0.294
Westbound	RT	0.00	79	0	0.000	E-W(2):	0.311 *
	TH	1.00	350	1,600	0.268 *		
	LT	1.00	169	1,600	0.106	V/C:	0.568
Northbound	RT	0.00	150	0	0.000	Lost Time:	0.100
	TH	2.00	460	3,200	0.191		
	LT	1.00	175	1,600	0.109 *		
Eastbound	RT	1.00	102	1,600	0.000	ICU:	0.668
	TH	1.00	300	1,600	0.188		
	LT	1.00	69	1,600	0.043 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	48	0	0.000	N-S(1):	0.250 *
	TH	2.00	351	3,200	0.125	N-S(2):	0.213
	LT	1.00	93	1,600	0.058 *	E-W(1):	0.285 *
Westbound	RT	0.00	50	0	0.000	E-W(2):	0.217
	TH	1.00	264	1,600	0.196		
	LT	1.00	170	1,600	0.106 *	V/C:	0.535
Northbound	RT	0.00	192	0	0.000	Lost Time:	0.100
	TH	2.00	421	3,200	0.192 *		
	LT	1.00	141	1,600	0.088		
Eastbound	RT	1.00	150	1,600	0.006	ICU:	0.635
	TH	1.00	287	1,600	0.179 *		
	LT	1.00	33	1,600	0.021	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **SANTA ANA BOULEVARD(N)**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	5	0	0.000	N-S(1):	0.406
	TH	1.00	666	1,600	0.419 *	N-S(2):	0.427 *
	LT	1.00	19	1,600	0.012	E-W(1):	0.088
Westbound	RT	0.00	101	0	0.000	E-W(2):	0.148 *
	TH	1.00	31	1,600	0.143 *		
	LT	0.00	97	1,600	0.061	V/C:	0.575
Northbound	RT	0.00	30	0	0.000	Lost Time:	0.100
	TH	1.00	600	1,600	0.394		
	LT	1.00	13	1,600	0.008 *		
Eastbound	RT	0.00	19	0	0.000	ICU:	0.675
	TH	1.00	16	1,600	0.027		
	LT	0.00	8	1,600	0.005 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	3	0	0.000	N-S(1):	0.524 *
	TH	1.00	623	1,600	0.391	N-S(2):	0.406
	LT	1.00	34	1,600	0.021 *	E-W(1):	0.063
Westbound	RT	0.00	81	0	0.000	E-W(2):	0.097 *
	TH	1.00	22	1,600	0.096 *		
	LT	0.00	51	1,600	0.032	V/C:	0.621
Northbound	RT	0.00	54	0	0.000	Lost Time:	0.100
	TH	1.00	750	1,600	0.503 *		
	LT	1.00	24	1,600	0.015		
Eastbound	RT	0.00	22	0	0.000	ICU:	0.721
	TH	1.00	27	1,600	0.031		
	LT	0.00	1	1,600	0.001 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: SANTA ANA BOULEVARD(S)

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	60	0	0.000	N-S(1):	0.409
	TH	1.00	694	1,600	0.471 *	N-S(2):	0.489 *
	LT	1.00	29	1,600	0.018	E-W(1):	0.130 *
Westbound	RT	0.00	11	0	0.000	E-W(2):	0.111
	TH	1.00	74	1,600	0.090		
	LT	0.00	59	1,600	0.037 *	V/C:	0.619
Northbound	RT	0.00	27	0	0.000	Lost Time:	0.100
	TH	1.00	599	1,600	0.391		
	LT	1.00	28	1,600	0.018 *		
Eastbound	RT	0.00	23	0	0.000	ICU:	0.719
	TH	1.00	92	1,600	0.093 *		
	LT	0.00	34	1,600	0.021	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	29	0	0.000	N-S(1):	0.532 *
	TH	1.00	628	1,600	0.411	N-S(2):	0.429
	LT	1.00	42	1,600	0.026 *	E-W(1):	0.138 *
Westbound	RT	0.00	12	0	0.000	E-W(2):	0.100
	TH	1.00	46	1,600	0.076		
	LT	0.00	64	1,600	0.040 *	V/C:	0.670
Northbound	RT	0.00	35	0	0.000	Lost Time:	0.100
	TH	1.00	775	1,600	0.506 *		
	LT	1.00	29	1,600	0.018		
Eastbound	RT	0.00	30	0	0.000	ICU:	0.770
	TH	1.00	88	1,600	0.098 *		
	LT	0.00	38	1,600	0.024	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: IMPERIAL HIGHWAY-WILLOWBROOK AVE

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	138	0	0.000	N-S(1):	0.191
	TH	2.00	1,209	3,200	0.421 *	N-S(2):	0.520 *
	LT	1.00	25	1,600	0.016	E-W(1):	0.063
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.079 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.599
Northbound	RT	0.00	57	0	0.000	Lost Time:	0.100
	TH	2.00	504	3,200	0.175	ATSAC/ATCS:	-0.100
	LT	1.00	159	1,600	0.099 *		
Eastbound	RT	1.00	259	1,600	0.063	ICU:	0.599
	TH	1.00	24	1,600	0.015		
	LT	1.00	126	1,600	0.079 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	132	0	0.000	N-S(1):	0.247
	TH	2.00	1,051	3,200	0.370 *	N-S(2):	0.505 *
	LT	1.00	33	1,600	0.021	E-W(1):	0.060
Westbound	RT	0.00	2	0	0.000	E-W(2):	0.101 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.606
Northbound	RT	0.00	43	0	0.000	Lost Time:	0.100
	TH	2.00	680	3,200	0.226	ATSAC/ATCS:	-0.100
	LT	1.00	216	1,600	0.135 *		
Eastbound	RT	1.00	312	1,600	0.060	ICU:	0.606
	TH	1.00	25	1,600	0.016		
	LT	1.00	161	1,600	0.101 *	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **I-105 EASTBOUND ON/OFF RAMPS**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	490	3,200	0.014	N-S(1):	0.201
	TH	2.00	996	3,200	0.311 *	N-S(2):	0.584 *
	LT	0.00	0	0	0.000	E-W(1):	0.219
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.278 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.862
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	966	4,800	0.201		
	LT	1.00	437	1,600	0.273 *		
Eastbound	RT	1.00	788	1,600	0.219	ICU:	0.962
	TH	0.00	0	0	0.000		
	LT	1.00	445	1,600	0.278 *	LOS:	E

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	401	3,200	0.000	N-S(1):	0.309
	TH	2.00	982	3,200	0.307 *	N-S(2):	0.698 *
	LT	0.00	0	0	0.000	E-W(1):	0.000
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.254 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.952
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,481	4,800	0.309		
	LT	1.00	625	1,600	0.391 *		
Eastbound	RT	1.00	367	1,600	0.000	ICU:	1.052
	TH	0.00	0	0	0.000		
	LT	1.00	406	1,600	0.254 *	LOS:	F

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 118TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: AM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	123	0	0.000	N-S(1):	0.302
	TH	2.00	1,567	3,200	0.528 *	N-S(2):	0.606 *
	LT	2.00	105	2,880	0.036	E-W(1):	0.189 *
Westbound	RT	0.00	72	0	0.000	E-W(2):	0.148
	TH	1.00	29	1,600	0.084		
	LT	0.00	34	1,600	0.021 *	V/C:	0.795
Northbound	RT	0.00	48	0	0.000	Lost Time:	0.100
	TH	3.00	1,228	4,800	0.266		
	LT	1.00	125	1,600	0.078 *		
Eastbound	RT	0.00	131	0	0.000	ICU:	0.895
	TH	1.00	35	1,600	0.168 *		
	LT	0.00	102	1,600	0.064	LOS:	D

Peak Period: PM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	59	0	0.000	N-S(1):	0.456 *
	TH	2.00	1,088	3,200	0.358	N-S(2):	0.394
	LT	2.00	190	2,880	0.066 *	E-W(1):	0.248
Westbound	RT	0.00	202	0	0.000	E-W(2):	0.314 *
	TH	1.00	60	1,600	0.217 *		
	LT	0.00	85	1,600	0.053	V/C:	0.770
Northbound	RT	0.00	125	0	0.000	Lost Time:	0.100
	TH	3.00	1,749	4,800	0.390 *		
	LT	1.00	58	1,600	0.036		
Eastbound	RT	0.00	80	0	0.000	ICU:	0.870
	TH	1.00	77	1,600	0.195		
	LT	0.00	155	1,600	0.097 *	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 120TH ST-119TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600	vph
Left-Turn Lane:	1600	vph
Dual LT Penalty:	10	%

N-S Split Phase :	N
E-W Split Phase :	N
Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	578	0	0.000	N-S(1):	0.429
	TH	2.00	1,015	3,200	0.498 *	N-S(2):	0.590 *
	LT	1.00	154	1,600	0.096	E-W(1):	0.150
Westbound	RT	0.00	197	0	0.000	E-W(2):	0.264 *
	TH	2.00	270	3,200	0.146 *		
	LT	1.00	95	1,600	0.059	V/C:	0.854
Northbound	RT	0.00	44	0	0.000	Lost Time:	0.100
	TH	2.00	1,023	3,200	0.333		
	LT	1.00	147	1,600	0.092 *		
Eastbound	RT	1.00	90	1,600	0.000	ICU:	0.954
	TH	1.00	145	1,600	0.091		
	LT	1.00	188	1,600	0.118 *	LOS:	E

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	255	0	0.000	N-S(1):	0.530 *
	TH	2.00	889	3,200	0.358	N-S(2):	0.424
	LT	1.00	107	1,600	0.067 *	E-W(1):	0.278
Westbound	RT	0.00	171	0	0.000	E-W(2):	0.378 *
	TH	2.00	197	3,200	0.115 *		
	LT	1.00	128	1,600	0.080	V/C:	0.908
Northbound	RT	0.00	124	0	0.000	Lost Time:	0.100
	TH	2.00	1,356	3,200	0.463 *		
	LT	1.00	106	1,600	0.066		
Eastbound	RT	1.00	177	1,600	0.044	ICU:	1.008
	TH	1.00	317	1,600	0.198		
	LT	1.00	421	1,600	0.263 *	LOS:	F

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **MLK HOSPITAL DWY-120TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	316	0	0.000	N-S(1):	0.305
	TH	2.00	879	3,200	0.373 *	N-S(2):	0.542 *
	LT	1.00	35	1,600	0.022	E-W(1):	0.161
Westbound	RT	0.00	45	0	0.000	E-W(2):	0.203 *
	TH	1.00	54	1,600	0.069 *		
	LT	0.00	11	1,600	0.007	V/C:	0.745
Northbound	RT	0.00	9	0	0.000	Lost Time:	0.100
	TH	2.00	895	3,200	0.283		
	LT	1.00	270	1,600	0.169 *		
Eastbound	RT	1.00	152	1,600	0.000	ICU:	0.845
	TH	1.00	31	1,600	0.154		
	LT	0.00	215	1,600	0.134 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	205	0	0.000	N-S(1):	0.364
	TH	2.00	952	3,200	0.362 *	N-S(2):	0.496 *
	LT	1.00	31	1,600	0.019	E-W(1):	0.341 *
Westbound	RT	0.00	29	0	0.000	E-W(2):	0.340
	TH	1.00	44	1,600	0.051		
	LT	0.00	9	1,600	0.006 *	V/C:	0.837
Northbound	RT	0.00	23	0	0.000	Lost Time:	0.100
	TH	2.00	1,081	3,200	0.345		
	LT	1.00	215	1,600	0.134 *		
Eastbound	RT	1.00	331	1,600	0.073	ICU:	0.937
	TH	1.00	73	1,600	0.335 *		
	LT	0.00	463	1,600	0.289	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 124TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.412 *
	TH	2.00	881	3,200	0.281	N-S(2):	0.295
	LT	1.00	95	1,600	0.059 *	E-W(1):	0.087
Westbound	RT	0.00	112	0	0.000	E-W(2):	0.162 *
	TH	1.00	74	1,600	0.153 *		
	LT	0.00	58	1,600	0.036	V/C:	0.574
Northbound	RT	0.00	39	0	0.000	Lost Time:	0.100
	TH	2.00	1,092	3,200	0.353 *		
	LT	1.00	23	1,600	0.014		
Eastbound	RT	0.00	28	0	0.000	ICU:	0.674
	TH	1.00	40	1,600	0.051		
	LT	0.00	14	1,600	0.009 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.419 *
	TH	2.00	1,008	3,200	0.321	N-S(2):	0.338
	LT	1.00	132	1,600	0.083 *	E-W(1):	0.066
Westbound	RT	0.00	90	0	0.000	E-W(2):	0.100 *
	TH	1.00	25	1,600	0.091 *		
	LT	0.00	30	1,600	0.019	V/C:	0.519
Northbound	RT	0.00	36	0	0.000	Lost Time:	0.100
	TH	2.00	1,039	3,200	0.336 *		
	LT	1.00	27	1,600	0.017		
Eastbound	RT	0.00	25	0	0.000	ICU:	0.619
	TH	1.00	35	1,600	0.047		
	LT	0.00	15	1,600	0.009 *	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	112	0	0.000	N-S(1):	0.414
	TH	2.00	703	3,200	0.255 *	N-S(2):	0.417 *
	LT	1.00	178	1,600	0.111	E-W(1):	0.261
Westbound	RT	0.00	163	0	0.000	E-W(2):	0.341 *
	TH	2.00	616	3,200	0.243 *		
	LT	1.00	69	1,600	0.043	V/C:	0.758
Northbound	RT	0.00	73	0	0.000	Lost Time:	0.100
	TH	2.00	897	3,200	0.303		
	LT	1.00	259	1,600	0.162 *		
Eastbound	RT	0.00	283	0	0.000	ICU:	0.858
	TH	2.00	416	3,200	0.218		
	LT	1.00	157	1,600	0.098 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	99	0	0.000	N-S(1):	0.435 *
	TH	2.00	826	3,200	0.289	N-S(2):	0.398
	LT	1.00	217	1,600	0.136 *	E-W(1):	0.414 *
Westbound	RT	0.00	131	0	0.000	E-W(2):	0.270
	TH	2.00	381	3,200	0.160		
	LT	1.00	104	1,600	0.065 *	V/C:	0.849
Northbound	RT	0.00	89	0	0.000	Lost Time:	0.100
	TH	2.00	867	3,200	0.299 *		
	LT	1.00	174	1,600	0.109		
Eastbound	RT	0.00	280	0	0.000	ICU:	0.949
	TH	2.00	837	3,200	0.349 *		
	LT	1.00	176	1,600	0.110	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	148	0	0.000	N-S(1):	0.404 *
	TH	2.00	802	3,200	0.297	N-S(2):	0.390
	LT	1.00	184	1,600	0.115 *	E-W(1):	0.246
Westbound	RT	0.00	185	0	0.000	E-W(2):	0.418 *
	TH	2.00	876	3,200	0.332 *		
	LT	1.00	133	1,600	0.083	V/C:	0.822
Northbound	RT	0.00	139	0	0.000	Lost Time:	0.100
	TH	2.00	785	3,200	0.289 *		
	LT	1.00	149	1,600	0.093		
Eastbound	RT	1.00	136	1,600	0.000	ICU:	0.922
	TH	2.00	523	3,200	0.163		
	LT	1.00	138	1,600	0.086 *	LOS:	E

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	171	0	0.000	N-S(1):	0.423 *
	TH	2.00	758	3,200	0.290	N-S(2):	0.394
	LT	1.00	203	1,600	0.127 *	E-W(1):	0.422 *
Westbound	RT	0.00	188	0	0.000	E-W(2):	0.370
	TH	2.00	630	3,200	0.256		
	LT	1.00	149	1,600	0.093 *	V/C:	0.845
Northbound	RT	0.00	171	0	0.000	Lost Time:	0.100
	TH	2.00	776	3,200	0.296 *		
	LT	1.00	167	1,600	0.104		
Eastbound	RT	1.00	180	1,600	0.008	ICU:	0.945
	TH	2.00	1,053	3,200	0.329 *		
	LT	1.00	183	1,600	0.114	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: COMPTON BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	130	0	0.000	N-S(1):	0.308 *
	TH	2.00	630	3,200	0.238	N-S(2):	0.296
	LT	1.00	186	1,600	0.116 *	E-W(1):	0.308 *
Westbound	RT	1.00	169	1,600	0.000	E-W(2):	0.214
	TH	2.00	479	3,200	0.150		
	LT	1.00	166	1,600	0.104 *	V/C:	0.616
Northbound	RT	1.00	156	1,600	0.000	Lost Time:	0.100
	TH	2.00	613	3,200	0.192 *		
	LT	1.00	93	1,600	0.058		
Eastbound	RT	0.00	88	0	0.000	ICU:	0.716
	TH	2.00	564	3,200	0.204 *		
	LT	1.00	102	1,600	0.064	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	110	0	0.000	N-S(1):	0.341 *
	TH	2.00	651	3,200	0.238	N-S(2):	0.321
	LT	1.00	165	1,600	0.103 *	E-W(1):	0.326 *
Westbound	RT	1.00	210	1,600	0.028	E-W(2):	0.249
	TH	2.00	543	3,200	0.170		
	LT	1.00	164	1,600	0.103 *	V/C:	0.667
Northbound	RT	1.00	152	1,600	0.000	Lost Time:	0.100
	TH	2.00	763	3,200	0.238 *		
	LT	1.00	133	1,600	0.083		
Eastbound	RT	0.00	108	0	0.000	ICU:	0.767
	TH	2.00	605	3,200	0.223 *		
	LT	1.00	126	1,600	0.079	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **ALONDRA BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane: 1600 vph
Left-Turn Lane: 1600 vph
Dual LT Penalty: 10 %

N-S Split Phase : N
E-W Split Phase : N
Lost Time (% of cycle) : 10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	73	0	0.000	N-S(1):	0.285
	TH	2.00	809	3,200	0.276 *	N-S(2):	0.316 *
	LT	1.00	98	1,600	0.061	E-W(1):	0.224
Westbound	RT	0.00	88	0	0.000	E-W(2):	0.231 *
	TH	2.00	483	3,200	0.178 *		
	LT	1.00	109	1,600	0.068	V/C:	0.547
Northbound	RT	0.00	57	0	0.000	Lost Time:	0.100
	TH	2.00	659	3,200	0.224		
	LT	1.00	64	1,600	0.040 *		
Eastbound	RT	0.00	56	0	0.000	ICU:	0.647
	TH	2.00	444	3,200	0.156		
	LT	1.00	85	1,600	0.053 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	101	0	0.000	N-S(1):	0.346 *
	TH	2.00	633	3,200	0.229	N-S(2):	0.280
	LT	1.00	112	1,600	0.070 *	E-W(1):	0.290 *
Westbound	RT	0.00	115	0	0.000	E-W(2):	0.265
	TH	2.00	420	3,200	0.167		
	LT	1.00	99	1,600	0.062 *	V/C:	0.636
Northbound	RT	0.00	96	0	0.000	Lost Time:	0.100
	TH	2.00	786	3,200	0.276 *		
	LT	1.00	82	1,600	0.051		
Eastbound	RT	0.00	104	0	0.000	ICU:	0.736
	TH	2.00	627	3,200	0.228 *		
	LT	1.00	156	1,600	0.098	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **GREEN LEAF BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	28	0	0.000	N-S(1):	0.257
	TH	2.00	923	3,200	0.297 *	N-S(2):	0.322 *
	LT	1.00	106	1,600	0.066	E-W(1):	0.290 *
Westbound	RT	0.00	64	0	0.000	E-W(2):	0.259
	TH	1.00	300	1,600	0.228		
	LT	1.00	202	1,600	0.126 *	V/C:	0.612
Northbound	RT	1.00	126	1,600	0.000	Lost Time:	0.100
	TH	2.00	612	3,200	0.191		
	LT	1.00	40	1,600	0.025 *		
Eastbound	RT	0.00	68	0	0.000	ICU:	0.712
	TH	1.00	195	1,600	0.164 *		
	LT	1.00	49	1,600	0.031	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	17	0	0.000	N-S(1):	0.367 *
	TH	2.00	718	3,200	0.230	N-S(2):	0.274
	LT	1.00	197	1,600	0.123 *	E-W(1):	0.302 *
Westbound	RT	0.00	160	0	0.000	E-W(2):	0.257
	TH	1.00	212	1,600	0.233		
	LT	1.00	114	1,600	0.071 *	V/C:	0.669
Northbound	RT	1.00	240	1,600	0.079	Lost Time:	0.100
	TH	2.00	781	3,200	0.244 *		
	LT	1.00	71	1,600	0.044		
Eastbound	RT	0.00	19	0	0.000	ICU:	0.769
	TH	1.00	351	1,600	0.231 *		
	LT	1.00	38	1,600	0.024	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON BOULEVARD**
East/West Street: **ARTESIA BOULEVARD(NORTH)**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	288	0	0.000	N-S(1):	0.159
	TH	3.00	879	4,800	0.243 *	N-S(2):	0.407 *
	LT	0.00	0	0	0.000	E-W(1):	0.333 *
Westbound	RT	0.00	360	0	0.000	E-W(2):	0.299
	TH	1.50	357	2,395	0.299		
	LT	1.50	720	2,165	0.333 *	V/C:	0.740
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	508	3,200	0.159		
	LT	1.00	262	1,600	0.164 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.840
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	283	0	0.000	N-S(1):	0.238
	TH	3.00	629	4,800	0.190 *	N-S(2):	0.506 *
	LT	0.00	0	0	0.000	E-W(1):	0.223
Westbound	RT	0.00	383	1,600	0.239 *	E-W(2):	0.239 *
	TH	1.56	180	897	0.201		
	LT	1.44	462	2,073	0.223	V/C:	0.745
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	762	3,200	0.238		
	LT	1.00	506	1,600	0.316 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.845
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON BOULEVARD
East/West Street: ARTESIA BOULEVARD (SOUTH)

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.322
	TH	2.00	1,068	3,200	0.334 *	N-S(2):	0.334 *
	LT	2.00	529	2,880	0.184	E-W(1):	0.313 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.144
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.647
Northbound	RT	2.00	382	3,200	0.119	Lost Time:	0.100
	TH	2.00	441	3,200	0.138		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	0.00	500	1,600	0.313 *	ICU:	0.747
	TH	1.43	89	685	0.130		
	LT	1.57	327	2,264	0.144	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.427 *
	TH	2.00	705	3,200	0.220	N-S(2):	0.220
	LT	2.00	376	2,880	0.131 *	E-W(1):	0.263 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.198
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.690
Northbound	RT	2.00	802	3,200	0.251	Lost Time:	0.100
	TH	2.00	946	3,200	0.296 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	282	0	0.000	ICU:	0.790
	TH	2.00	561	3,200	0.263 *		
	LT	1.00	316	1,600	0.198	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **I-105 WESTBOUND ON/OFF RAMPS**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	45	0	0.000	N-S(1): 0.357 *
	TH	1.00	71	1,600	0.081 *	N-S(2): 0.000
	LT	0.00	13	1,600	0.008	E-W(1): 0.500 *
Westbound	RT	0.00	26	0	0.000	E-W(2): 0.285
	TH	3.00	1,197	4,800	0.255	
	LT	2.00	926	2,880	0.322 *	V/C: 0.857
Northbound	RT	1.00	190	1,600	0.000	Lost Time: 0.100
	TH	0.01	3	12	0.248	ATSAC/ATCS: -0.100
	LT	1.99	792	2,869	0.276 *	
Eastbound	RT	1.97	560	3,153	0.052	ICU: 0.857
	TH	3.03	861	4,847	0.178 *	
	LT	1.00	48	1,600	0.030	LOS: D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	28	0	0.000	N-S(1): 0.316 *
	TH	1.00	29	1,600	0.047 *	N-S(2): 0.000
	LT	0.00	18	1,600	0.011	E-W(1): 0.499 *
Westbound	RT	0.00	14	0	0.000	E-W(2): 0.207
	TH	3.00	893	4,800	0.189	
	LT	2.00	612	2,880	0.213 *	V/C: 0.815
Northbound	RT	1.00	277	1,600	0.000	Lost Time: 0.100
	TH	0.05	19	78	0.242	ATSAC/ATCS: -0.100
	LT	1.95	756	2,809	0.269 *	
Eastbound	RT	1.07	491	1,719	0.060	ICU: 0.815
	TH	3.93	1,794	6,281	0.286 *	
	LT	1.00	29	1,600	0.018	LOS: D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: MONA BOULEVARD
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	116	0	0.000	N-S(1):	0.158
	TH	1.00	104	1,600	0.154 *	N-S(2):	0.258 *
	LT	0.00	27	1,600	0.017	E-W(1):	0.359
Westbound	RT	0.00	31	0	0.000	E-W(2):	0.439 *
	TH	3.00	1,871	4,800	0.396 *		
	LT	1.00	198	1,600	0.124	V/C:	0.697
Northbound	RT	1.00	151	1,600	0.000	Lost Time:	0.100
	TH	1.00	60	1,600	0.141	ATSAC/ATCS:	-0.100
	LT	0.00	166	1,600	0.104 *		
Eastbound	RT	0.00	169	0	0.000	ICU:	0.697
	TH	3.00	959	4,800	0.235		
	LT	1.00	69	1,600	0.043 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	95	0	0.000	N-S(1):	0.168
	TH	1.00	64	1,600	0.119 *	N-S(2):	0.221 *
	LT	0.00	32	1,600	0.020	E-W(1):	0.542 *
Westbound	RT	0.00	34	0	0.000	E-W(2):	0.342
	TH	3.00	1,195	4,800	0.256		
	LT	1.00	160	1,600	0.100 *	V/C:	0.763
Northbound	RT	1.00	224	1,600	0.040	Lost Time:	0.100
	TH	1.00	73	1,600	0.148	ATSAC/ATCS:	-0.100
	LT	0.00	163	1,600	0.102 *		
Eastbound	RT	0.00	284	0	0.000	ICU:	0.763
	TH	3.00	1,838	4,800	0.442 *		
	LT	1.00	137	1,600	0.086	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **MONA BOULEVARD**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	88	1,600	0.023	N-S(1):	0.233 *
	TH	1.00	146	1,600	0.141	N-S(2):	0.173
	LT	0.00	79	1,600	0.049 *	E-W(1):	0.195
Westbound	RT	0.00	41	0	0.000	E-W(2):	0.260 *
	TH	2.00	690	3,200	0.228 *		
	LT	1.00	30	1,600	0.019	V/C:	0.493
Northbound	RT	0.00	81	0	0.000	Lost Time:	0.100
	TH	1.00	163	1,600	0.184 *		
	LT	0.00	51	1,600	0.032		
Eastbound	RT	0.00	43	0	0.000	ICU:	0.593
	TH	2.00	521	3,200	0.176		
	LT	1.00	51	1,600	0.032 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	79	1,600	0.001	N-S(1):	0.175 *
	TH	1.00	152	1,600	0.139	N-S(2):	0.159
	LT	0.00	71	1,600	0.044 *	E-W(1):	0.341 *
Westbound	RT	0.00	55	0	0.000	E-W(2):	0.212
	TH	2.00	469	3,200	0.164		
	LT	1.00	41	1,600	0.026 *	V/C:	0.516
Northbound	RT	0.00	60	0	0.000	Lost Time:	0.100
	TH	1.00	117	1,600	0.131 *		
	LT	0.00	32	1,600	0.020		
Eastbound	RT	0.00	87	0	0.000	ICU:	0.616
	TH	2.00	922	3,200	0.315 *		
	LT	1.00	77	1,600	0.048	LOS:	B

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: S ALAMEDA STREET
East/West Street: 103RD STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: AM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	271	0	0.000	N-S(1):	0.395
	TH	2.00	1,171	3,200	0.451 *	N-S(2):	0.512 *
	LT	0.00	0	0	0.000	E-W(1):	0.032
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.252 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.764
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,264	3,200	0.395		
	LT	1.00	97	1,600	0.061 *		
Eastbound	RT	0.28	111	441	0.032	ICU:	0.864
	TH	0.00	0	0	0.000		
	LT	0.72	292	1,159	0.252 *	LOS:	D

Peak Period: PM PEAK HOUR

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	290	0	0.000	N-S(1):	0.425
	TH	2.00	1,345	3,200	0.511 *	N-S(2):	0.589 *
	LT	0.00	0	0	0.000	E-W(1):	0.000
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.261 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.850
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,361	3,200	0.425		
	LT	1.00	124	1,600	0.078 *		
Eastbound	RT	0.29	122	467	0.000	ICU:	0.950
	TH	0.00	0	0	0.000		
	LT	0.71	296	1,133	0.261 *	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SOUTH ALAMEDA STREET
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	634	1,600	0.255	N-S(1):	0.324 *
	TH	2.00	664	3,200	0.208	N-S(2):	0.323
	LT	1.00	124	1,600	0.078 *	E-W(1):	0.208
Westbound	RT	1.00	88	1,600	0.055	E-W(2):	0.401 *
	TH	3.00	1,171	4,800	0.244 *		
	LT	1.00	131	1,600	0.082	V/C:	0.725
Northbound	RT	0.00	86	0	0.000	Lost Time:	0.100
	TH	2.00	701	3,200	0.246 *		
	LT	2.00	195	2,880	0.068		
Eastbound	RT	0.00	151	0	0.000	ICU:	0.825
	TH	3.00	454	4,800	0.126		
	LT	2.00	453	2,880	0.157 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	558	1,600	0.167	N-S(1):	0.444 *
	TH	2.00	801	3,200	0.250	N-S(2):	0.328
	LT	1.00	231	1,600	0.144 *	E-W(1):	0.391 *
Westbound	RT	1.00	99	1,600	0.062	E-W(2):	0.358
	TH	3.00	748	4,800	0.156		
	LT	1.00	109	1,600	0.068 *	V/C:	0.835
Northbound	RT	0.00	162	0	0.000	Lost Time:	0.100
	TH	2.00	797	3,200	0.300 *		
	LT	2.00	224	2,880	0.078		
Eastbound	RT	0.00	191	0	0.000	ICU:	0.935
	TH	3.00	1,357	4,800	0.323 *		
	LT	2.00	583	2,880	0.202	LOS:	E

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	116	0	0.000	N-S(1):	0.249
	TH	2.00	612	3,200	0.228 *	N-S(2):	0.337 *
	LT	1.00	60	1,600	0.038	E-W(1):	0.129
Westbound	RT	1.00	89	1,600	0.018	E-W(2):	0.266 *
	TH	1.00	299	1,600	0.187 *		
	LT	1.00	57	1,600	0.036	V/C:	0.603
Northbound	RT	0.00	49	0	0.000	Lost Time:	0.100
	TH	2.00	625	3,200	0.211		
	LT	1.00	175	1,600	0.109 *		
Eastbound	RT	1.00	124	1,600	0.000	ICU:	0.703
	TH	2.00	297	3,200	0.093		
	LT	1.00	126	1,600	0.079 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	136	0	0.000	N-S(1):	0.326
	TH	2.00	824	3,200	0.300 *	N-S(2):	0.411 *
	LT	1.00	106	1,600	0.066	E-W(1):	0.229
Westbound	RT	1.00	80	1,600	0.000	E-W(2):	0.309 *
	TH	1.00	309	1,600	0.193 *		
	LT	1.00	45	1,600	0.028	V/C:	0.720
Northbound	RT	0.00	43	0	0.000	Lost Time:	0.100
	TH	2.00	788	3,200	0.260		
	LT	1.00	177	1,600	0.111 *		
Eastbound	RT	1.00	210	1,600	0.021	ICU:	0.820
	TH	2.00	644	3,200	0.201		
	LT	1.00	185	1,600	0.116 *	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **MARTIN LUTHER KING JR BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	18	0	0.000	N-S(1):	0.348
	TH	2.00	918	3,200	0.293 *	N-S(2):	0.446 *
	LT	1.00	151	1,600	0.094	E-W(1):	0.262
Westbound	RT	0.00	163	0	0.000	E-W(2):	0.308 *
	TH	2.00	746	3,200	0.284 *		
	LT	1.00	130	1,600	0.081	V/C:	0.754
Northbound	RT	1.00	69	1,600	0.000	Lost Time:	0.100
	TH	2.00	813	3,200	0.254		
	LT	1.00	245	1,600	0.153 *		
Eastbound	RT	0.00	123	0	0.000	ICU:	0.854
	TH	2.00	456	3,200	0.181		
	LT	1.00	38	1,600	0.024 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	41	0	0.000	N-S(1):	0.478 *
	TH	2.00	1,064	3,200	0.345	N-S(2):	0.454
	LT	1.00	197	1,600	0.123 *	E-W(1):	0.317 *
Westbound	RT	0.00	190	0	0.000	E-W(2):	0.223
	TH	2.00	425	3,200	0.192		
	LT	1.00	109	1,600	0.068 *	V/C:	0.795
Northbound	RT	1.00	153	1,600	0.028	Lost Time:	0.100
	TH	2.00	1,137	3,200	0.355 *		
	LT	1.00	175	1,600	0.109		
Eastbound	RT	0.00	191	0	0.000	ICU:	0.895
	TH	2.00	607	3,200	0.249 *		
	LT	1.00	50	1,600	0.031	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	56	0	0.000	N-S(1):	0.281
	TH	3.00	1,069	4,800	0.234 *	N-S(2):	0.396 *
	LT	1.00	101	1,600	0.063	E-W(1):	0.523 *
Westbound	RT	0.00	57	0	0.000	E-W(2):	0.392
	TH	2.00	1,103	3,200	0.363		
	LT	1.00	394	1,600	0.246 *	V/C:	0.919
Northbound	RT	1.00	439	1,600	0.028	Lost Time:	0.100
	TH	3.00	1,045	4,800	0.218		
	LT	1.00	259	1,600	0.162 *		
Eastbound	RT	0.00	218	0	0.000	ICU:	1.019
	TH	2.00	669	3,200	0.277 *		
	LT	1.00	47	1,600	0.029	LOS:	F

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	92	0	0.000	N-S(1):	0.351
	TH	3.00	1,176	4,800	0.264 *	N-S(2):	0.408 *
	LT	1.00	124	1,600	0.078	E-W(1):	0.631 *
Westbound	RT	0.00	92	0	0.000	E-W(2):	0.389
	TH	2.00	869	3,200	0.300		
	LT	1.00	308	1,600	0.193 *	V/C:	1.039
Northbound	RT	1.00	446	1,600	0.086	Lost Time:	0.100
	TH	3.00	1,312	4,800	0.273		
	LT	1.00	230	1,600	0.144 *		
Eastbound	RT	0.00	294	0	0.000	ICU:	1.139
	TH	2.00	1,107	3,200	0.438 *		
	LT	1.00	143	1,600	0.089	LOS:	F

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **LONG BEACH BOULEVARD**
East/West Street: **I-105 WESTBOUND RAMPS**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	10	0	0.000	N-S(1):	0.268
	TH	3.00	1,334	4,800	0.280 *	N-S(2):	0.285 *
	LT	0.00	0	0	0.000	E-W(1):	0.130 *
Westbound	RT	1.96	719	3,143	0.229	E-W(2):	0.000
	TH	0.04	13	57	0.229		
	LT	1.00	208	1,600	0.130 *	V/C:	0.415
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,288	4,800	0.268		
	LT	1.00	8	1,600	0.005 *		
Eastbound	RT	1.00	5	1,600	0.000	ICU:	0.515
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	8	0	0.000	N-S(1):	0.256
	TH	3.00	1,479	4,800	0.310 *	N-S(2):	0.312 *
	LT	0.00	0	0	0.000	E-W(1):	0.305 *
Westbound	RT	1.98	1,056	3,164	0.334	E-W(2):	0.000
	TH	0.02	12	36	0.334		
	LT	1.00	479	1,600	0.299 *	V/C:	0.617
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,228	4,800	0.256		
	LT	1.00	3	1,600	0.002 *		
Eastbound	RT	1.00	13	1,600	0.006 *	ICU:	0.717
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: LONG BEACH BOULEVARD
East/West Street: I-105 EASTBOUND RAMPS

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	Y
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.365 *
	TH	2.00	548	3,200	0.171	N-S(2):	0.171
	LT	1.00	26	1,600	0.016 *	E-W(1):	0.248 *
Westbound	RT	1.00	8	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.613
Northbound	RT	0.00	559	1,600	0.349 *	Lost Time:	0.100
	TH	3.00	1,096	3,200	0.343		
	LT	0.00	0	0	0.000		
Eastbound	RT	1.00	396	1,600	0.248 *	ICU:	0.713
	TH	0.01	2	9	0.219		
	LT	1.99	698	2,872	0.243	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.340
	TH	2.00	1,141	3,200	0.357 *	N-S(2):	0.357 *
	LT	1.00	16	1,600	0.010	E-W(1):	0.182 *
Westbound	RT	1.00	10	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *	V/C:	0.539
Northbound	RT	0.00	492	0	0.000	Lost Time:	0.100
	TH	3.00	1,094	4,800	0.330		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	1.00	291	1,600	0.182 *	ICU:	0.639
	TH	0.03	8	51	0.158		
	LT	1.97	497	2,834	0.175	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SLATER AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	106	1,600	0.026 *	N-S(1):	0.018
	TH	0.00	0	0	0.000	N-S(2):	0.026 *
	LT	1.00	29	1,600	0.018	E-W(1):	0.292
Westbound	RT	0.00	16	0	0.000	E-W(2):	0.473 *
	TH	2.00	1,371	3,200	0.433 *		
	LT	0.00	0	0	0.000	V/C:	0.499
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	0.00	0	0	0.000 *		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.599
	TH	2.00	934	3,200	0.292		
	LT	1.00	64	1,600	0.040 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	55	1,600	0.004	N-S(1):	0.010 *
	TH	0.00	0	0	0.000	N-S(2):	0.004
	LT	1.00	16	1,600	0.010 *	E-W(1):	0.431 *
Westbound	RT	0.00	16	0	0.000	E-W(2):	0.246
	TH	2.00	672	3,200	0.215		
	LT	0.00	0	0	0.000 *	V/C:	0.441
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.541
	TH	2.00	1,379	3,200	0.431 *		
	LT	1.00	49	1,600	0.031	LOS:	A

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **108TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	49	0	0.000	N-S(1):	0.515 *
	TH	1.00	526	1,600	0.375	N-S(2):	0.404
	LT	0.00	25	1,600	0.016 *	E-W(1):	0.201
Westbound	RT	0.00	78	0	0.000	E-W(2):	0.221 *
	TH	1.00	92	1,600	0.177 *		
	LT	0.00	113	1,600	0.071	V/C:	0.736
Northbound	RT	0.00	73	0	0.000	Lost Time:	0.100
	TH	1.00	679	1,600	0.499 *	ATSAC/ATCS:	-0.100
	LT	0.00	47	1,600	0.029		
Eastbound	RT	0.00	59	0	0.000	ICU:	0.736
	TH	1.00	79	1,600	0.130		
	LT	0.00	70	1,600	0.044 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	50	0	0.000	N-S(1):	0.461
	TH	1.00	614	1,600	0.441 *	N-S(2):	0.470 *
	LT	0.00	42	1,600	0.026	E-W(1):	0.166 *
Westbound	RT	0.00	28	0	0.000	E-W(2):	0.115
	TH	1.00	68	1,600	0.097		
	LT	0.00	59	1,600	0.037 *	V/C:	0.636
Northbound	RT	0.00	72	0	0.000	Lost Time:	0.100
	TH	1.00	578	1,600	0.435	ATSAC/ATCS:	-0.100
	LT	0.00	46	1,600	0.029 *		
Eastbound	RT	0.00	69	0	0.000	ICU:	0.636
	TH	1.00	109	1,600	0.129 *		
	LT	0.00	29	1,600	0.018	LOS:	B

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **111TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	57	0	0.000	N-S(1):	0.463 *
	TH	1.00	575	1,600	0.449	N-S(2):	0.460
	LT	0.00	86	1,600	0.054 *	E-W(1):	0.119
Westbound	RT	0.00	87	0	0.000	E-W(2):	0.151 *
	TH	1.00	38	1,600	0.108 *		
	LT	0.00	48	1,600	0.030	V/C:	0.614
Northbound	RT	0.00	40	0	0.000	Lost Time:	0.100
	TH	1.00	596	1,600	0.409 *	ATSAC/ATCS:	-0.100
	LT	0.00	18	1,600	0.011		
Eastbound	RT	0.00	18	0	0.000	ICU:	0.614
	TH	1.00	56	1,600	0.089		
	LT	0.00	68	1,600	0.043 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	50	0	0.000	N-S(1):	0.434
	TH	1.00	661	1,600	0.480 *	N-S(2):	0.491 *
	LT	0.00	57	1,600	0.036	E-W(1):	0.054
Westbound	RT	0.00	70	0	0.000	E-W(2):	0.086 *
	TH	1.00	5	1,600	0.062 *		
	LT	0.00	24	1,600	0.015	V/C:	0.577
Northbound	RT	0.00	25	0	0.000	Lost Time:	0.100
	TH	1.00	594	1,600	0.398	ATSAC/ATCS:	-0.100
	LT	0.00	17	1,600	0.011 *		
Eastbound	RT	0.00	18	0	0.000	ICU:	0.577
	TH	1.00	6	1,600	0.039		
	LT	0.00	38	1,600	0.024 *	LOS:	A

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 111TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I AND II PROJECT + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	3	0	0.000	N-S(1): 0.496
	TH	1.00	811	1,600	0.548 *	N-S(2): 0.557 *
	LT	0.00	62	1,600	0.039	E-W(1): 0.092
Westbound	RT	0.00	59	0	0.000	E-W(2): 0.113 *
	TH	1.00	29	1,600	0.113 *	
	LT	0.00	93	1,600	0.058	V/C: 0.670
Northbound	RT	0.00	87	0	0.000	Lost Time: 0.100
	TH	1.00	630	1,600	0.457	
	LT	0.00	14	1,600	0.009 *	
Eastbound	RT	0.00	19	0	0.000	ICU: 0.770
	TH	1.00	36	1,600	0.034	
	LT	0.00	0	0	0.000 *	LOS: C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	3	0	0.000	N-S(1): 0.615 *
	TH	1.00	692	1,600	0.449	N-S(2): 0.464
	LT	0.00	24	1,600	0.015 *	E-W(1): 0.049
Westbound	RT	0.00	45	0	0.000	E-W(2): 0.067 *
	TH	1.00	17	1,600	0.065 *	
	LT	0.00	42	1,600	0.026	V/C: 0.682
Northbound	RT	0.00	69	0	0.000	Lost Time: 0.100
	TH	1.00	867	1,600	0.600 *	
	LT	0.00	24	1,600	0.015	
Eastbound	RT	0.00	21	0	0.000	ICU: 0.782
	TH	1.00	13	1,600	0.023	
	LT	0.00	3	1,600	0.002 *	LOS: C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **119TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	36	0	0.000	N-S(1):	0.015
	TH	1.00	10	1,600	0.029 *	N-S(2):	0.111 *
	LT	1.00	2	1,120	0.002	E-W(1):	0.277
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.313 *
	TH	1.00	342	1,120	0.313 *		
	LT	0.00	9	1,120	0.008		
Northbound	RT	1.00	24	1,120	0.013		
	TH	0.00	0	0	0.000		
	LT	1.00	131	1,600	0.082 *		
Eastbound	RT	0.00	61	0	0.000		
	TH	1.00	240	1,120	0.269		
	LT	0.00	0	0	0.000 *		

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	69	0	0.000	N-S(1):	0.140
	TH	1.00	39	1,120	0.100 *	N-S(2):	0.162 *
	LT	0.00	4	1,120	0.004	E-W(1):	0.214
Westbound	RT	0.00	3	0	0.000	E-W(2):	0.231 *
	TH	1.00	212	1,120	0.192 *		
	LT	1.00	21	1,600	0.013		
Northbound	RT	0.00	38	0	0.000		
	TH	1.00	45	1,120	0.136		
	LT	0.00	69	1,120	0.062 *		
Eastbound	RT	0.00	96	0	0.000		
	TH	1.00	129	1,120	0.201		
	LT	1.00	44	1,120	0.039 *		

* = Critical Movement

Observed				N-S:	0.162
Gate Lost Time (sec)-	57	40	60	E-W:	0.313
	59	41	41		
Total Seconds-	298			V/C:	0.475
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.575
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **119TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	43	0	0.000	N-S(1): 0.006
	TH	1.00	23	1,600	0.041 *	N-S(2): 0.110 *
	LT	1.00	2	1,120	0.002	E-W(1): 0.478 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.283
	TH	1.00	293	1,120	0.283	
	LT	0.00	24	1,120	0.021 *	
Northbound	RT	1.00	28	1,120	0.004	
	TH	0.00	0	0	0.000	
	LT	1.00	111	1,600	0.069 *	
Eastbound	RT	0.00	76	0	0.000	
	TH	1.00	436	1,120	0.457 *	
	LT	0.00	0	0	0.000	

WILLOWBROOK AV (E)/119TH ST

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	62	0	0.000	N-S(1): 0.133
	TH	1.00	27	1,120	0.083 *	N-S(2): 0.161 *
	LT	0.00	4	1,120	0.004	E-W(1): 0.355 *
Westbound	RT	0.00	1	0	0.000	E-W(2): 0.206
	TH	1.00	165	1,120	0.148	
	LT	1.00	15	1,600	0.009 *	
Northbound	RT	0.00	27	0	0.000	
	TH	1.00	31	1,120	0.129	
	LT	0.00	87	1,120	0.078 *	
Eastbound	RT	0.00	120	0	0.000	
	TH	1.00	267	1,120	0.346 *	
	LT	1.00	65	1,120	0.058	

* = Critical Movement

Observed				N-S:	0.161
Gate Lost Time (sec)-	57	40	60	E-W:	0.478
	59	41	41		
Total Seconds-	298			V/C:	0.639
Ave per train-	50			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	1093			ICU:	0.739
Total Lost Time (min)-	18				
% of Hour-	30%			LOS:	C
Lane Capacity w/Train-	1,600 X (100%-30%) = 1,120 per lane				

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILLOWBROOK AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	33	0	0.000	N-S(1):	0.188 *
	TH	1.00	151	1,600	0.115	N-S(2):	0.164
	LT	1.00	31	1,232	0.025 *	E-W(1):	0.213
Westbound	RT	1.00	40	1,232	0.007	E-W(2):	0.307 *
	TH	2.00	689	2,464	0.280 *		
	LT	0.00	1	1,600	0.001		
Northbound	RT	0.00	16	0	0.000		
	TH	1.00	185	1,232	0.163 *		
	LT	1.00	78	1,600	0.049		
Eastbound	RT	1.00	95	1,600	0.011		
	TH	2.00	523	2,464	0.212		
	LT	1.00	43	1,600	0.027 *		

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	28	0	0.000	N-S(1):	0.115
	TH	1.00	93	1,232	0.098 *	N-S(2):	0.116 *
	LT	1.00	47	1,600	0.029	E-W(1):	0.235
Westbound	RT	0.00	40	0	0.000	E-W(2):	0.293 *
	TH	2.00	680	2,464	0.292 *		
	LT	1.00	28	1,600	0.018		
Northbound	RT	0.00	38	0	0.000		
	TH	1.00	99	1,600	0.086		
	LT	1.00	22	1,232	0.018 *		
Eastbound	RT	1.00	23	1,232	0.001		
	TH	2.00	534	2,464	0.217		
	LT	0.00	1	1,232	0.001 *		

* = Critical Movement

Observed				N-S:	0.188
Gate Lost Time (sec)-	42	40	44	E-W:	0.307
	82	68	62		
Total Seconds-	338			V/C:	0.495
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.595
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	A
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

Project:	**MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**
North/South Street:	**WILLOWBROOK AVENUE**
East/West Street:	**EL SEGUNDO BOULEVARD**
Scenario:	**EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	20	0	0.000	N-S(1): 0.129 *
	TH	1.00	118	1,600	0.086	N-S(2): 0.119
	LT	1.00	17	1,232	0.014 *	E-W(1): 0.397 *
Westbound	RT	1.00	39	1,232	0.018	E-W(2): 0.219
	TH	2.00	491	2,464	0.200	
	LT	0.00	3	1,600	0.002 *	
Northbound	RT	0.00	12	0	0.000	
	TH	1.00	130	1,232	0.115 *	
	LT	1.00	53	1,600	0.033	
Eastbound	RT	1.00	92	1,600	0.024	
	TH	2.00	973	2,464	0.395 *	
	LT	1.00	31	1,600	0.019	

WILLOWBROOK AV (E)/EL SEGUNDO BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	19	0	0.000	N-S(1): 0.120 *
	TH	1.00	89	1,232	0.088	N-S(2): 0.111
	LT	1.00	66	1,600	0.041 *	E-W(1): 0.435 *
Westbound	RT	0.00	41	0	0.000	E-W(2): 0.221
	TH	2.00	498	2,464	0.219	
	LT	1.00	65	1,600	0.041 *	
Northbound	RT	0.00	53	0	0.000	
	TH	1.00	74	1,600	0.079 *	
	LT	1.00	28	1,232	0.023	
Eastbound	RT	1.00	42	1,232	0.011	
	TH	2.00	970	2,464	0.394 *	
	LT	0.00	2	1,232	0.002	

* = Critical Movement

Observed				N-S:	0.129
Gate Lost Time (sec)-	42	40	44	E-W:	0.435
	82	68	62		
Total Seconds-	338			V/C:	0.564
Ave per train-	38			Lost Time:	0.100
Trains per hour-	22				
Total Lost Time (sec)-	826			ICU:	0.664
Total Lost Time (min)-	14				
% of Hour-	23%			LOS:	B
Lane Capacity w/Train-	1,600 X (100%-23%) = 1,232 per lane				

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

WILLOWBROOK AV (W)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	31	0	0.000	N-S(1): 0.233 *
	TH	1.00	122	1,600	0.177	N-S(2): 0.193
	LT	0.00	130	1,600	0.081 *	E-W(1): 0.297
Westbound	RT	0.00	146	0	0.000	E-W(2): 0.431 *
	TH	2.00	1,172	3,200	0.412 *	
	LT	1.00	47	1,600	0.029	
Northbound	RT	0.00	90	0	0.000	
	TH	1.00	127	1,600	0.152 *	
	LT	0.00	26	1,600	0.016	
Eastbound	RT	0.00	25	0	0.000	
	TH	2.00	832	3,200	0.268	
	LT	1.00	31	1,600	0.019 *	

WILLOWBROOK AV (E)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	86	0	0.000	N-S(1): 0.119
	TH	1.00	71	1,600	0.098 *	N-S(2): 0.127 *
	LT	1.00	144	1,600	0.090	E-W(1): 0.325
Westbound	RT	0.00	105	0	0.000	E-W(2): 0.472 *
	TH	2.00	1,264	3,200	0.428 *	
	LT	1.00	36	1,600	0.023	
Northbound	RT	0.00	25	0	0.000	
	TH	1.00	21	1,600	0.029	
	LT	1.00	47	1,600	0.029 *	
Eastbound	RT	0.00	41	0	0.000	
	TH	2.00	924	3,200	0.302	
	LT	1.00	71	1,600	0.044 *	

* = Critical Movement

N-S:	0.233
E-W:	0.472
V/C:	0.705
Lost Time:	0.100
ICU:	0.805
LOS:	D

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILLOWBROOK AVENUE
East/West Street: ROSECRANS AVENUE

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

WILLOWBROOK AV (W)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	29	0	0.000	N-S(1): 0.248 *
	TH	1.00	94	1,600	0.163	N-S(2): 0.182
	LT	0.00	138	1,600	0.086 *	E-W(1): 0.485 *
Westbound	RT	0.00	50	0	0.000	E-W(2): 0.341
	TH	2.00	1,008	3,200	0.331	
	LT	1.00	48	1,600	0.030 *	
Northbound	RT	0.00	110	0	0.000	
	TH	1.00	119	1,600	0.162 *	
	LT	0.00	30	1,600	0.019	
Eastbound	RT	0.00	28	0	0.000	
	TH	2.00	1,427	3,200	0.455 *	
	LT	1.00	16	1,600	0.010	

WILLOWBROOK AV (E)/ROSECRANS AV

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS
Southbound	RT	0.00	50	0	0.000	N-S(1): 0.107 *
	TH	1.00	64	1,600	0.071	N-S(2): 0.089
	LT	1.00	135	1,600	0.084 *	E-W(1): 0.501 *
Westbound	RT	0.00	124	0	0.000	E-W(2): 0.410
	TH	2.00	985	3,200	0.347	
	LT	1.00	27	1,600	0.017 *	
Northbound	RT	0.00	20	0	0.000	
	TH	1.00	17	1,600	0.023 *	
	LT	1.00	29	1,600	0.018	
Eastbound	RT	0.00	52	0	0.000	
	TH	2.00	1,496	3,200	0.484 *	
	LT	1.00	100	1,600	0.063	

* = Critical Movement

N-S: 0.248
E-W: 0.501

V/C: 0.749
Lost Time: 0.100

ICU: 0.849

LOS: D

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: ALAMEDA STREET
East/West Street: MARTIN LUTHER KING JR BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

S. ALAMEDA ST (W)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	2	0	0.000	N-S(1):	0.476
	TH	2.00	1,127	3,200	0.353	N-S(2):	0.353
	LT	1.00	139	1,600	0.087 *	E-W(1):	0.156
Westbound	RT	1.00	388	1,600	0.156 *	E-W(2):	0.006
	TH	0.04	9	65	0.138		
	LT	1.96	434	2,821	0.154		
Northbound	RT	0.00	200	0	0.000		
	TH	2.00	1,046	3,200	0.389 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	4	0	0.000		
	TH	1.00	1	1,600	0.006 *		
	LT	0.00	5	1,600	0.003		

S. ALAMEDA ST (E)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	65	0	0.000	N-S(1):	0.178
	TH	1.00	71	1,600	0.109	N-S(2):	0.112
	LT	0.00	39	1,600	0.024 *	E-W(1):	0.265
Westbound	RT	0.00	87	0	0.000	E-W(2):	0.106
	TH	2.00	761	3,200	0.265 *		
	LT	1.00	13	1,600	0.008		
Northbound	RT	0.00	62	0	0.000		
	TH	1.00	180	1,600	0.154 *		
	LT	0.00	4	1,600	0.003		
Eastbound	RT	0.00	3	0	0.000		
	TH	2.00	239	3,200	0.106 *		
	LT	0.00	98	1,600	0.061		

* = Critical Movement

N-S:	0.476
E-W:	0.265
V/C:	0.741
Lost Time:	0.100
ICU:	0.841
LOS:	D

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: ALAMEDA STREET
East/West Street: MARTIN LUTHER KING JR BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

S. ALAMEDA ST (W)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.551
	TH	2.00	1,304	3,200	0.408	N-S(2):	0.408
	LT	1.00	183	1,600	0.114 *	E-W(1):	0.097
Westbound	RT	1.00	259	1,600	0.048	E-W(2):	0.016
	TH	0.03	4	46	0.087		
	LT	1.97	274	2,839	0.097 *		
Northbound	RT	0.00	215	0	0.000		
	TH	2.00	1,182	3,200	0.437 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	3	0	0.000		
	TH	1.00	14	1,600	0.016 *		
	LT	0.00	8	1,600	0.005		

S. ALAMEDA ST (E)/MLK JR. BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	76	0	0.000	N-S(1):	0.160
	TH	1.00	54	1,600	0.099	N-S(2):	0.102
	LT	0.00	29	1,600	0.018 *	E-W(1):	0.149
Westbound	RT	0.00	34	0	0.000	E-W(2):	0.135
	TH	2.00	443	3,200	0.149 *		
	LT	1.00	6	1,600	0.004		
Northbound	RT	0.00	100	0	0.000		
	TH	1.00	123	1,600	0.142 *		
	LT	0.00	4	1,600	0.003		
Eastbound	RT	0.00	10	0	0.000		
	TH	2.00	378	3,200	0.135 *		
	LT	0.00	45	1,600	0.028		

* = Critical Movement

N-S:	0.551
E-W:	0.149
V/C:	0.7
Lost Time:	0.100
ICU:	0.800
LOS:	C

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: ALAMEDA STREET
East/West Street: COMPTON BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

S. ALAMEDA ST (W)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C		ICU ANALYSIS		
Southbound	RT	0.00	80	0	0.000		N-S(1):	0.231	
	TH	2.00	770	3,200	0.266	*	N-S(2):	0.322	*
	LT	1.00	109	1,600	0.068		E-W(1):	0.189	
Westbound	RT	0.00	128	0	0.000		E-W(2):	0.286	*
	TH	2.00	623	3,200	0.235	*			
	LT	1.00	34	1,600	0.021				
Northbound	RT	0.00	38	0	0.000				
	TH	2.00	482	3,200	0.163				
	LT	1.00	90	1,600	0.056	*			
Eastbound	RT	0.00	76	0	0.000				
	TH	2.00	461	3,200	0.168				
	LT	1.00	82	1,600	0.051	*			

S. ALAMEDA ST (E)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C		ICU ANALYSIS		
Southbound	RT	0.00	10	0	0.000		N-S(1):	0.141	*
	TH	1.00	158	1,600	0.105		N-S(2):	0.129	
	LT	1.00	30	1,600	0.019	*	E-W(1):	0.196	
Westbound	RT	1.00	57	1,600	0.017		E-W(2):	0.239	*
	TH	2.00	739	3,200	0.231	*			
	LT	1.00	16	1,600	0.010				
Northbound	RT	0.00	65	0	0.000				
	TH	1.00	130	1,600	0.122	*			
	LT	1.00	38	1,600	0.024				
Eastbound	RT	0.00	45	0	0.000				
	TH	2.00	550	3,200	0.186				
	LT	1.00	13	1,600	0.008	*			

* = Critical Movement

N-S:	0.322
E-W:	0.286
V/C:	0.608
Lost Time:	0.100
ICU:	0.708
LOS:	C

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: ALAMEDA STREET
East/West Street: COMPTON BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II + RELATED PROJECTS CONDITIONS (CUMULATIVE (2020) PLUS PROJECT TIER I AND II)

Thru Lane:	1600	vph
Left-Turn Lane:	1600	vph
Dual LT Penalty:	10	%

N-S Split Phase :	N
E-W Split Phase :	N
Lost Time (% of cycle) :	10

Peak Period: **PM PEAK HOUR**

S. ALAMEDA ST (W)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	73	0	0.000	N-S(1):	0.319 *
	TH	2.00	741	3,200	0.254	N-S(2):	0.313
	LT	1.00	113	1,600	0.071 *	E-W(1):	0.269 *
Westbound	RT	0.00	97	0	0.000	E-W(2):	0.269 *
	TH	2.00	567	3,200	0.208 *		
	LT	1.00	42	1,600	0.026 *		
Northbound	RT	0.00	62	0	0.000		
	TH	2.00	731	3,200	0.248 *		
	LT	1.00	95	1,600	0.059		
Eastbound	RT	0.00	70	0	0.000		
	TH	2.00	707	3,200	0.243 *		
	LT	1.00	97	1,600	0.061 *		

S. ALAMEDA ST (E)/COMPTON BL

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	15	0	0.000	N-S(1):	0.130 *
	TH	1.00	92	1,600	0.067	N-S(2):	0.080
	LT	1.00	28	1,600	0.018 *	E-W(1):	0.283 *
Westbound	RT	1.00	21	1,600	0.000	E-W(2):	0.221
	TH	2.00	671	3,200	0.210		
	LT	1.00	19	1,600	0.012 *		
Northbound	RT	0.00	50	0	0.000		
	TH	1.00	129	1,600	0.112 *		
	LT	1.00	21	1,600	0.013		
Eastbound	RT	0.00	24	0	0.000		
	TH	2.00	842	3,200	0.271 *		
	LT	1.00	17	1,600	0.011		

* = Critical Movement

N-S:	0.319
E-W:	0.283
V/C:	0.602
Lost Time:	0.100
ICU:	0.702
LOS:	C

APPENDIX O

ICU Worksheets – Existing (Baseline) With Ambient Growth (2020) Plus Tier I And II Project With Mitigation Measures

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **COMPTON AVENUE**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS WITH MITIGATION MEASURES**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	128	0	0.000	N-S(1):	0.332
	TH	1.00	355	1,600	0.302 *	N-S(2):	0.385 *
	LT	1.00	162	1,600	0.101	E-W(1):	0.274
Westbound	RT	1.00	187	1,600	0.016	E-W(2):	0.443 *
	TH	2.00	1,198	3,200	0.374 *		
	LT	1.00	151	1,600	0.094	V/C:	0.828
Northbound	RT	1.00	160	1,600	0.006	Lost Time:	0.100
	TH	1.00	369	1,600	0.231	ATSAC/ATCS:	-0.100
	LT	1.00	132	1,600	0.083 *		
Eastbound	RT	0.00	155	0	0.000	ICU:	0.828
	TH	3.00	710	4,800	0.180		
	LT	1.00	111	1,600	0.069 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	159	0	0.000	N-S(1):	0.349
	TH	1.00	308	1,600	0.292 *	N-S(2):	0.358 *
	LT	1.00	208	1,600	0.130	E-W(1):	0.394 *
Westbound	RT	1.00	195	1,600	0.000	E-W(2):	0.308
	TH	2.00	756	3,200	0.236		
	LT	1.00	94	1,600	0.059 *	V/C:	0.752
Northbound	RT	1.00	121	1,600	0.017	Lost Time:	0.100
	TH	1.00	350	1,600	0.219	ATSAC/ATCS:	-0.100
	LT	1.00	106	1,600	0.066 *		
Eastbound	RT	0.00	105	0	0.000	ICU:	0.752
	TH	3.00	1,502	4,800	0.335 *		
	LT	1.00	115	1,600	0.072	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **I-105 EASTBOUND ON/OFF RAMPS**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS WITH MITIGATION MEASURES**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	463	3,200	0.044	N-S(1):	0.189
	TH	2.00	942	3,200	0.294 *	N-S(2):	0.441 *
	LT	0.00	0	0	0.000	E-W(1):	0.200
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.223 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.664
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	907	4,800	0.189		
	LT	2.00	423	2,880	0.147 *		
Eastbound	RT	1.71	759	2,736	0.200	ICU:	0.764
	TH	0.00	0	0	0.000		
	LT	1.29	415	1,858	0.223 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	368	3,200	0.059	N-S(1):	0.291
	TH	2.00	928	3,200	0.290 *	N-S(2):	0.499 *
	LT	0.00	0	0	0.000	E-W(1):	0.027
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.124 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.623
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,398	4,800	0.291		
	LT	2.00	601	2,880	0.209 *		
Eastbound	RT	1.00	343	1,600	0.027	ICU:	0.723
	TH	0.00	0	0	0.000		
	LT	2.00	358	2,880	0.124 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **118TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS WITH MITIGATION MEASURES**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	79	0	0.000	N-S(1):	0.289
	TH	3.00	1,528	4,800	0.335 *	N-S(2):	0.403 *
	LT	2.00	105	2,880	0.036	E-W(1):	0.178 *
Westbound	RT	1.00	72	1,600	0.012	E-W(2):	0.095
	TH	1.00	29	1,600	0.039		
	LT	0.00	34	1,600	0.021 *	V/C:	0.581
Northbound	RT	0.00	48	0	0.000	Lost Time:	0.100
	TH	3.00	1,168	4,800	0.253		
	LT	1.00	108	1,600	0.068 *		
Eastbound	RT	0.00	126	0	0.000	ICU:	0.681
	TH	1.00	35	1,600	0.157 *		
	LT	0.00	90	1,600	0.056	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	39	0	0.000	N-S(1):	0.446 *
	TH	3.00	1,031	4,800	0.223	N-S(2):	0.254
	LT	2.00	190	2,880	0.066 *	E-W(1):	0.200 *
Westbound	RT	1.00	202	1,600	0.067	E-W(2):	0.154
	TH	1.00	60	1,600	0.091		
	LT	0.00	85	1,600	0.053 *	V/C:	0.646
Northbound	RT	0.00	125	0	0.000	Lost Time:	0.100
	TH	3.00	1,697	4,800	0.380 *		
	LT	1.00	50	1,600	0.031		
Eastbound	RT	0.00	58	0	0.000	ICU:	0.746
	TH	1.00	77	1,600	0.147 *		
	LT	0.00	100	1,600	0.063	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 120TH ST-119TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS WITH MITIGATION MEASURES

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	575	1,600	0.302 *	N-S(1):	0.304
	TH	3.00	982	4,800	0.205	N-S(2):	0.394 *
	LT	1.00	147	1,600	0.092	E-W(1):	0.149
Westbound	RT	0.00	172	0	0.000	E-W(2):	0.202 *
	TH	2.00	269	3,200	0.138 *		
	LT	1.00	95	1,600	0.059	V/C:	0.596
Northbound	RT	0.00	44	0	0.000	Lost Time:	0.100
	TH	3.00	973	4,800	0.212		
	LT	1.00	147	1,600	0.092 *		
Eastbound	RT	1.00	90	1,600	0.000	ICU:	0.696
	TH	1.00	144	1,600	0.090		
	LT	2.00	185	2,880	0.064 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	251	1,600	0.027	N-S(1):	0.357 *
	TH	3.00	830	4,800	0.173	N-S(2):	0.239
	LT	1.00	92	1,600	0.058 *	E-W(1):	0.278 *
Westbound	RT	0.00	160	0	0.000	E-W(2):	0.256
	TH	2.00	196	3,200	0.111		
	LT	1.00	128	1,600	0.080 *	V/C:	0.635
Northbound	RT	0.00	124	0	0.000	Lost Time:	0.100
	TH	3.00	1,311	4,800	0.299 *		
	LT	1.00	106	1,600	0.066		
Eastbound	RT	1.00	177	1,600	0.044	ICU:	0.735
	TH	1.00	316	1,600	0.198 *		
	LT	2.00	417	2,880	0.145	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **MLK HOSPITAL DWY-120TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS WITH MITIGATION MEASURES**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	316	1,600	0.130	N-S(1):	0.289
	TH	2.00	846	3,200	0.264 *	N-S(2):	0.433 *
	LT	1.00	35	1,600	0.022	E-W(1):	0.144 *
Westbound	RT	0.00	45	0	0.000	E-W(2):	0.000
	TH	1.00	54	1,600	0.069 *		
	LT	0.00	11	1,600	0.007	V/C:	0.577
Northbound	RT	0.00	9	0	0.000	Lost Time:	0.100
	TH	2.00	845	3,200	0.267		
	LT	1.00	270	1,600	0.169 *		
Eastbound	RT	1.00	152	1,600	0.000	ICU:	0.677
	TH	1.00	31	1,600	0.019		
	LT	2.00	215	2,880	0.075 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	205	1,600	0.000	N-S(1):	0.350
	TH	2.00	893	3,200	0.279 *	N-S(2):	0.413 *
	LT	1.00	31	1,600	0.019	E-W(1):	0.212 *
Westbound	RT	0.00	29	0	0.000	E-W(2):	0.000
	TH	1.00	44	1,600	0.051 *		
	LT	0.00	9	1,600	0.006	V/C:	0.625
Northbound	RT	0.00	23	0	0.000	Lost Time:	0.100
	TH	2.00	1,036	3,200	0.331		
	LT	1.00	215	1,600	0.134 *		
Eastbound	RT	1.00	331	1,600	0.073	ICU:	0.725
	TH	1.00	73	1,600	0.046		
	LT	2.00	463	2,880	0.161 *	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS WITH MITIGATION MEASURES**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	110	0	0.000	N-S(1):	0.400
	TH	2.00	685	3,200	0.248 *	N-S(2):	0.408 *
	LT	1.00	172	1,600	0.108	E-W(1):	0.167
Westbound	RT	1.00	152	1,600	0.000	E-W(2):	0.284 *
	TH	2.00	599	3,200	0.187 *		
	LT	1.00	69	1,600	0.043	V/C:	0.692
Northbound	RT	0.00	72	0	0.000	Lost Time:	0.100
	TH	2.00	863	3,200	0.292		
	LT	1.00	256	1,600	0.160 *		
Eastbound	RT	1.00	282	1,600	0.016	ICU:	0.792
	TH	2.00	397	3,200	0.124		
	LT	1.00	155	1,600	0.097 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	95	0	0.000	N-S(1):	0.415 *
	TH	2.00	789	3,200	0.276	N-S(2):	0.384
	LT	1.00	200	1,600	0.125 *	E-W(1):	0.321 *
Westbound	RT	1.00	123	1,600	0.000	E-W(2):	0.221
	TH	2.00	362	3,200	0.113		
	LT	1.00	103	1,600	0.064 *	V/C:	0.736
Northbound	RT	0.00	89	0	0.000	Lost Time:	0.100
	TH	2.00	838	3,200	0.290 *		
	LT	1.00	173	1,600	0.108		
Eastbound	RT	1.00	279	1,600	0.066	ICU:	0.836
	TH	2.00	822	3,200	0.257 *		
	LT	1.00	172	1,600	0.108	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **I-105 WESTBOUND ON/OFF RAMPS**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + PROJECT TIER I AND II CONDITIONS WITH MITIGATION MEASURES**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	45	0	0.000	N-S(1):	0.255 *
	TH	1.00	71	1,600	0.081 *	N-S(2):	0.000
	LT	0.00	13	1,600	0.008	E-W(1):	0.488 *
Westbound	RT	0.00	26	0	0.000	E-W(2):	0.276
	TH	3.00	1,157	4,800	0.246		
	LT	2.00	920	2,880	0.319 *	V/C:	0.743
Northbound	RT	1.00	174	1,600	0.000	Lost Time:	0.100
	TH	0.01	3	19	0.156	ATSAC/ATCS:	-0.100
	LT	2.99	748	4,303	0.174 *		
Eastbound	RT	1.89	511	3,024	0.086	ICU:	0.743
	TH	3.11	841	4,976	0.169 *		
	LT	1.00	48	1,600	0.030	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	28	0	0.000	N-S(1):	0.221 *
	TH	1.00	29	1,600	0.047 *	N-S(2):	0.000
	LT	0.00	18	1,600	0.011	E-W(1):	0.487 *
Westbound	RT	0.00	14	0	0.000	E-W(2):	0.197
	TH	3.00	847	4,800	0.179		
	LT	2.00	605	2,880	0.210 *	V/C:	0.708
Northbound	RT	1.00	251	1,600	0.000	Lost Time:	0.100
	TH	0.08	19	121	0.157	ATSAC/ATCS:	-0.100
	LT	2.92	734	4,211	0.174 *		
Eastbound	RT	1.00	405	1,600	0.096	ICU:	0.708
	TH	4.00	1,771	6,400	0.277 *		
	LT	1.00	29	1,600	0.018	LOS:	C

* = Critical Movement

APPENDIX P

ICU Worksheets – Existing (Baseline) With Ambient Growth (2020) Plus Tier I And II Project And Related Projects/Cumulative (2020) Plus Tier I And II Project Conditions With Mitigation Measures

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: AVALON BOULEVARD
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES

Thru Lane:	1600 vph		N-S Split Phase :	N
Left-Turn Lane:	1600 vph		E-W Split Phase :	N
Dual LT Penalty:	10 %		Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	145	0	0.000	N-S(1):	0.222
	TH	2.00	523	3,200	0.209 *	N-S(2):	0.256 *
	LT	1.00	113	1,600	0.071	E-W(1):	0.177
Westbound	RT	0.00	158	0	0.000	E-W(2):	0.326 *
	TH	3.00	955	4,800	0.232 *		
	LT	1.00	86	1,600	0.054	V/C:	0.582
Northbound	RT	1.00	99	1,600	0.008	Lost Time:	0.100
	TH	2.00	484	3,200	0.151		
	LT	1.00	75	1,600	0.047 *		
Eastbound	RT	0.00	62	0	0.000	ICU:	0.682
	TH	3.00	530	4,800	0.123		
	LT	1.00	151	1,600	0.094 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	99	0	0.000	N-S(1):	0.311 *
	TH	2.00	534	3,200	0.198	N-S(2):	0.284
	LT	1.00	154	1,600	0.096 *	E-W(1):	0.354 *
Westbound	RT	0.00	123	0	0.000	E-W(2):	0.222
	TH	3.00	545	4,800	0.139		
	LT	1.00	105	1,600	0.066 *	V/C:	0.665
Northbound	RT	1.00	159	1,600	0.034	Lost Time:	0.100
	TH	2.00	687	3,200	0.215 *		
	LT	1.00	137	1,600	0.086		
Eastbound	RT	0.00	147	0	0.000	ICU:	0.765
	TH	3.00	1,235	4,800	0.288 *		
	LT	1.00	132	1,600	0.083	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: CENTRAL AVENUE
East/West Street: 120TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	85	0	0.000	N-S(1):	0.420 *
	TH	2.00	845	3,200	0.291	N-S(2):	0.345
	LT	1.00	311	1,600	0.194 *	E-W(1):	0.270 *
Westbound	RT	1.00	252	1,600	0.000	E-W(2):	0.242
	TH	2.00	523	3,200	0.163		
	LT	1.00	178	1,600	0.111 *	V/C:	0.690
Northbound	RT	1.00	228	1,600	0.031	Lost Time:	0.100
	TH	2.00	722	3,200	0.226 *	ATSAC/ATCS:	-0.100
	LT	1.00	86	1,600	0.054		
Eastbound	RT	0.00	42	0	0.000	ICU:	0.690
	TH	2.00	467	3,200	0.159 *		
	LT	1.00	126	1,600	0.079	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	105	0	0.000	N-S(1):	0.433 *
	TH	2.00	964	3,200	0.334	N-S(2):	0.387
	LT	1.00	227	1,600	0.142 *	E-W(1):	0.282 *
Westbound	RT	1.00	345	1,600	0.074	E-W(2):	0.228
	TH	2.00	430	3,200	0.134		
	LT	1.00	172	1,600	0.108 *	V/C:	0.715
Northbound	RT	1.00	151	1,600	0.000	Lost Time:	0.100
	TH	2.00	932	3,200	0.291 *	ATSAC/ATCS:	-0.100
	LT	1.00	85	1,600	0.053		
Eastbound	RT	0.00	88	0	0.000	ICU:	0.715
	TH	2.00	468	3,200	0.174 *		
	LT	1.00	151	1,600	0.094	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **EL SEGUNDO BOULEVARD**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	202	1,600	0.037	N-S(1):	0.298
	TH	2.00	683	3,200	0.213 *	N-S(2):	0.316 *
	LT	1.00	109	1,600	0.068	E-W(1):	0.242
Westbound	RT	0.00	75	0	0.000	E-W(2):	0.356 *
	TH	2.00	779	3,200	0.267 *		
	LT	1.00	167	1,600	0.104	V/C:	0.672
Northbound	RT	1.00	265	1,600	0.061	Lost Time:	0.100
	TH	2.00	736	3,200	0.230		
	LT	1.00	164	1,600	0.103 *		
Eastbound	RT	1.00	111	1,600	0.000	ICU:	0.772
	TH	2.00	440	3,200	0.138		
	LT	1.00	143	1,600	0.089 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	170	1,600	0.000	N-S(1):	0.334 *
	TH	2.00	813	3,200	0.254	N-S(2):	0.328
	LT	1.00	144	1,600	0.090 *	E-W(1):	0.404 *
Westbound	RT	0.00	116	0	0.000	E-W(2):	0.378
	TH	2.00	556	3,200	0.210		
	LT	1.00	129	1,600	0.081 *	V/C:	0.738
Northbound	RT	1.00	207	1,600	0.049	Lost Time:	0.100
	TH	2.00	780	3,200	0.244 *		
	LT	1.00	118	1,600	0.074		
Eastbound	RT	1.00	175	1,600	0.036	ICU:	0.838
	TH	2.00	1,033	3,200	0.323 *		
	LT	1.00	269	1,600	0.168	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **CENTRAL AVENUE**
East/West Street: **ROSECRANS AVENUE**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	158	1,600	0.000	N-S(1):	0.303
	TH	2.00	680	3,200	0.213 *	N-S(2):	0.308 *
	LT	1.00	135	1,600	0.084	E-W(1):	0.232
Westbound	RT	1.00	156	1,600	0.013	E-W(2):	0.382 *
	TH	2.00	888	3,200	0.278 *		
	LT	1.00	162	1,600	0.101	V/C:	0.690
Northbound	RT	0.00	65	0	0.000	Lost Time:	0.100
	TH	2.00	637	3,200	0.219		
	LT	1.00	152	1,600	0.095 *		
Eastbound	RT	0.00	160	0	0.000	ICU:	0.790
	TH	3.00	470	4,800	0.131		
	LT	1.00	166	1,600	0.104 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	139	1,600	0.000	N-S(1):	0.471 *
	TH	2.00	784	3,200	0.245	N-S(2):	0.371
	LT	1.00	284	1,600	0.178 *	E-W(1):	0.382 *
Westbound	RT	1.00	154	1,600	0.000	E-W(2):	0.356
	TH	2.00	682	3,200	0.213		
	LT	1.00	177	1,600	0.111 *	V/C:	0.853
Northbound	RT	0.00	124	0	0.000	Lost Time:	0.100
	TH	2.00	814	3,200	0.293 *		
	LT	1.00	201	1,600	0.126		
Eastbound	RT	0.00	202	0	0.000	ICU:	0.953
	TH	3.00	1,100	4,800	0.271 *		
	LT	1.00	228	1,600	0.143	LOS:	E

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: COMPTON AVENUE
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	129	0	0.000	N-S(1):	0.339
	TH	1.00	365	1,600	0.309 *	N-S(2):	0.392 *
	LT	1.00	162	1,600	0.101	E-W(1):	0.288
Westbound	RT	1.00	188	1,600	0.016	E-W(2):	0.454 *
	TH	2.00	1,230	3,200	0.384 *		
	LT	1.00	156	1,600	0.098	V/C:	0.846
Northbound	RT	1.00	169	1,600	0.008	Lost Time:	0.100
	TH	1.00	381	1,600	0.238	ATSAC/ATCS:	-0.100
	LT	1.00	133	1,600	0.083 *		
Eastbound	RT	0.00	159	0	0.000	ICU:	0.846
	TH	3.00	751	4,800	0.190		
	LT	1.00	112	1,600	0.070 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	160	0	0.000	N-S(1):	0.354
	TH	1.00	313	1,600	0.296 *	N-S(2):	0.365 *
	LT	1.00	208	1,600	0.130	E-W(1):	0.404 *
Westbound	RT	1.00	195	1,600	0.000	E-W(2):	0.320
	TH	2.00	791	3,200	0.247		
	LT	1.00	97	1,600	0.061 *	V/C:	0.769
Northbound	RT	1.00	123	1,600	0.016	Lost Time:	0.100
	TH	1.00	359	1,600	0.224	ATSAC/ATCS:	-0.100
	LT	1.00	111	1,600	0.069 *		
Eastbound	RT	0.00	107	0	0.000	ICU:	0.769
	TH	3.00	1,538	4,800	0.343 *		
	LT	1.00	117	1,600	0.073	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: I-105 EASTBOUND ON/OFF RAMPS

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	490	3,200	0.048	N-S(1):	0.201
	TH	2.00	996	3,200	0.311 *	N-S(2):	0.463 *
	LT	0.00	0	0	0.000	E-W(1):	0.212
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.234 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.697
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	966	4,800	0.201		
	LT	2.00	437	2,880	0.152 *		
Eastbound	RT	1.68	788	2,688	0.212	ICU:	0.797
	TH	0.00	0	0	0.000		
	LT	1.32	445	1,901	0.234 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	2.00	401	3,200	0.062	N-S(1):	0.309
	TH	2.00	982	3,200	0.307 *	N-S(2):	0.524 *
	LT	0.00	0	0	0.000	E-W(1):	0.034
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.141 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.665
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	3.00	1,481	4,800	0.309		
	LT	2.00	625	2,880	0.217 *		
Eastbound	RT	1.00	367	1,600	0.034	ICU:	0.765
	TH	0.00	0	0	0.000		
	LT	2.00	406	2,880	0.141 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: 118TH STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	123	0	0.000	N-S(1):	0.302
	TH	3.00	1,567	4,800	0.352 *	N-S(2):	0.430 *
	LT	2.00	105	2,880	0.036	E-W(1):	0.107 *
Westbound	RT	1.00	72	1,600	0.012	E-W(2):	0.103
	TH	1.00	29	1,600	0.039		
	LT	0.00	34	1,600	0.021 *	V/C:	0.537
Northbound	RT	0.00	48	0	0.000	Lost Time:	0.100
	TH	3.00	1,228	4,800	0.266		
	LT	1.00	125	1,600	0.078 *		
Eastbound	RT	1.00	131	1,600	0.004	ICU:	0.637
	TH	1.00	35	1,600	0.086 *		
	LT	0.00	102	1,600	0.064	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	59	0	0.000	N-S(1):	0.456 *
	TH	3.00	1,088	4,800	0.239	N-S(2):	0.275
	LT	2.00	190	2,880	0.066 *	E-W(1):	0.198 *
Westbound	RT	1.00	202	1,600	0.067	E-W(2):	0.188
	TH	1.00	60	1,600	0.091		
	LT	0.00	85	1,600	0.053 *	V/C:	0.654
Northbound	RT	0.00	125	0	0.000	Lost Time:	0.100
	TH	3.00	1,749	4,800	0.390 *		
	LT	1.00	58	1,600	0.036		
Eastbound	RT	1.00	80	1,600	0.014	ICU:	0.754
	TH	1.00	77	1,600	0.145 *		
	LT	0.00	155	1,600	0.097	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **120TH ST-119TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES**

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	578	1,600	0.303 *	N-S(1):	0.318
	TH	3.00	1,015	4,800	0.211	N-S(2):	0.395 *
	LT	1.00	154	1,600	0.096	E-W(1):	0.150
Westbound	RT	0.00	197	0	0.000	E-W(2):	0.211 *
	TH	2.00	270	3,200	0.146 *		
	LT	1.00	95	1,600	0.059	V/C:	0.606
Northbound	RT	0.00	44	0	0.000	Lost Time:	0.100
	TH	3.00	1,023	4,800	0.222		
	LT	1.00	147	1,600	0.092 *		
Eastbound	RT	1.00	90	1,600	0.000	ICU:	0.706
	TH	1.00	145	1,600	0.091		
	LT	2.00	188	2,880	0.065 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	255	1,600	0.028	N-S(1):	0.375 *
	TH	3.00	889	4,800	0.185	N-S(2):	0.251
	LT	1.00	107	1,600	0.067 *	E-W(1):	0.278 *
Westbound	RT	0.00	171	0	0.000	E-W(2):	0.261
	TH	2.00	197	3,200	0.115		
	LT	1.00	128	1,600	0.080 *	V/C:	0.653
Northbound	RT	0.00	124	0	0.000	Lost Time:	0.100
	TH	3.00	1,356	4,800	0.308 *		
	LT	1.00	106	1,600	0.066		
Eastbound	RT	1.00	177	1,600	0.044	ICU:	0.753
	TH	1.00	317	1,600	0.198 *		
	LT	2.00	421	2,880	0.146	LOS:	C

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **WILMINGTON AVENUE**
East/West Street: **MLK HOSPITAL DWY-120TH STREET**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	Y
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	316	1,600	0.130	N-S(1):	0.305
	TH	2.00	879	3,200	0.275 *	N-S(2):	0.444 *
	LT	1.00	35	1,600	0.022	E-W(1):	0.144 *
Westbound	RT	0.00	45	0	0.000	E-W(2):	0.000
	TH	1.00	54	1,600	0.069 *		
	LT	0.00	11	1,600	0.007	V/C:	0.588
Northbound	RT	0.00	9	0	0.000	Lost Time:	0.100
	TH	2.00	895	3,200	0.283		
	LT	1.00	270	1,600	0.169 *		
Eastbound	RT	1.00	152	1,600	0.000	ICU:	0.688
	TH	1.00	31	1,600	0.019		
	LT	2.00	215	2,880	0.075 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	205	1,600	0.000	N-S(1):	0.364
	TH	2.00	952	3,200	0.298 *	N-S(2):	0.432 *
	LT	1.00	31	1,600	0.019	E-W(1):	0.212 *
Westbound	RT	0.00	29	0	0.000	E-W(2):	0.000
	TH	1.00	44	1,600	0.051 *		
	LT	0.00	9	1,600	0.006	V/C:	0.644
Northbound	RT	0.00	23	0	0.000	Lost Time:	0.100
	TH	2.00	1,081	3,200	0.345		
	LT	1.00	215	1,600	0.134 *		
Eastbound	RT	1.00	331	1,600	0.073	ICU:	0.744
	TH	1.00	73	1,600	0.046		
	LT	2.00	463	2,880	0.161 *	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: WILMINGTON AVENUE
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	112	0	0.000	N-S(1):	0.414
	TH	2.00	703	3,200	0.255 *	N-S(2):	0.417 *
	LT	1.00	178	1,600	0.111	E-W(1):	0.173
Westbound	RT	1.00	163	1,600	0.000	E-W(2):	0.291 *
	TH	2.00	616	3,200	0.193 *		
	LT	1.00	69	1,600	0.043	V/C:	0.708
Northbound	RT	0.00	73	0	0.000	Lost Time:	0.100
	TH	2.00	897	3,200	0.303		
	LT	1.00	259	1,600	0.162 *		
Eastbound	RT	1.00	283	1,600	0.015	ICU:	0.808
	TH	2.00	416	3,200	0.130		
	LT	1.00	157	1,600	0.098 *	LOS:	D

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	99	0	0.000	N-S(1):	0.435 *
	TH	2.00	826	3,200	0.289	N-S(2):	0.398
	LT	1.00	217	1,600	0.136 *	E-W(1):	0.327 *
Westbound	RT	1.00	131	1,600	0.000	E-W(2):	0.229
	TH	2.00	381	3,200	0.119		
	LT	1.00	104	1,600	0.065 *	V/C:	0.762
Northbound	RT	0.00	89	0	0.000	Lost Time:	0.100
	TH	2.00	867	3,200	0.299 *		
	LT	1.00	174	1,600	0.109		
Eastbound	RT	1.00	280	1,600	0.066	ICU:	0.862
	TH	2.00	837	3,200	0.262 *		
	LT	1.00	176	1,600	0.110	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: I-105 WESTBOUND ON/OFF RAMPS
East/West Street: IMPERIAL HIGHWAY

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	45	0	0.000	N-S(1):	0.265 *
	TH	1.00	71	1,600	0.081 *	N-S(2):	0.000
	LT	0.00	13	1,600	0.008	E-W(1):	0.500 *
Westbound	RT	0.00	26	0	0.000	E-W(2):	0.285
	TH	3.00	1,197	4,800	0.255		
	LT	2.00	926	2,880	0.322 *	V/C:	0.765
Northbound	RT	1.00	190	1,600	0.000	Lost Time:	0.100
	TH	0.01	3	18	0.166	ATSAC/ATCS:	-0.100
	LT	2.99	792	4,304	0.184 *		
Eastbound	RT	1.97	560	3,153	0.094	ICU:	0.765
	TH	3.03	861	4,847	0.178 *		
	LT	1.00	48	1,600	0.030	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	28	0	0.000	N-S(1):	0.226 *
	TH	1.00	29	1,600	0.047 *	N-S(2):	0.000
	LT	0.00	18	1,600	0.011	E-W(1):	0.499 *
Westbound	RT	0.00	14	0	0.000	E-W(2):	0.207
	TH	3.00	893	4,800	0.189		
	LT	2.00	612	2,880	0.213 *	V/C:	0.725
Northbound	RT	1.00	277	1,600	0.000	Lost Time:	0.100
	TH	0.07	19	118	0.161	ATSAC/ATCS:	-0.100
	LT	2.93	756	4,214	0.179 *		
Eastbound	RT	1.07	491	1,719	0.135	ICU:	0.725
	TH	3.93	1,794	6,281	0.286 *		
	LT	1.00	29	1,600	0.018	LOS:	C

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: S ALAMEDA STREET
East/West Street: 103RD STREET

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS
(CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	271	0	0.000	N-S(1):	0.395
	TH	2.00	1,171	3,200	0.451 *	N-S(2):	0.512 *
	LT	0.00	0	0	0.000	E-W(1):	0.016
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.140 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.652
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,264	3,200	0.395		
	LT	1.00	97	1,600	0.061 *		
Eastbound	RT	0.55	111	881	0.016	ICU:	0.752
	TH	0.00	0	0	0.000		
	LT	1.45	292	2,087	0.140 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	290	0	0.000	N-S(1):	0.425
	TH	2.00	1,345	3,200	0.511 *	N-S(2):	0.589 *
	LT	0.00	0	0	0.000	E-W(1):	0.000
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.145 *
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	V/C:	0.734
Northbound	RT	0.00	0	0	0.000	Lost Time:	0.100
	TH	2.00	1,361	3,200	0.425		
	LT	1.00	124	1,600	0.078 *		
Eastbound	RT	0.58	122	934	0.000	ICU:	0.834
	TH	0.00	0	0	0.000		
	LT	1.42	296	2,039	0.145 *	LOS:	D

* = Critical Movement

Project: **MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT**

North/South Street: **SOUTH ALAMEDA STREET**
East/West Street: **IMPERIAL HIGHWAY**

Scenario: **EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS (CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.47	634	2,345	0.174	N-S(1):	0.289
	TH	1.53	664	2,455	0.223 *	N-S(2):	0.291 *
	LT	2.00	124	2,880	0.043	E-W(1):	0.208
Westbound	RT	1.00	88	1,600	0.055	E-W(2):	0.401 *
	TH	3.00	1,171	4,800	0.244 *		
	LT	1.00	131	1,600	0.082	V/C:	0.692
Northbound	RT	0.00	86	0	0.000	Lost Time:	0.100
	TH	2.00	701	3,200	0.246		
	LT	2.00	195	2,880	0.068 *		
Eastbound	RT	0.00	151	0	0.000	ICU:	0.792
	TH	3.00	454	4,800	0.126		
	LT	2.00	453	2,880	0.157 *	LOS:	C

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.23	558	1,971	0.135	N-S(1):	0.380 *
	TH	1.77	801	2,829	0.222	N-S(2):	0.300
	LT	2.00	231	2,880	0.080 *	E-W(1):	0.391 *
Westbound	RT	1.00	99	1,600	0.062	E-W(2):	0.358
	TH	3.00	748	4,800	0.156		
	LT	1.00	109	1,600	0.068 *	V/C:	0.771
Northbound	RT	0.00	162	0	0.000	Lost Time:	0.100
	TH	2.00	797	3,200	0.300 *		
	LT	2.00	224	2,880	0.078		
Eastbound	RT	0.00	191	0	0.000	ICU:	0.871
	TH	3.00	1,357	4,800	0.323 *		
	LT	2.00	583	2,880	0.202	LOS:	D

* = Critical Movement

Project: MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT

North/South Street: SOUTH ALAMEDA STREET
East/West Street: EL SEGUNDO BOULEVARD

Scenario: EXISTING (BASELINE) + AMBIENT (2020) + TIER I & II PROJECT + RELATED PROJECTS
(CUMULATIVE (2020) PLUS TIER I AND II PROJECT) WITH MITIGATION MEASURES

Thru Lane:	1600	vph	N-S Split Phase :	N
Left-Turn Lane:	1600	vph	E-W Split Phase :	N
Dual LT Penalty:	10	%	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	116	1,600	0.000	N-S(1):	0.249
	TH	2.00	612	3,200	0.191 *	N-S(2):	0.300 *
	LT	1.00	60	1,600	0.038	E-W(1):	0.129
Westbound	RT	1.00	89	1,600	0.018	E-W(2):	0.266 *
	TH	1.00	299	1,600	0.187 *		
	LT	1.00	57	1,600	0.036	V/C:	0.566
Northbound	RT	0.00	49	0	0.000	Lost Time:	0.100
	TH	2.00	625	3,200	0.211		
	LT	1.00	175	1,600	0.109 *		
Eastbound	RT	1.00	124	1,600	0.000	ICU:	0.666
	TH	2.00	297	3,200	0.093		
	LT	1.00	126	1,600	0.079 *	LOS:	B

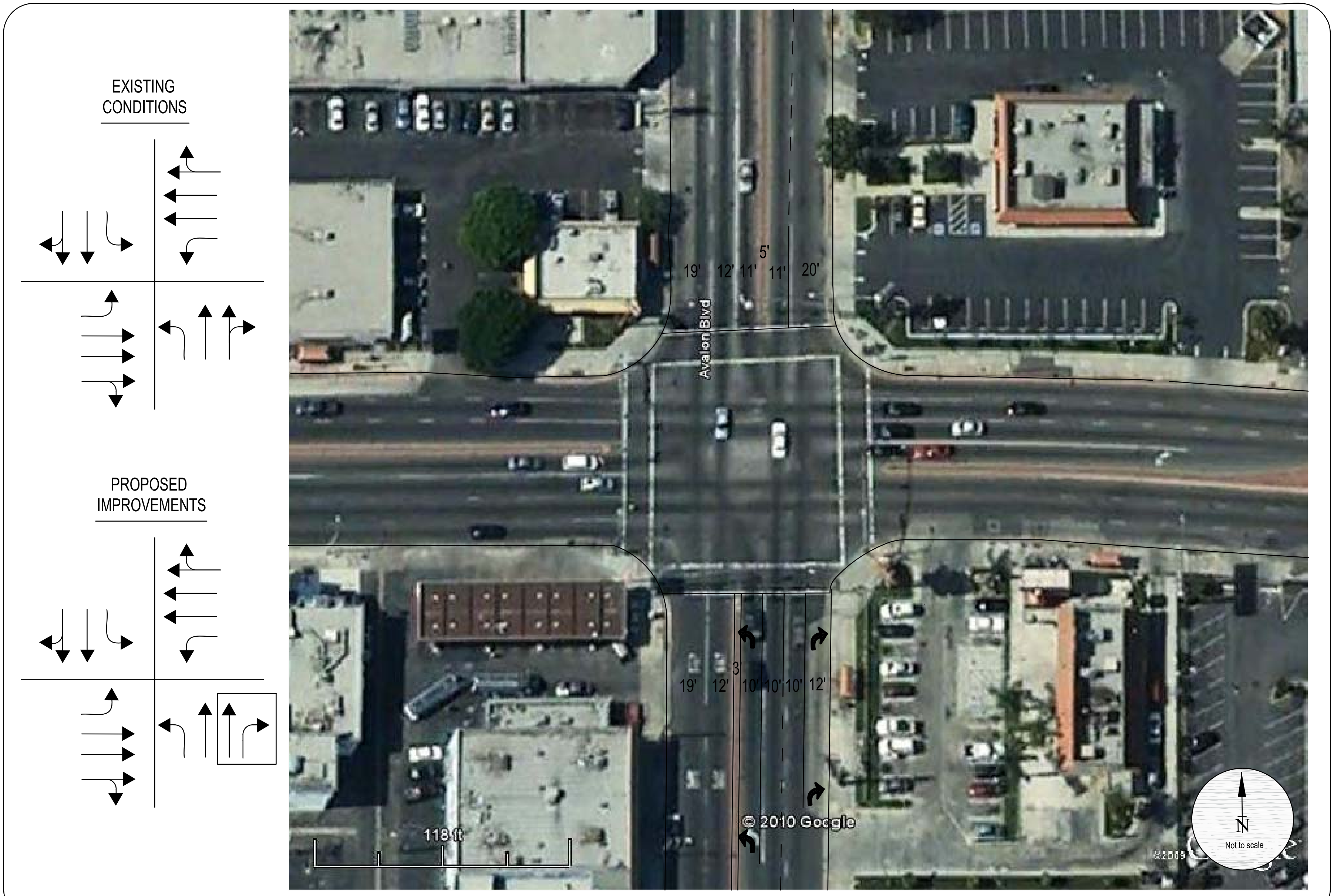
Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	136	1,600	0.000	N-S(1):	0.326
	TH	2.00	824	3,200	0.258 *	N-S(2):	0.369 *
	LT	1.00	106	1,600	0.066	E-W(1):	0.229
Westbound	RT	1.00	80	1,600	0.000	E-W(2):	0.309 *
	TH	1.00	309	1,600	0.193 *		
	LT	1.00	45	1,600	0.028	V/C:	0.678
Northbound	RT	0.00	43	0	0.000	Lost Time:	0.100
	TH	2.00	788	3,200	0.260		
	LT	1.00	177	1,600	0.111 *		
Eastbound	RT	1.00	210	1,600	0.021	ICU:	0.778
	TH	2.00	644	3,200	0.201		
	LT	1.00	185	1,600	0.116 *	LOS:	C

* = Critical Movement

APPENDIX Q

Conceptual Mitigation Drawings

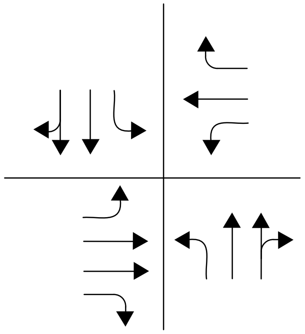


SOURCE : GOOGLE EARTH

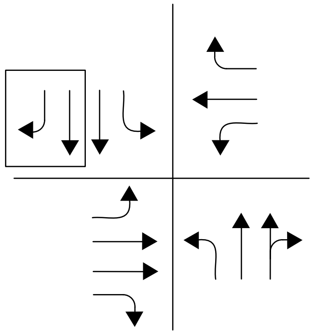
APPENDIX Q-1
AVALON AVENUE & EL SEGUNDO BOULEVARD - PROPOSED MITIGATION MEASURE

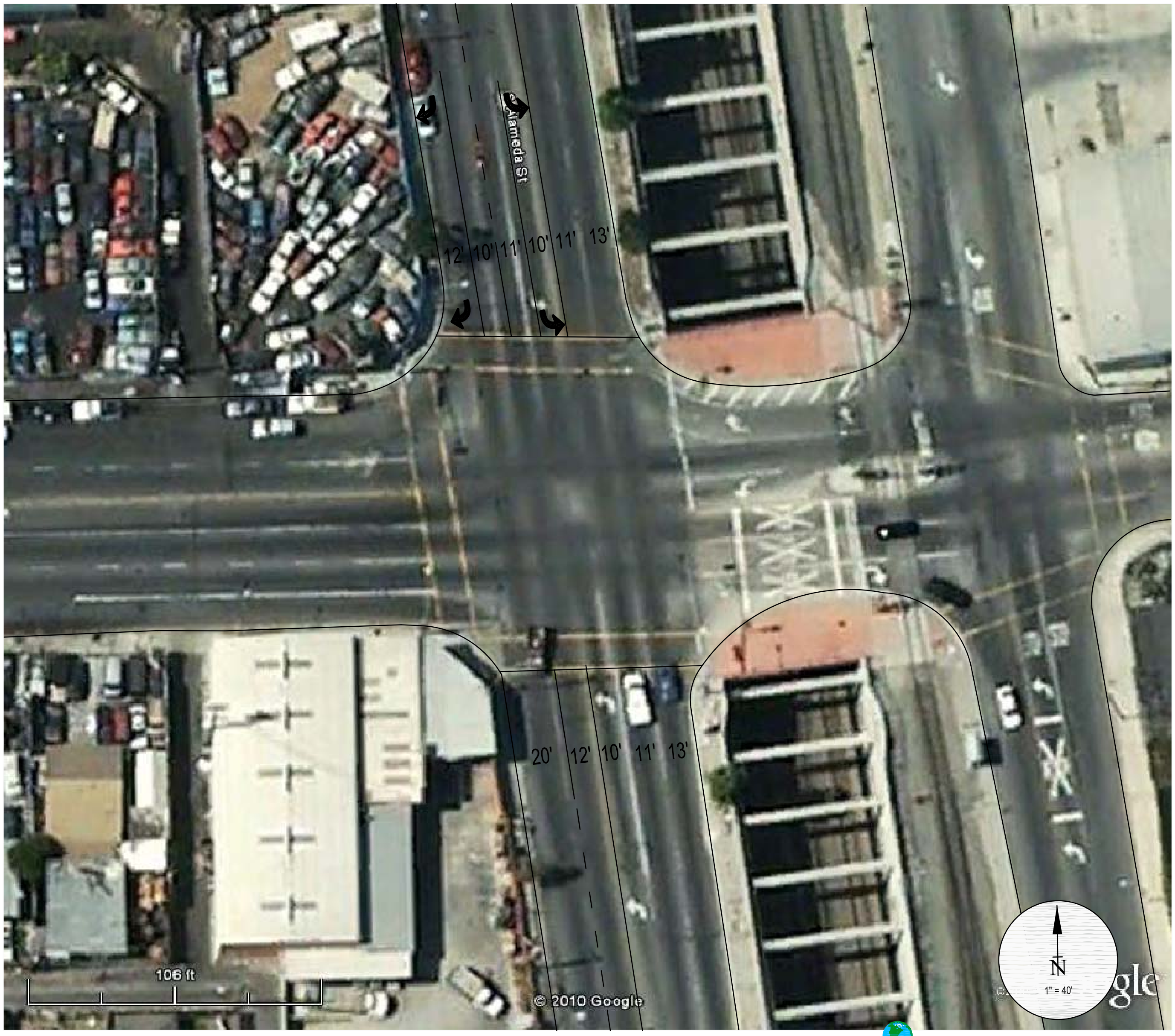
RAJU Associates, Inc.

EXISTING CONDITIONS



PROPOSED IMPROVEMENTS



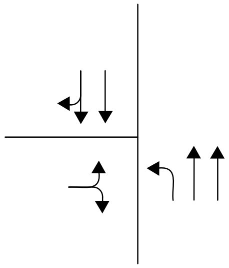


SOURCE : GOOGLE EARTH

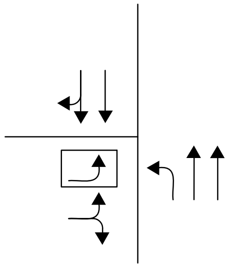
APPENDIX Q-2
ALAMEDA AVENUE & EL SEGUNDO BOULEVARD - PROPOSED MITIGATION MEASURE

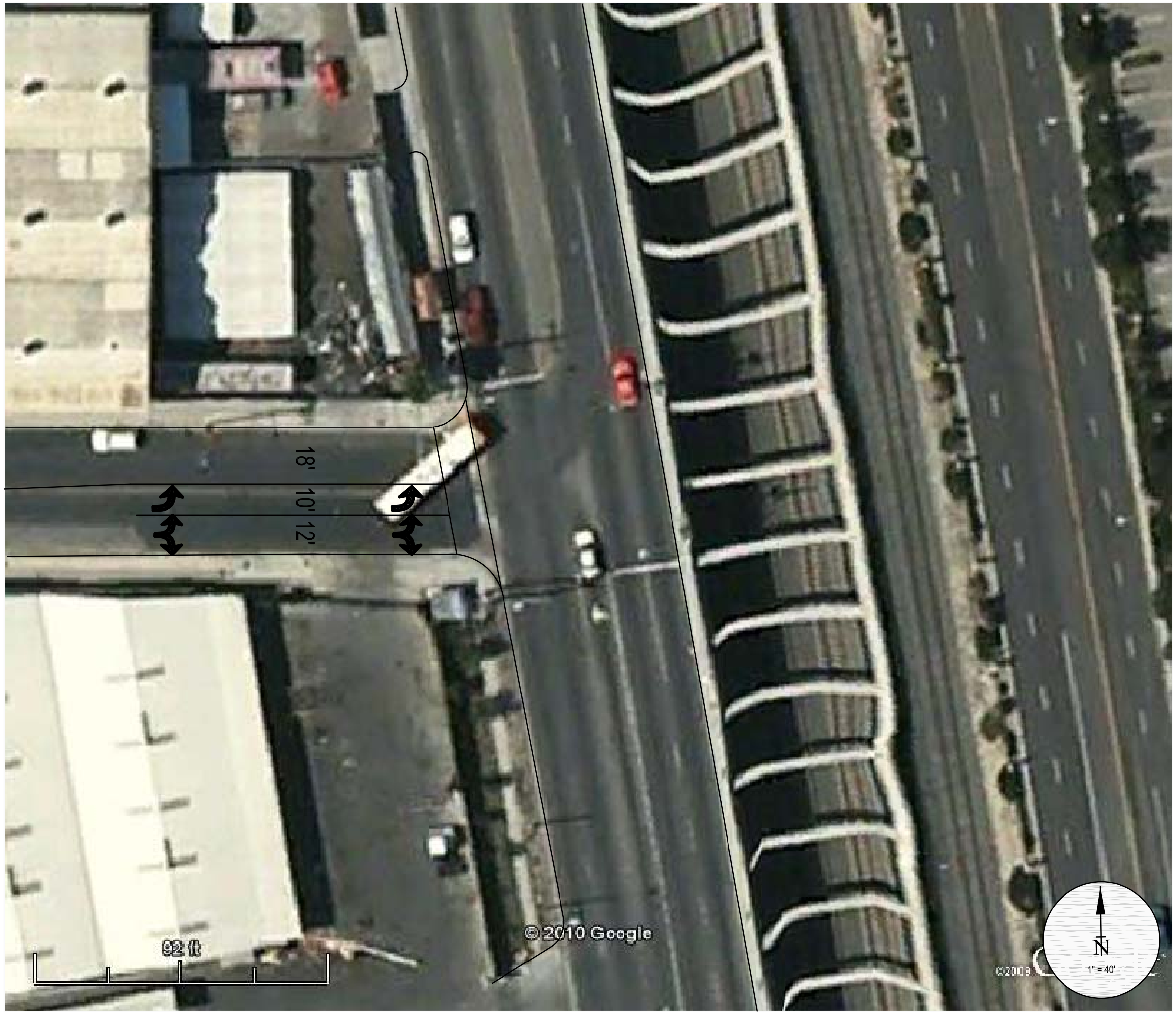
RAJU Associates, Inc.

EXISTING CONDITIONS



PROPOSED IMPROVEMENTS



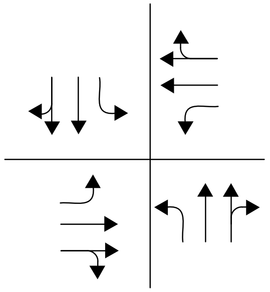


SOURCE : GOOGLE EARTH

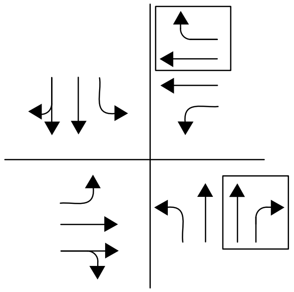
APPENDIX Q-3
ALAMEDA AVENUE & 103RD STREET - PROPOSED MITIGATION MEASURE

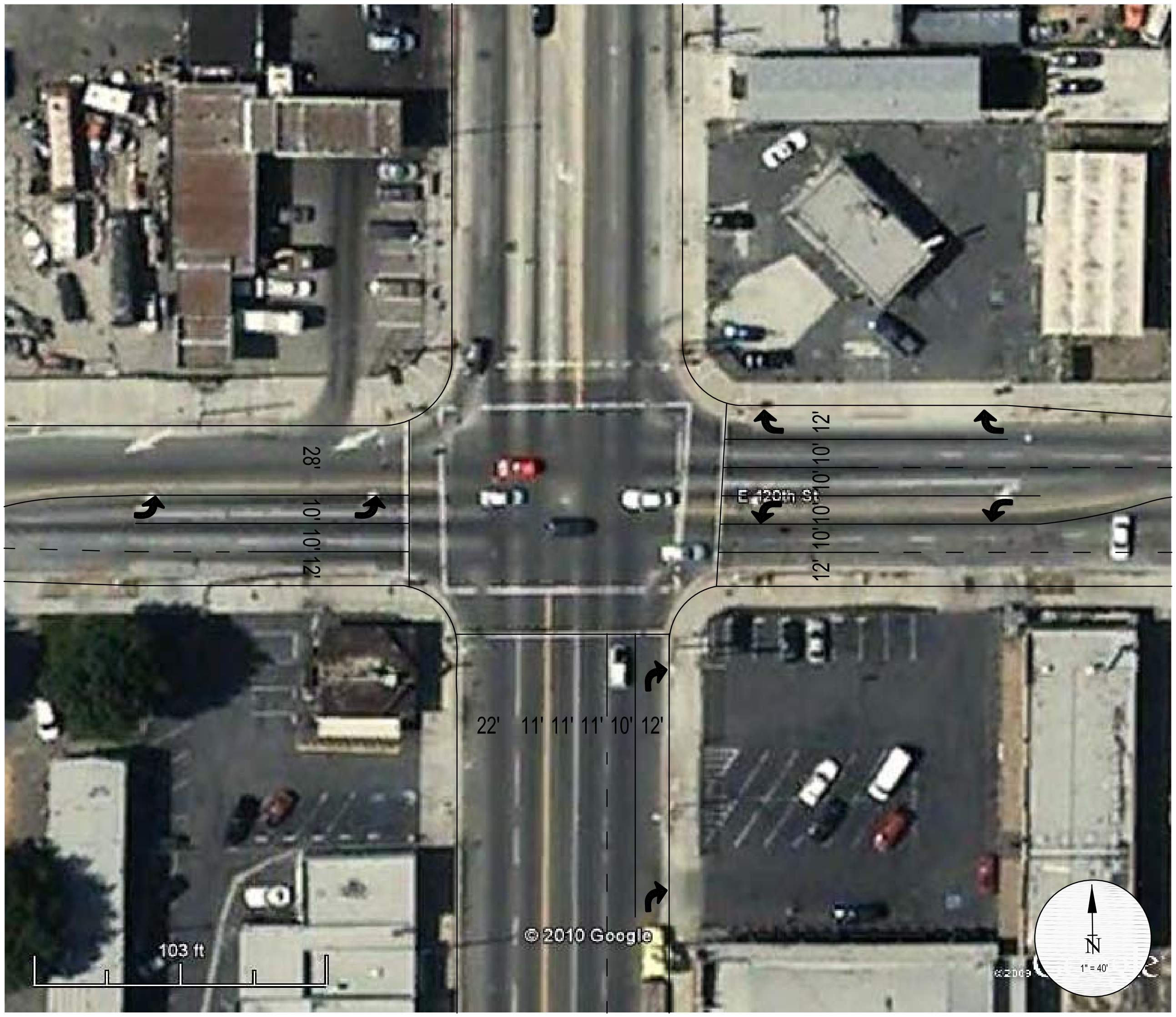
RAJU Associates, Inc.

EXISTING CONDITIONS



PROPOSED IMPROVEMENTS



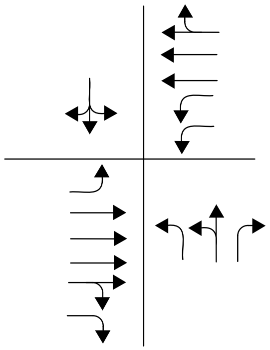


SOURCE : GOOGLE EARTH

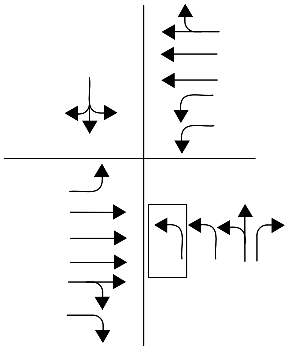
APPENDIX Q-4
CENTRAL AVENUE & 120TH STREET - PROPOSED MITIGATION MEASURE

RAJU Associates, Inc.

EXISTING
CONDITIONS



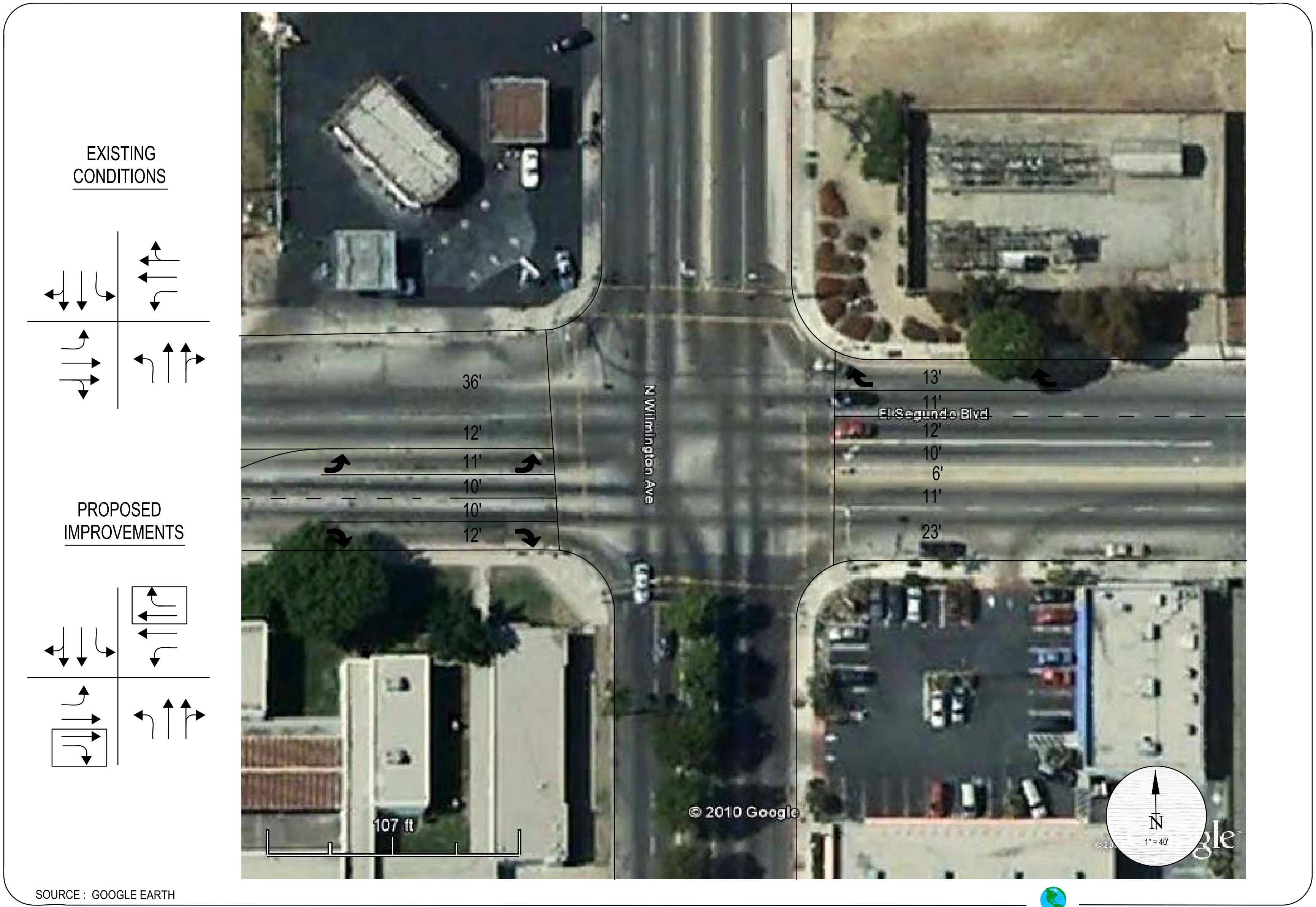
PROPOSED
IMPROVEMENTS



SOURCE : GOOGLE EARTH

APPENDIX Q-5
I-105 WESTBOUND RAMPS & IMPERIAL HIGHWAY - PROPOSED MITIGATION MEASURE

RAJU Associates, Inc.

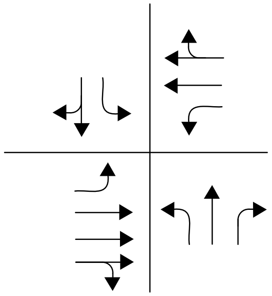


SOURCE : GOOGLE EARTH

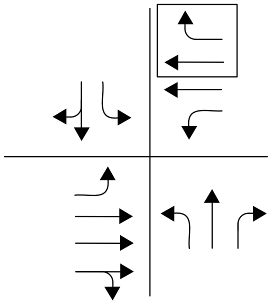
APPENDIX Q-6
WILMINGTON AVENUE & EL SEGUNDO BOULEVARD - PROPOSED MITIGATION MEASURE

RAJU Associates, Inc.

EXISTING CONDITIONS



PROPOSED IMPROVEMENT

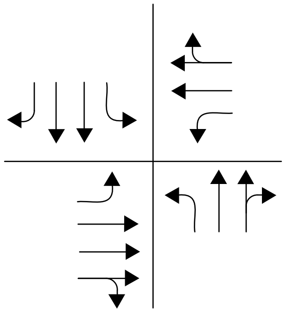


SOURCE : GOOGLE EARTH

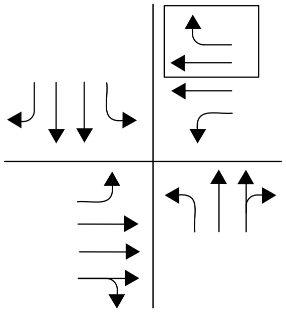
APPENDIX Q-7
COMPTON AVENUE & IMPERIAL HIGHWAY - PROPOSED MITIGATION MEASURE

RAJU Associates, Inc.

EXISTING CONDITIONS



PROPOSED IMPROVEMENTS

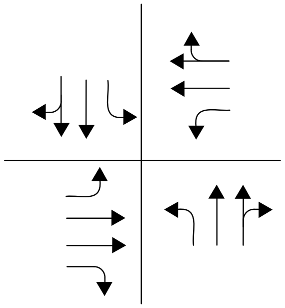


SOURCE : GOOGLE EARTH

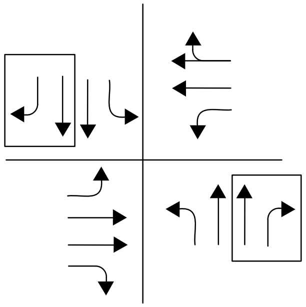
APPENDIX Q-8
CENTRAL AVENUE & ROSECRANS AVENUE - PROPOSED MITIGATION MEASURE

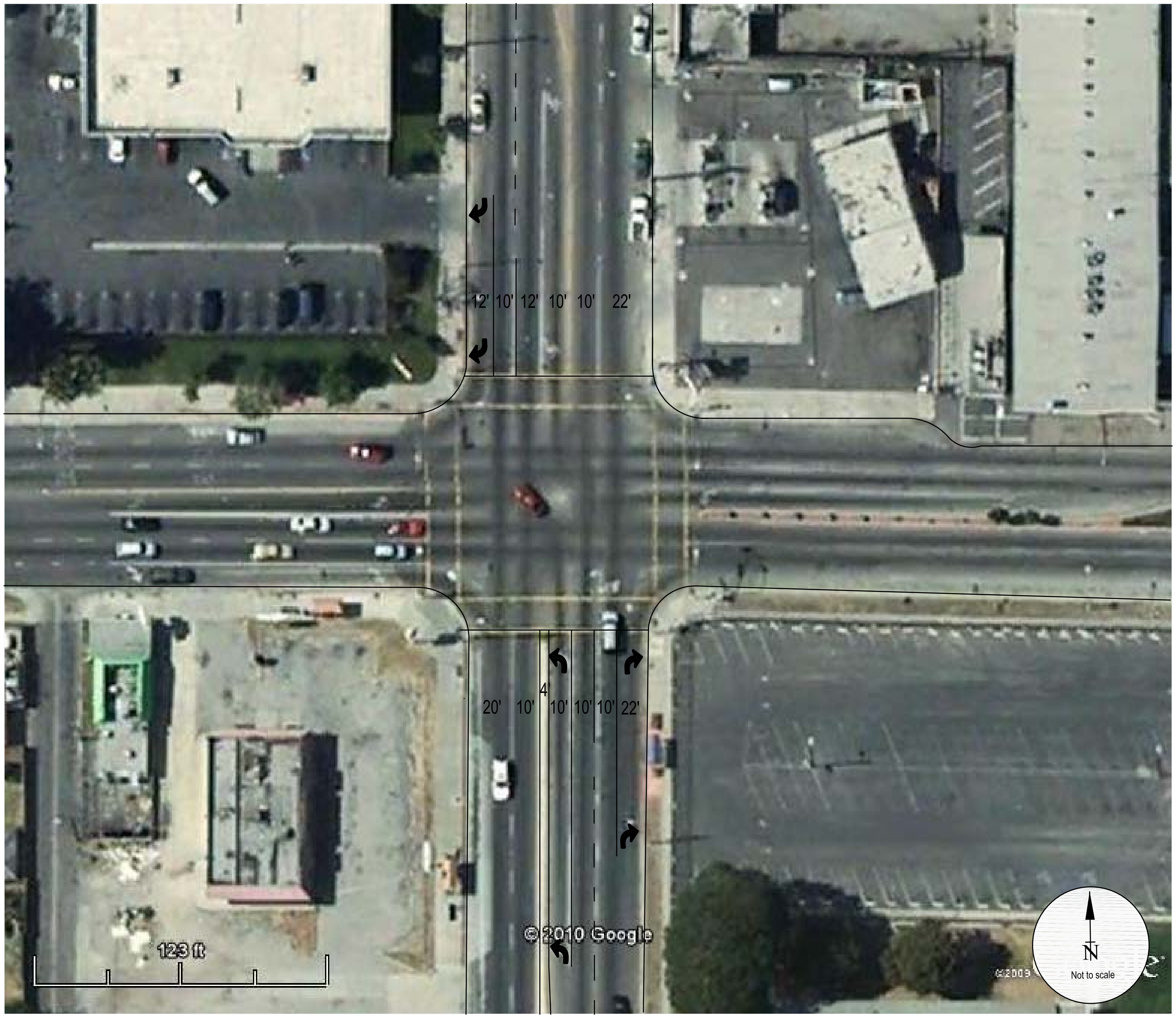
RAJU Associates, Inc.

EXISTING CONDITIONS



PROPOSED IMPROVEMENTS



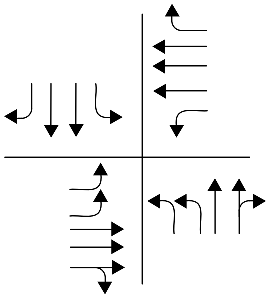


SOURCE : GOOGLE EARTH

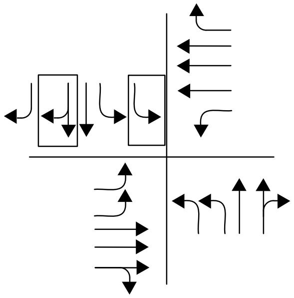
APPENDIX Q-9
CENTRAL AVENUE & EL SEGUNDO BOULEVARD - PROPOSED MITIGATION MEASURE

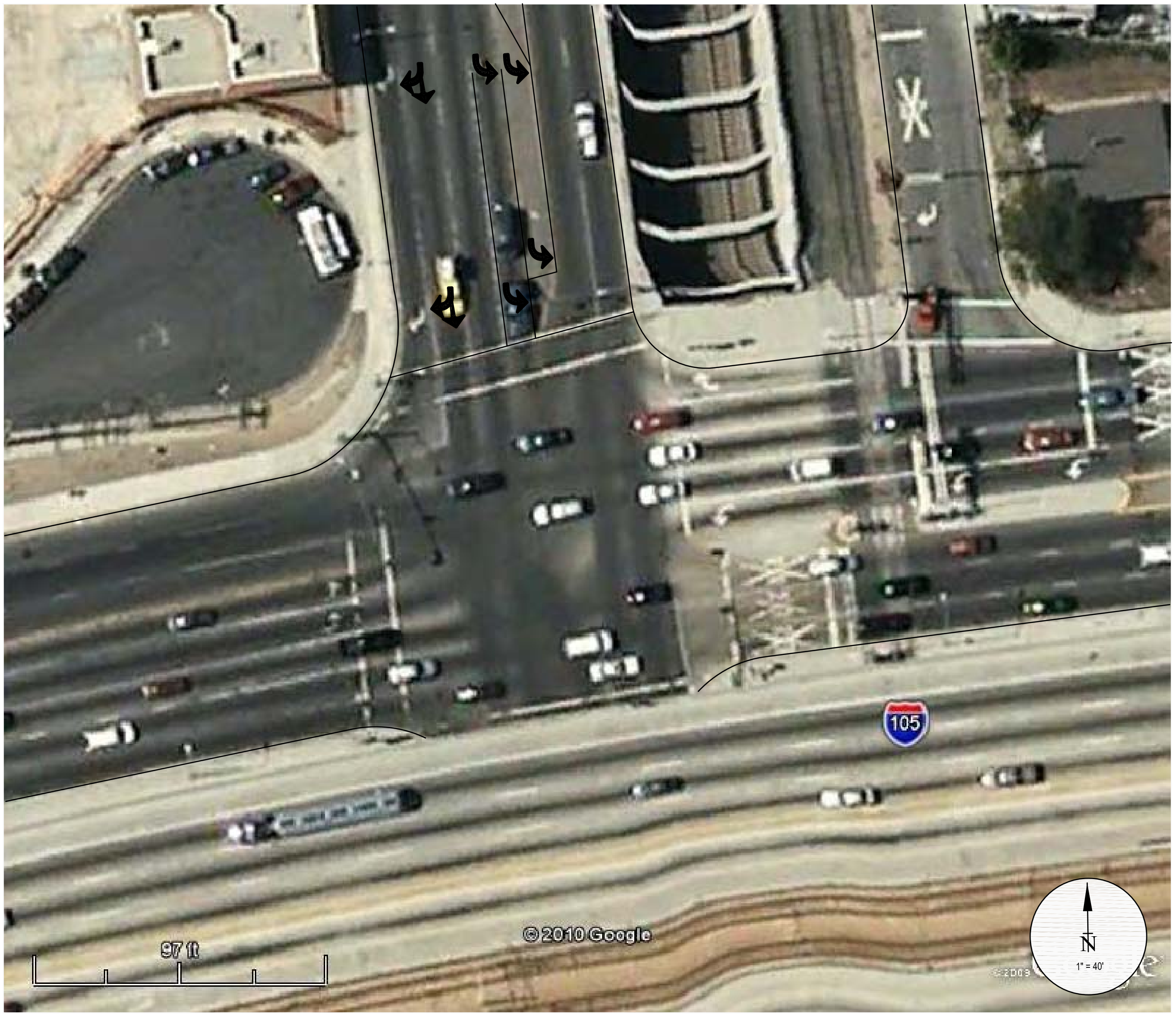
RAJU Associates, Inc.

EXISTING CONDITIONS



PROPOSED IMPROVEMENTS

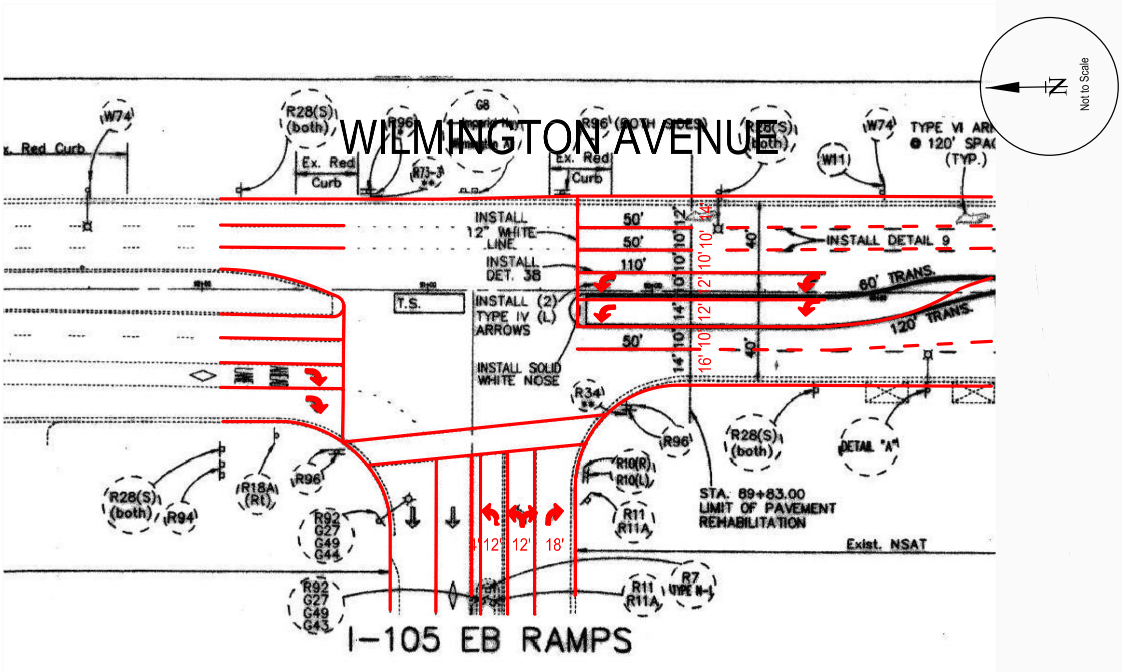


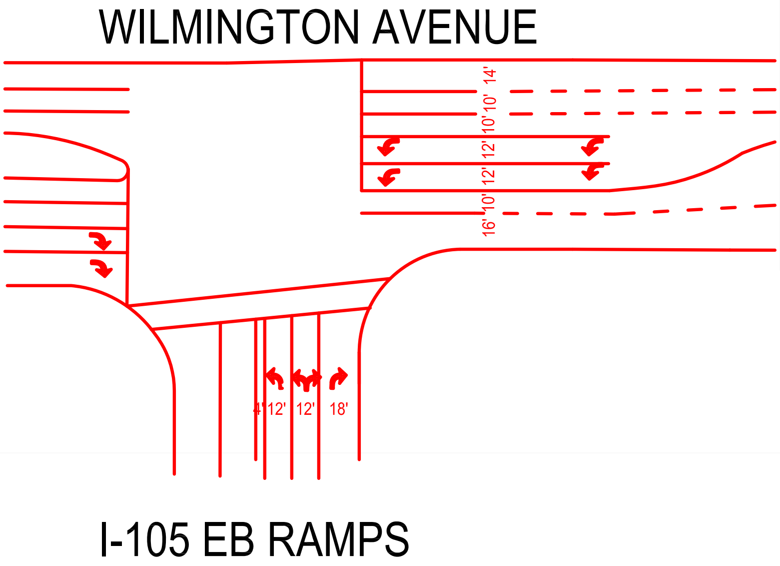


SOURCE : GOOGLE EARTH

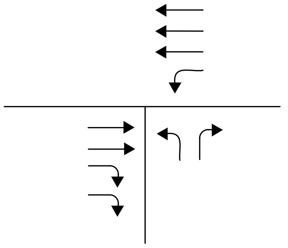
APPENDIX Q-10
ALAMEDA AVENUE & IMPERIAL HIGHWAY - PROPOSED MITIGATION MEASURE

RAJU Associates, Inc.



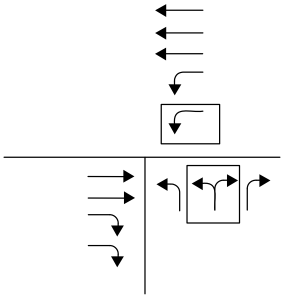


EXISTING (2010) CONDITIONS



Wilmington Av & I-105 EB Ramps

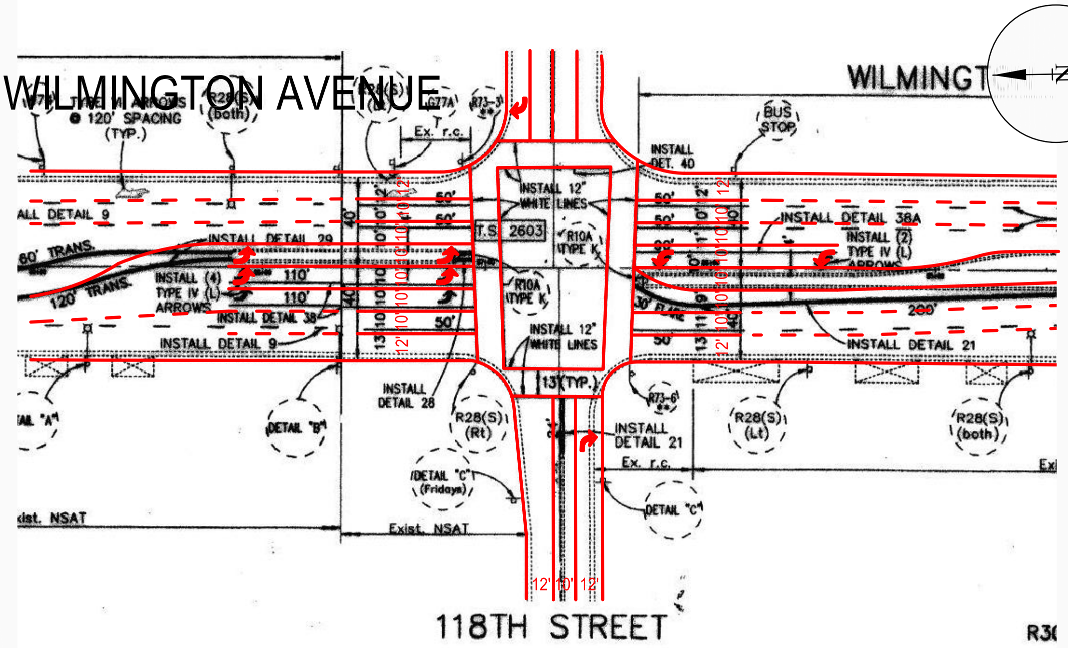
PROPOSED IMPROVEMENTS

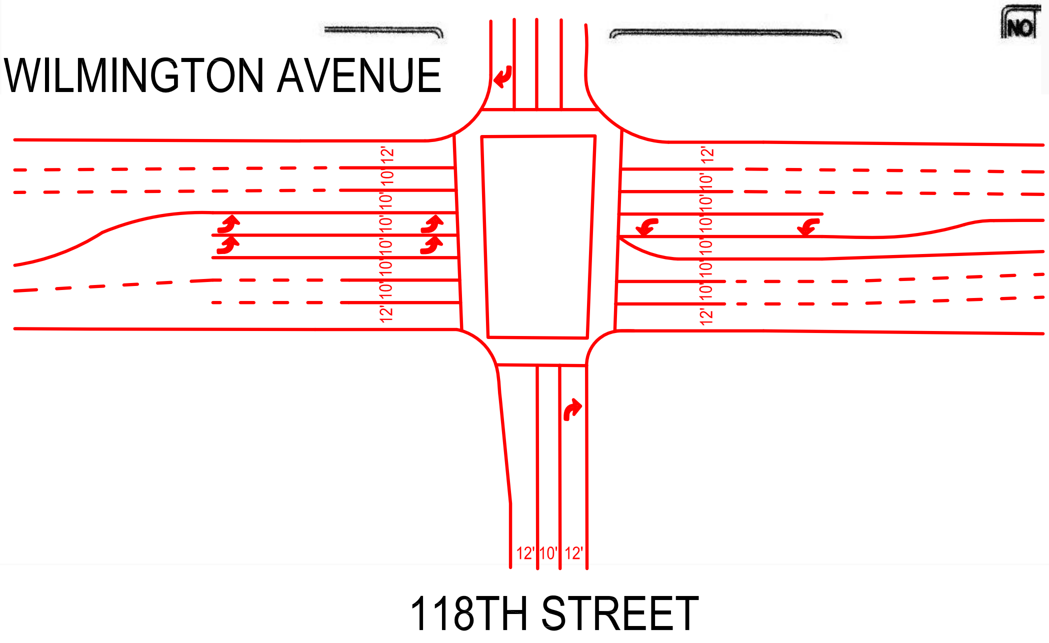


Wilmington Av & I-105 EB Ramps

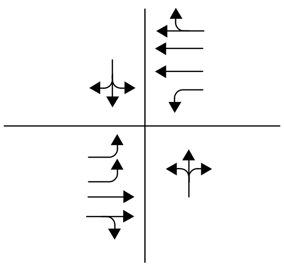
RAJU Associates, Inc.

APPENDIX Q-11
WILMINGTON AVENUE & I-105 EASTBOUND RAMPS - PROPOSED MITIGATION MEASURE



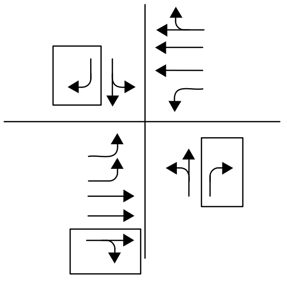


EXISTING (2010) CONDITIONS



Wilmington Av & 118th St

PROPOSED IMPROVEMENTS



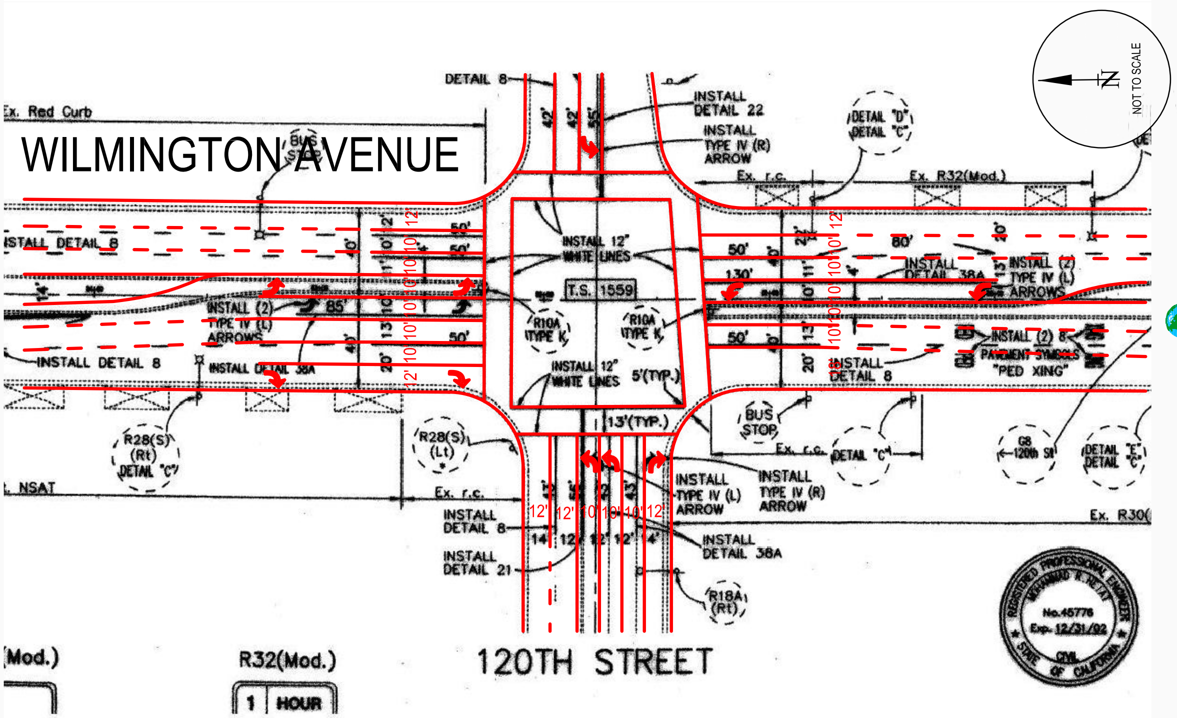
Wilmington Av & 118th St

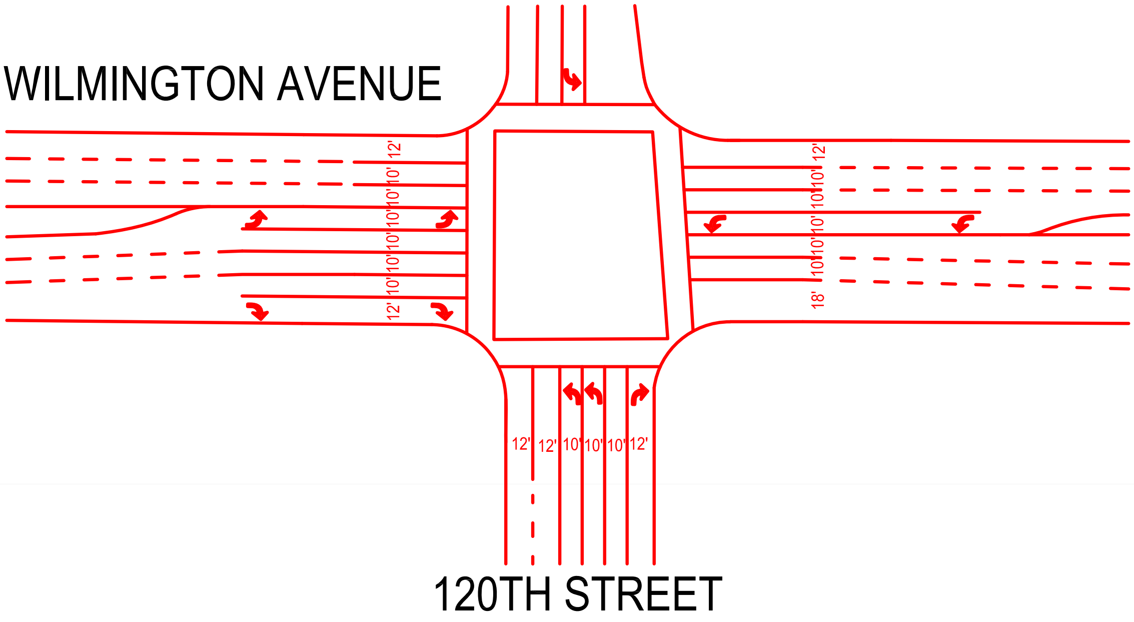
RAJU Associates, Inc.

APPENDIX Q-12
WILMINGTON AVENUE & 118TH STREET - PROPOSED MITIGATION MEASURE

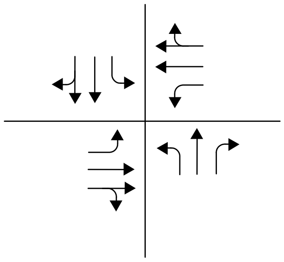
APPENDIX Q-13
WILMINGTON AVENUE & 120TH-119TH STREET - PROPOSED MITIGATION MEASURE

RAJU Associates, Inc.



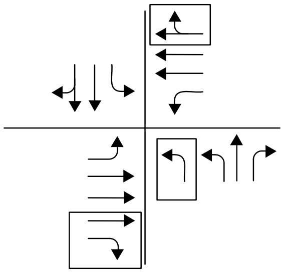


EXISTING (2010) CONDITIONS

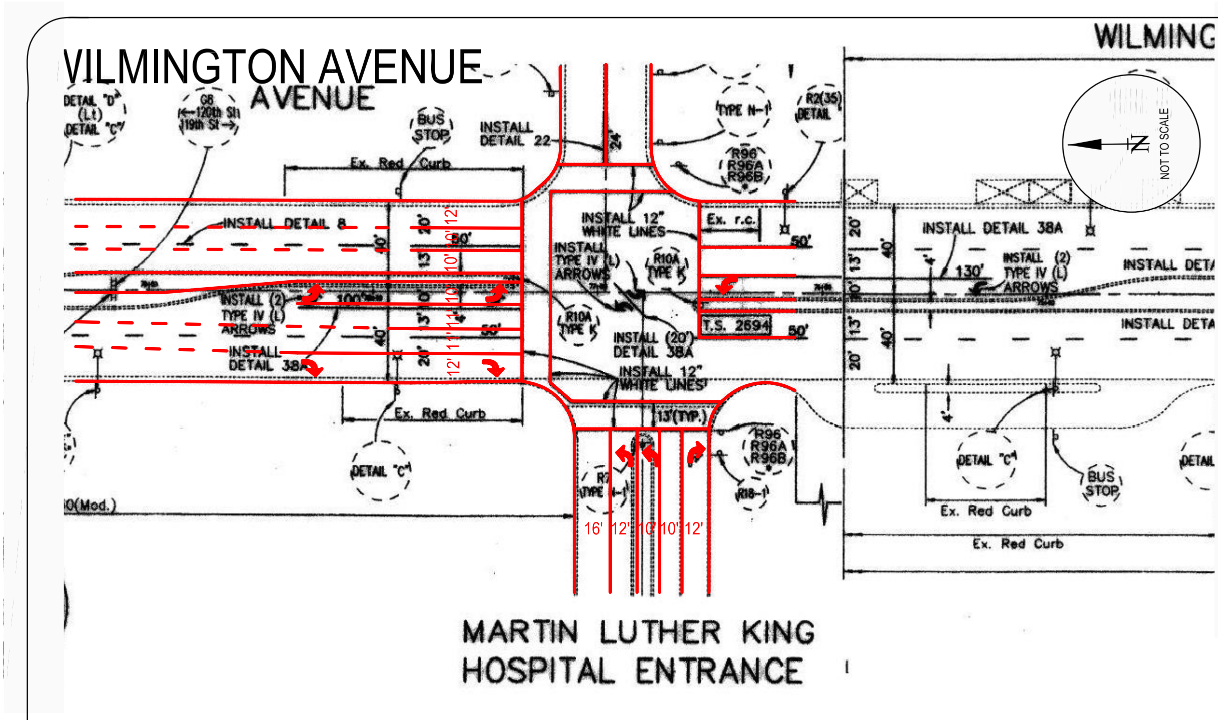


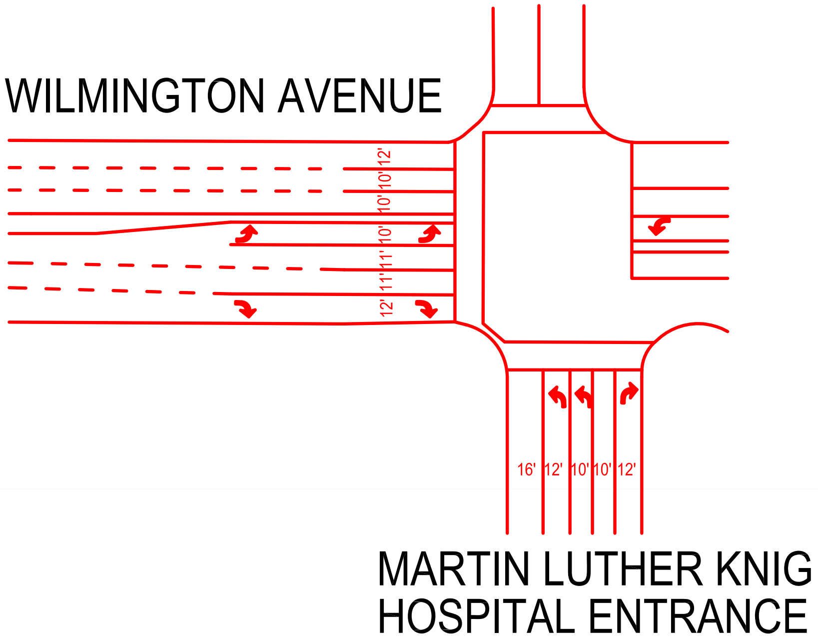
Wilmington Av & 120th St-119th St

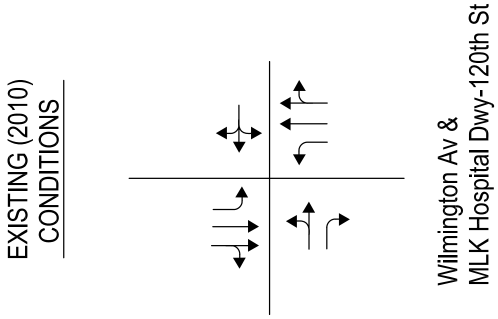
PROPOSED IMPROVEMENTS

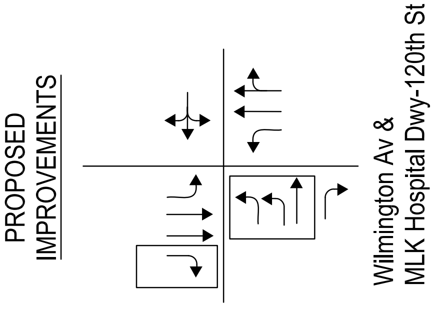


Wilmington Av & 120th St-119th St









RAJU Associates, Inc.

APPENDIX Q-14
WILMINGTON AVENUE & MLK JR HOSPITAL DWY-120TH ST - PROPOSED MITIGATION MEASURE

APPENDIX R

Caltrans Analysis

APPENDIX R. CALTRANS ANALYSIS

This appendix section includes an evaluation of the freeway operations and ramp intersections using Caltrans' guidelines and has also been performed at Caltrans' request for informational and long-range planning purposes.

ANALYSIS SCENARIOS

The analysis presented in this section was conducted for the following scenarios:

- Existing (2010) Conditions - The analysis of existing traffic conditions is intended to provide a basis for the remainder of the study.

Future Year 2014 Conditions – Tier I Analysis

- Cumulative (2014) Base Conditions - Future traffic conditions without the proposed project has been developed for the year 2014. The objective of this analysis is to project future traffic growth and operating conditions, which could be expected to result from regional growth and related projects in the vicinity of the study area by the year 2014.
- Cumulative (2014) plus Tier I Project Conditions – The net traffic expected to be generated by the Proposed Tier I Project is estimated and added to the Cumulative (2014) Base traffic forecasts.

Future Year 2020 Conditions – Tier II Analysis

- Cumulative (2020) Base Conditions - Future traffic conditions without the proposed project has been developed for the year 2020. The objective of this analysis is to project future traffic growth and operating conditions, which could be expected to result from regional growth and related projects in the vicinity of the study area by the year 2020.
- Cumulative (2020) plus Tier I and II Project Conditions – The net traffic expected to be generated by the Proposed Tier I and II Project is estimated and added to the Cumulative (2020) Base traffic forecasts.

As part of the Congestion Management Program and Caltrans analysis, 12 freeway segments are analyzed and 10 intersection ramp locations. These locations include segments of the Century (I-105) Freeway, Harbor (I-110) Freeway, Long Beach (I-710) Freeway and Artesia (SR-91) Freeway.

TRAFFIC VOLUMES

Existing traffic volumes for the freeway segments were obtained from 2008 Caltrans Traffic Volumes (ADT and peak hour volume data). These traffic volumes were adjusted using a growth rate of 0.72% per year to reflect Year 2010 conditions. This growth rate was obtained from the 2004 Congestion Management Program (CMP) for Los Angeles County. Intersection ramp locations existing traffic counts were collected in January and April 2010.

Future 2014 and 2020 traffic volumes were developed using the same methodology described in both Chapters 3 and 4 in the traffic study report.

FREEWAY MAINLINE SEGMENTS

Freeway mainline segments were analyzed for operating conditions and significant impacts in accordance with the Los Angeles County Congestion Management Program (CMP) guidelines identified in Chapter 5. Operating conditions on freeways were classified by LOS based on the measured flow past a point on a “screenline” compared to the estimated capacity of that section of the freeway. Capacity is calculated by multiplying the lane capacity by the number of lanes in each segment. In accordance with CMP guidelines, the lane capacities are assumed to be 2,000 vehicles per hour (vph) and 1,000 vph per high-occupancy vehicle (HOV) and auxiliary lanes. The LOS definitions for freeway segments are presented in Table R1.

Tables R2 and R3 summarize the freeway segments volumes, demand-to-capacity (D/C) ratios and Levels of Service during the peak hours at the analyzed locations for both existing and future conditions using the above described methodology. In addition to these analyses, operating conditions were determined using Highway Capacity Methodology (HCM) for the freeway mainline segments. The results of this analysis are included in Tables R4 through R6.

Significant Impact Criteria

According to the 2004 CMP impact criteria, a project impact is considered to be significant if the Proposed Project increases traffic demand on a CMP facility by 2% of capacity ($V/C >= 0.02$), causing or worsening LOS F ($V/C > 1.00$). Under this criterion, a project would not be considered to have a significant impact if the analyzed facility is operating at LOS E or better after the addition of project traffic. However, if the facility is operating at LOS F with project traffic and the incremental change in the V/C ratio caused by the project is 0.02 or greater, the project would be considered to have a significant impact.

There are no feasible mitigation measures that a single project can be expected to implement that would directly reduce freeway mainline impacts to less than significant. Caltrans requires that a applicant pay its fair-share of any feasible improvements that may be implemented at the significantly impacted segments. Caltrans has adopted a mathematical formula to calculate a project's fair-share of an overall improvement cost to the significantly impacted segments. The fair-share calculation assigns costs to a project in proportion to the project's share of the traffic growth between existing conditions and the long-range planning horizon year 2020. The payment of the fair-share amount is then deemed to be mitigation of the project impacts.

Tier I Freeway Impacts

Table R2 summarizes the incremental increase in the D/C ratio which can be attributed to the Proposed Tier I Project during the AM and PM peak hours. Using the CMP significant impact criteria, the Proposed Tier I Project will not have any significant impacts during the AM and PM peak hours.

Tier II Project Freeway Impacts

Table R3 summarizes the incremental increase in the D/C ratio which can be attributed to the Proposed Tier II Project during the AM and PM peak hours. Using the CMP significant impact criteria, the Proposed Tier II Project will have a significant impact at two of the analyzed freeway segments during either the AM and/or PM peak hours.

The impacted freeway segments include the following:

- I-105 Freeway west of Long Beach Boulevard – eastbound direction (PM Peak Hour) and westbound direction (AM Peak Hour)
- I-105 Freeway west of I-710 Freeway – eastbound direction (PM Peak Hour)

Potential mitigation measures for the impacted segments may include widening of the freeway mainline to provide for additional travel lanes. As mentioned above, the Project's fair-share participation in the mitigation measures was calculated by comparing the Project's traffic using the mainline segment to the total growth in the mainline segment traffic between today's levels and future 2020 levels. This calculation is consistent with the requirements of the Caltrans' Guidelines for Traffic Impact Studies. This fair-share calculation indicates that the Project would be responsible for between 16.28% and 22.64% of the cost of improvements along the I-105 Freeway mainline segments.

FREEWAY RAMPS

As indicated above, 10 of the study intersections are also freeway ramp locations and fall under Caltrans jurisdiction. Analyses were conducted for on-ramp and off-ramp evaluations.

On-Ramps

Based on on-ramp metering, Caltrans has established a maximum capacity of 900 vehicles per hour per lane (vphpl) for on-ramps. An on-ramp is considered to be 'over-saturated' or failing if the existing or future peak hour traffic on the ramp exceeds 900 vphpl. Analysis of the on-ramps was conducted for existing, future (2014) with and without the Tier I Project conditions, and future (2020) with and without Tier II Project conditions. The results of this analysis are provided in Tables R7 and R8. As shown in the tables, none of the ramps are exceeding the Caltrans standard under existing, future (2014) with and without the Tier I Project conditions, and future (2020) with and without Tier II Project conditions.

Off-Ramps

For off-ramps, Caltrans defines a significant impact if the peak hour traffic queue length (85th percentile as determined by 2000 HCM Operations Methodology) on the ramp exceeds the storage length and results in queues backing into the freeway mainline. Analysis of the off-ramps was conducted for existing, future (2014) without and with the Tier I Project conditions, and future (2020) without and with Tier II Project conditions. The results of this analysis are provided in Tables R9 and R10. Failing ramps conditions were determined for two levels: (1). If the queue exceeded the storage length of any individual approach lane (e.g. left-turn lane on the ramp) at the junction of the ramp with the surface street intersection (identified as 'LANE' in the tables), and/or (2). If the queue was large enough to result in backing up into the freeway mainline (identified as 'YES' in the tables). Mitigation measures would need to be provided for impact criteria (2).

Based on the impact criteria (2), none of the ramps are exceeding the Caltrans standard under existing, future (2014) without and with the Tier I Project conditions, and future (2020) without and with Tier II Project conditions.

Intersection Analysis

Caltrans requires that all intersections of ramps be analyzed with the 2000 HCM Operations Methodology. Each intersection of a ramp with a city street (10 study intersections in total) was evaluated using the HCM methodology and the worksheets for each of these analyses are included at the end of this appendix.

The HCM methodology was also used to determine the queue lengths on the off-ramps as described above and to evaluate the overall performance of the ramp intersections. Tables R11 and R12 summarize the delay and corresponding LOS at each of the study ramp intersections for existing, future (2014) without and with the Tier I Project conditions, and future (2020) without and with Tier II Project conditions.

Tier II Project Ramps Improvements

As indicated in the traffic study report, two of the analyzed freeway ramp intersections were significantly impacted under Tier II conditions. The Proposed Tier II Project would provide intersection improvements at these two ramps locations. This includes the following improvements:

- I-105 Westbound Ramps-Croesus Avenue/Imperial Highway: Provide a third northbound left-turn lane by widening off-ramp by 10' for approximately 150' to 200'. The northbound approach would provide dual left-turn lanes, a shared though-left turn lane, and a separate right-turn lane
- Wilmington Avenue/I-105 Eastbound Ramps: Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach would have a left-turn lane, shared left-right turn lane and a separate right-turn lane. The sidewalks on either side of Wilmington Avenue (as noted above) would be

reduced by 2’ and the Wilmington Avenue roadway would be widened by 2’ on either side (a total of 4’) from the south leg of this intersection.

Provide an additional northbound left-turn lane by widening (reducing the medians). The northbound approach would have dual left-turn lanes and three through lanes.

The recommended improvements would fully mitigate the Tier II Project-related impacts at the two impacted ramp intersections.

TABLE R1
FREEWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

Level of Service	Demand/Capacity Ratio	Flow Conditions
A	0.00 - 0.35	Highest quality of service. Free traffic flow, low volumes and densities. Little or no restriction on maneuverability or speed.
B	0.36 - 0.54	Stable traffic flow, speed becoming slightly restricted. Low restriction on maneuverability.
C	0.55 - 0.77	Stable traffic flow, but less freedom to select speed, change lanes, or pass. Density increasing.
D	0.78 - 0.93	Approaching unstable flow. Speeds tolerable but subject to sudden and considerable variation. Less maneuverability and driver comfort.
E	0.94 - 1.00	Unstable traffic flow with rapidly fluctuating speeds and flow rates. Short headways, low maneuverability and low driver comfort.
F(0)	1.01 - 1.25	Forced traffic flow. Speed and flow may be greatly reduced with high densities.
F(1)	1.26 - 1.35	Forced traffic flow. Severe congested conditions prevail for more than one hour. Speed and flow may drop to zero with high densities.
F(2)	1.36 - 1.45	Forced traffic flow. Severe congested conditions prevail for more than one hour. Speed and flow may drop to zero with high densities.
F(3)	>1.45	Forced traffic flow. Severe congested conditions prevail for more than one hour. Speed and flow may drop to zero with high densities.

Source: Adapted from Los Angeles County Metropolitan Transportation Authority, *2002 Congestion Management Program for Los Angeles County*, June 2002.

TABLE R2
MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS PROJECT - FREEWAY ANALYSIS - 2014 CONDITIONS

					Existing Conditions [1]			Cumulative (2014) Base Conditions			Tier I Project Only	Cumulative (2014) Plus Tier I Project Conditions				
Freeway Route	Segment	Direction	Number of Lanes	Peak Period	Volume	V/C	LOS	Volume	V/C	LOS	Volume	Volume	V/C	LOS	Increase in D/C	Significant Impact
I-110	at Manchester Boulevard [2]	NB	5	AM	10,497	1.05	F(0)	10,917	1.09	F(0)	-11	10,906	1.09	F(0)	-0.001	No
				PM	10,382	1.04	F(0)	10,804	1.08	F(0)	-16	10,788	1.08	F(0)	-0.002	No
		SB	5	AM	10,899	1.09	F(0)	11,328	1.13	F(0)	-16	11,312	1.13	F(0)	-0.002	No
				PM	11,674	1.17	F(0)	12,157	1.22	F(0)	-10	12,147	1.21	F(0)	-0.001	No
I-110	n/o Rosecrans Avenue	NB	4.5	AM	9,836	1.09	F(0)	10,141	1.13	F(0)	-4	10,137	1.13	F(0)	0.000	No
				PM	8,578	0.95	E	8,850	0.98	E	-4	8,846	0.98	E	0.000	No
		SB	4.5	AM	10,592	1.18	F(0)	10,916	1.21	F(0)	-2	10,914	1.21	F(0)	0.000	No
				PM	10,106	1.12	F(0)	10,416	1.16	F(0)	-4	10,412	1.16	F(0)	0.000	No
I-710	n/o Firestone Boulevard [2]	NB	4	AM	7,794	0.97	E	8,155	1.02	F(0)	-7	8,148	1.02	F(0)	-0.001	No
				PM	7,322	0.92	D	7,674	0.96	E	-10	7,664	0.96	E	-0.001	No
		SB	4	AM	6,718	0.84	D	7,040	0.88	D	-10	7,030	0.88	D	-0.001	No
				PM	8,025	1.00	F(0)	8,412	1.05	F(0)	-7	8,405	1.05	F(0)	-0.001	No
I-710	n/o SR-91 Freeway	NB	5	AM	7,071	0.71	C	7,298	0.73	C	-5	7,293	0.73	C	-0.001	No
				PM	8,800	0.88	D	9,077	0.91	D	-3	9,074	0.91	D	0.000	No
		SB	5	AM	9,736	0.97	E	10,037	1.00	F(0)	-3	10,034	1.00	F(0)	0.000	No
				PM	7,940	0.79	D	8,193	0.82	D	-5	8,188	0.82	D	-0.001	No
I-105	e/o Crenshaw Boulevard [2]	WB	4.5	AM	7,925	0.88	D	8,189	0.91	D	-11	8,178	0.91	D	-0.001	No
				PM	6,533	0.73	C	6,763	0.75	C	-16	6,747	0.75	C	-0.002	No
		EB	4.5	AM	8,222	0.91	D	8,492	0.94	E	-16	8,476	0.94	E	-0.002	No
				PM	8,668	0.96	E	8,964	1.00	E	-12	8,952	0.99	E	-0.001	No
I-105	w/o Central Avenue	WB	4	AM	10,062	1.26	F(1)	10,433	1.30	F(1)	-22	10,411	1.30	F(1)	-0.003	No
				PM	7,116	0.89	D	7,414	0.93	D	-32	7,382	0.92	D	-0.004	No
		EB	4	AM	7,453	0.93	E	7,744	0.97	E	-32	7,712	0.96	E	-0.004	No
				PM	6,791	0.85	D	7,092	0.89	D	-23	7,069	0.88	D	-0.003	No
I-105	w/o Wilmington Avenue	WB	3.5	AM	9,468	1.35	F(2)	9,796	1.40	F(2)	-12	9,786	1.40	F(2)	-0.001	No
				PM	6,905	0.99	E	7,175	1.03	F(0)	-19	7,156	1.02	F(0)	-0.003	No
		EB	4	AM	6,913	0.86	D	7,167	0.90	D	-19	7,148	0.89	D	-0.002	No
				PM	6,775	0.85	D	7,041	0.88	D	-13	7,028	0.88	D	-0.002	No
I-105	w/o Long Beach Boulevard	WB	3.5	AM	8,828	1.26	F(1)	9,162	1.31	F(1)	-28	9,134	1.30	F(1)	-0.004	No
				PM	6,869	0.98	E	7,155	1.02	F(0)	-21	7,134	1.02	F(0)	-0.003	No
		EB	3.5	AM	6,649	0.95	E	6,922	0.99	E	-21	6,901	0.99	E	-0.003	No
				PM	7,060	1.01	F(0)	7,352	1.05	F(0)	-31	7,321	1.05	F(0)	-0.004	No
I-105	w/o I-710 Freeway [2]	WB	4	AM	8,513	1.06	F(0)	8,852	1.11	F(0)	-29	8,823	1.10	F(0)	-0.004	No
				PM	7,281	0.91	D	7,597	0.95	E	-22	7,575	0.95	E	-0.003	No
		EB	4	AM	7,028	0.88	D	7,325	0.92	D	-21	7,304	0.91	D	-0.003	No
				PM	7,453	0.93	E	7,768	0.97	E	-31	7,737	0.97	E	-0.004	No
I-105	e/o Bellflower Boulevard [2]	WB	4.5	AM	7,361	0.82	D	7,616	0.85	D	-12	7,604	0.84	D	-0.001	No
				PM	6,665	0.74	C	6,908	0.77	C	-8	6,900	0.77	C	-0.001	No
		EB	4.5	AM	6,076	0.68	C	6,297	0.70	C	-8	6,289	0.70	C	-0.001	No
				PM	6,310	0.70	C	6,538	0.73	C	-12	6,526	0.73	C	-0.001	No
SR-91	w/o Wilmington Avenue	WB	4.5	AM	11,236	1.25	F(0)	11,568	1.29	F(1)	-2	11,566	1.29	F(1)	0.000	No
				PM	6,421	0.71	C	6,611	0.73	C	-2	6,609	0.73	C	0.000	No
		EB	4.5	AM	6,293	0.70	C	6,477	0.72	C	-2	6,475	0.72	C	0.000	No
				PM	15,198	1.69	F(3)	15,645	1.74	F(3)	-2	15,643	1.74	F(3)	0.000	No
SR-91	e/o Alameda Street [2]	WB	4.5	AM	12,002	1.33	F(1)	12,351	1.37	F(2)	-4	12,347	1.37	F(2)	0.000	No
				PM	6,819	0.76	C	7,024	0.78	D	-3	7,021	0.78	D	0.000	No
		EB	5.5	AM	6,715	0.61	C	6,915	0.63	C	-2	6,913	0.63	C	0.000	No
				PM	16,161	1.47	F(3)	16,632	1.51	F(3)	-4	16,628	1.51	F(3)	0.000	No

[1] Traffic volumes obtained from 2008 Caltrans Traffic Volumes and were adjusted using growth rate factors from the 2004 Congestion Management Program (CMP) for Los Angeles County to obtain "existing" conditions.

[2] CMP monitoring location.

TABLE R3
MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS PROJECT - FREEWAY ANALYSIS - 2020 CONDITIONS

					Existing Conditions [1]			Cumulative (2020) Base Conditions			Tier II Project Only Net Volume	Cumulative (2020) Plus Tier II Project Conditions					
Freeway Route	Segment	Direction	Number of Lanes	Peak Period	Volume	V/C	LOS	Volume	V/C	LOS		Volume	V/C	LOS	Increase in V/C	Significant Impact [3]	Fair Share % Total [4]
I-110	at Manchester Boulevard [2]	NB	5	AM	10,497	1.05	F(0)	11,517	1.15	F(0)	25	11,542	1.15	F(0)	0.002	No	0.00%
				PM	10,382	1.04	F(0)	11,512	1.15	F(0)	92	11,604	1.16	F(0)	0.009	No	0.00%
		SB	5	AM	10,899	1.09	F(0)	11,943	1.19	F(0)	74	12,017	1.20	F(0)	0.007	No	0.00%
				PM	11,674	1.17	F(0)	12,910	1.29	F(1)	46	12,956	1.30	F(1)	0.005	No	0.00%
I-110	n/o Rosecrans Avenue	NB	4.5	AM	9,836	1.09	F(0)	10,575	1.18	F(0)	21	10,596	1.18	F(0)	0.002	No	0.00%
				PM	8,578	0.95	E	9,234	1.03	F(0)	11	9,245	1.03	F(0)	0.001	No	0.00%
		SB	4.5	AM	10,592	1.18	F(0)	11,383	1.26	F(1)	8	11,391	1.27	F(1)	0.001	No	0.00%
				PM	10,106	1.12	F(0)	10,870	1.21	F(0)	26	10,896	1.21	F(0)	0.003	No	0.00%
I-710	n/o Firestone Boulevard [2]	NB	4	AM	7,794	0.97	E	8,695	1.09	F(0)	16	8,711	1.09	F(0)	0.002	No	0.00%
				PM	7,322	0.92	D	8,354	1.04	F(0)	59	8,413	1.05	F(0)	0.007	No	0.00%
		SB	4	AM	6,718	0.84	D	7,532	0.94	E	46	7,578	0.95	E	0.006	No	0.00%
				PM	8,025	1.00	F(0)	9,105	1.14	F(0)	28	9,133	1.14	F(0)	0.003	No	0.00%
I-710	n/o SR-91 Freeway	NB	5	AM	7,071	0.71	C	7,614	0.76	C	22	7,636	0.76	C	0.002	No	0.00%
				PM	8,800	0.88	D	9,473	0.95	E	13	9,486	0.95	E	0.001	No	0.00%
		SB	5	AM	9,736	0.97	E	10,468	1.05	F(0)	7	10,475	1.05	F(0)	0.001	No	0.00%
				PM	7,940	0.79	D	8,554	0.86	D	28	8,582	0.86	D	0.003	No	0.00%
I-105	e/o Crenshaw Boulevard [2]	WB	4.5	AM	7,925	0.88	D	8,551	0.95	E	25	8,576	0.95	E	0.003	No	0.00%
				PM	6,533	0.73	C	7,079	0.79	D	94	7,173	0.80	D	0.010	No	0.00%
		EB	4.5	AM	8,222	0.91	D	8,866	0.99	E	74	8,940	0.99	E	0.008	No	0.00%
				PM	8,668	0.96	E	9,372	1.04	F(0)	43	9,415	1.05	F(0)	0.005	No	0.00%
I-105	w/o Central Avenue	WB	4	AM	10,062	1.26	F(1)	10,896	1.36	F(2)	51	10,947	1.37	F(2)	0.006	No	0.00%
				PM	7,116	0.89	D	7,771	0.97	E	190	7,961	1.00	E	0.024	No	0.00%
		EB	4	AM	7,453	0.93	E	8,094	1.01	F(0)	150	8,244	1.03	F(0)	0.019	No	0.00%
				PM	6,791	0.85	D	7,433	0.93	D	89	7,522	0.94	E	0.011	No	0.00%
I-105	w/o Wilmington Avenue	WB	3.5	AM	9,468	1.35	F(2)	10,236	1.46	F(3)	30	10,266	1.47	F(3)	0.004	No	0.00%
				PM	6,905	0.99	E	7,523	1.07	F(0)	108	7,631	1.09	F(0)	0.015	No	0.00%
		EB	4	AM	6,913	0.86	D	7,494	0.94	E	86	7,580	0.95	E	0.011	No	0.00%
				PM	6,775	0.85	D	7,382	0.92	D	51	7,433	0.93	D	0.006	No	0.00%
I-105	w/o Long Beach Boulevard	WB	3.5	AM	8,828	1.26	F(1)	9,558	1.37	F(2)	142	9,700	1.39	F(2)	0.020	**Yes**	**16.28%**
				PM	6,869	0.98	E	7,476	1.07	F(0)	83	7,559	1.08	F(0)	0.012	No	0.00%
		EB	3.5	AM	6,649	0.95	E	7,225	1.03	F(0)	49	7,274	1.04	F(0)	0.007	No	0.00%
				PM	7,060	1.01	F(0)	7,682	1.10	F(0)	182	7,864	1.12	F(0)	0.026	**Yes**	**22.64%**
I-105	w/o I-710 Freeway [2]	WB	4	AM	8,513	1.06	F(0)	9,244	1.16	F(0)	147	9,391	1.17	F(0)	0.018	No	0.00%
				PM	7,281	0.91	D	7,951	0.99	E	86	8,037	1.00	F(0)	0.011	No	0.00%
		EB	4	AM	7,028	0.88	D	7,654	0.96	E	49	7,703	0.96	E	0.006	No	0.00%
				PM	7,453	0.93	E	8,133	1.02	F(0)	182	8,315	1.04	F(0)	0.023	**Yes**	**21.11%**
I-105	e/o Bellflower Boulevard [2]	WB	4.5	AM	7,361	0.82	D	7,948	0.88	D	50	7,998	0.89	D	0.006	No	0.00%
				PM	6,665	0.74	C	7,220	0.80	D	30	7,250	0.81	D	0.003	No	0.00%
		EB	4.5	AM	6,076	0.68	C	6,575	0.73	C	17	6,592	0.73	C	0.002	No	0.00%
				PM	6,310	0.70	C	6,836	0.76	C	63	6,899	0.77	C	0.007	No	0.00%
SR-91	w/o Wilmington Avenue	WB	4.5	AM	11,236	1.25	F(0)	12,053	1.34	F(1)	3	12,056	1.34	F(1)	0.000	No	0.00%
				PM	6,421	0.71	C	6,888	0.77	C	14	6,902	0.77	C	0.002	No	0.00%
		EB	4.5	AM	6,293	0.70	C	6,749	0.75	C	11	6,760	0.75	C	0.001	No	0.00%
				PM	15,198	1.69	F(3)	16,301	1.81	F(3)	6	16,307	1.81	F(3)	0.001	No	0.00%
SR-91	e/o Alameda Street [2]	WB	4.5	AM	12,002	1.33	F(1)	12,869	1.43	F(2)	17	12,886	1.43	F(2)	0.002	No	0.00%
				PM	6,819	0.76	C	7,319	0.81	D	10	7,329	0.81	D	0.001	No	0.00%
		EB	5.5	AM	6,715	0.61	C	7,205	0.66	C	4	7,209	0.66	C	0.000	No	0.00%
				PM	16,161	1.47	F(3)	17,331	1.58	F(3)	21	17,352	1.58	F(3)	0.002	No	0.00%

[1] Traffic volumes obtained from 2008 Caltrans Traffic Volumes and were adjusted using growth rate factors from the 2004 Congestion Management Program (CMP) for Los Angeles County to obtain "existing" conditions.

[2] CMP monitoring location.

[3] Significant impacts based on Los Angeles County Congestion Management Program (CMP) significant impact criteria (V/C increase > or = 0.02 at LOS F).

[4] Fair-share percent calculation based on Caltrans methodology. [Tier II Project Net/(Future 2020 with Project-Existing)] = Fair-share percent

TABLE R4
FREEWAY OPERATING CONDITIONS - EXISTING (2010) CONDITIONS

Freeway Route	Segment	Direction	AM Peak Hour				PM Peak Hour			
			Demand [1]	Flow Rate (pc/h/ln)	Density [2] (pc/mi/ln)	LOS [3]	Demand [1]	Flow Rate (pc/h/ln)	Density [2] (pc/mi/ln)	LOS [3]
I-110	at Manchester Boulevard [4]	NB	10,497	2333	41.8	E	10,382	2307	40.6	E
		SB	10,899	2422	**	F	11,674	2594	**	F
I-110	n/o Rosecrans Avenue	NB	9,836	2186	36.1	E	8,578	1906	28.7	D
		SB	10,592	2354	42.7	E	10,106	2246	38.2	E
I-710	n/o Firestone Boulevard [4]	NB	7,794	2165	35.4	E	7,322	2034	31.7	D
		SB	6,718	1866	27.8	D	8,025	2229	37.6	E
I-710	n/o SR-91 Freeway	NB	7,071	1783	26.2	D	8,800	1956	29.8	D
		SB	9,736	2164	35.4	E	7,940	1764	25.9	C
I-105	e/o Crenshaw Boulevard [4]	WB	7,925	1761	25.8	C	6,533	1452	20.8	C
		EB	8,222	1827	27.1	D	8,668	1926	29.1	D
I-105	w/o Central Avenue	WB	10,062	2795	**	F	7,116	1977	30.3	D
		EB	7,453	2070	32.6	D	6,791	1886	28.3	D
I-105	w/o Wilmington Avenue	WB	9,468	2630	**	F	6,905	1918	28.9	D
		EB	6,913	1920	29.0	D	6,775	1882	28.2	D
I-105	w/o Long Beach Boulevard	WB	8,828	2452	**	F	6,869	1908	28.7	D
		EB	6,649	1847	27.4	D	7,060	1961	29.9	D
I-105	w/o I-710 Freeway [4]	WB	8,513	2365	43.3	E	7,281	2023	31.4	D
		EB	7,028	1952	29.7	D	7,453	2070	32.6	D
I-105	e/o Bellflower Boulevard [4]	WB	7,361	1636	23.6	C	6,665	1481	21.2	C
		EB	6,076	1350	19.3	C	6,310	1402	20.0	C
SR-91	w/o Wilmington Avenue	WB	11,236	2497	**	F	6,421	1427	20.4	C
		EB	6,293	1398	20.0	C	15,198	3337	**	F
SR-91	e/o Alameda Street [4]	WB	12,002	2667	**	F	6,819	1515	21.7	C
		EB	6,715	1244	17.8	B	16,161	2993	**	F

[1] Traffic volumes obtained from 2008 Caltrans Traffic Volumes and were adjusted using growth rate factors from the 2004 Congestion Management Program (CMP) for Los Angeles County to obtain "existing" conditions.

[2] ** Denotes oversaturated conditions. Density is greater than 45 pc/mi/ln and cannot be determined.

[3] Freeway mainline Levels of Service is based on the following scale:

Density (pc/mi/ln)	LOS
> 0.0 - 11.0	A
> 11.0 - 18.0	B
> 18.0 - 26.0	C
> 26.0 - 35.0	D
> 35.0 - 45.0	E
> 45.0	F

[4] CMP monitoring location.

TABLE R5
FREEWAY OPERATING CONDITIONS - FUTURE 2014 WITH PROJECT AM PEAK HOUR

			AM Peak Hour							
			Cumulative (2014) Base				Cumulative (2014) Plus Tier I Project			
Freeway Route	Segment	Direction	Demand	Flow Rate (pc/h/ln)	Density [1] (pc/mi/ln)	LOS [2]	Demand	Flow Rate (pc/h/ln)	Density [1] (pc/mi/ln)	LOS [2]
I-110	at Manchester Boulevard [3]	NB	10,917	2333	41.8	E	10,906	2424	**	F
		SB	11,328	2517	**	F	11,312	2514	**	F
I-110	n/o Rosecrans Avenue	NB	10,141	2254	38.5	E	10,137	2253	38.5	E
		SB	10,916	2426	**	F	10,914	2425	**	F
I-710	n/o Firestone Boulevard [3]	NB	8,155	2265	39.0	E	8,148	2263	38.9	E
		SB	7,040	1956	29.8	D	7,030	1953	29.7	D
I-710	n/o SR-91 Freeway	NB	7,298	1622	23.4	C	7,293	1621	23.4	C
		SB	10,037	2230	37.7	E	10,034	2230	37.7	E
I-105	e/o Crenshaw Boulevard [3]	WB	8,189	1820	26.9	D	8,178	1817	26.9	D
		EB	8,492	1887	28.3	D	8,476	1884	28.2	D
I-105	w/o Central Avenue	WB	10,433	2898	**	F	10,411	2892	**	F
		EB	7,744	2151	35.0	E	7,712	2142	34.7	D
I-105	w/o Wilmington Avenue	WB	9,798	2722	**	F	9,786	2718	**	F
		EB	7,167	1991	30.6	D	7,148	1986	30.5	D
I-105	w/o Long Beach Boulevard	WB	9,162	2545	**	F	9,134	2537	**	F
		EB	6,922	1923	29.0	D	6,901	1917	28.9	D
I-105	w/o I-710 Freeway [3]	WB	8,852	2459	**	F	8,823	2451	**	F
		EB	7,325	2035	31.7	D	7,304	2029	31.6	D
I-105	e/o Bellflower Boulevard [3]	WB	7,616	1692	24.6	C	7,604	1690	24.5	C
		EB	6,297	1399	20.0	C	6,289	1398	20.0	C
SR-91	w/o Wilmington Avenue	WB	11,568	2571	**	F	11,566	2570	**	F
		EB	6,477	1439	20.6	C	6,475	1439	20.6	C
SR-91	e/o Alameda Street [3]	WB	12,351	2745	**	F	12,347	2744	**	F
		EB	6,915	1281	18.3	C	6,913	1280	18.3	C

[1] ** Denotes oversaturated conditions. Density is greater than 45 pc/mi/ln and cannot be determined.

[2] Freeway mainline Levels of Service is based on the following scale:

Density (pc/mi/ln)	LOS
> 0.0 - 11.0	A
> 11.0 - 18.0	B
> 18.0 - 26.0	C
> 26.0 - 35.0	D
> 35.0 - 45.0	E
> 45.0	F

[3] CMP monitoring location.

TABLE R5 (continued)
FREEWAY OPERATING CONDITIONS - FUTURE 2014 WITH PROJECT PM PEAK HOUR

			PM Peak Hour							
			Cumulative (2014) Base				Cumulative (2014) Plus Tier I Project			
Freeway Route	Segment	Direction	Demand	Flow Rate (pc/h/ln)	Density [1] (pc/mi/ln)	LOS [2]	Demand	Flow Rate (pc/h/ln)	Density [1] (pc/mi/ln)	LOS [2]
I-110	at Manchester Boulevard [3]	NB	10,804	2401	**	F	10,788	2397	44.8	E
		SB	12,157	2702	**	F	12,147	2699	**	F
I-110	n/o Rosecrans Avenue	NB	8,850	1967	30.0	D	8,846	1966	30.0	D
		SB	10,416	2315	41.0	E	10,412	2314	40.9	E
I-710	n/o Firestone Boulevard [3]	NB	7,674	2132	34.4	D	7,664	2129	34.3	D
		SB	8,412	2337	42.0	E	8,405	2335	41.9	E
I-710	n/o SR-91 Freeway	NB	9,077	2017	31.3	D	9,074	2016	31.2	D
		SB	8,193	1821	26.9	D	8,188	1820	26.9	D
I-105	e/o Crenshaw Boulevard [3]	WB	6,763	1503	21.5	C	6,747	1499	21.5	C
		EB	8,964	1992	30.6	D	8,952	1989	30.6	D
I-105	w/o Central Avenue	WB	7,414	2059	32.3	D	7,382	2051	32.1	D
		EB	7,092	1970	30.1	D	7,069	1964	30.0	D
I-105	w/o Wilmington Avenue	WB	7,175	1993	30.7	D	7,156	1988	30.5	D
		EB	7,041	1956	29.8	D	7,028	1952	29.7	D
I-105	w/o Long Beach Boulevard	WB	7,155	1988	30.5	D	7,134	1982	30.4	D
		EB	7,352	2042	31.9	D	7,321	2034	31.7	D
I-105	w/o I-710 Freeway [3]	WB	7,597	2110	33.8	D	7,575	2104	33.6	D
		EB	7,768	2158	35.2	E	7,737	2149	34.9	D
I-105	e/o Bellflower Boulevard [3]	WB	6,908	1535	22.0	C	6,900	1533	22.0	C
		EB	6,538	1453	20.8	C	6,526	1450	20.7	C
SR-91	w/o Wilmington Avenue	WB	6,611	1469	21.0	C	6,609	1469	21.0	C
		EB	15,645	3477	**	F	15,643	3476	**	F
SR-91	e/o Alameda Street [3]	WB	7,024	1561	22.4	C	7,021	1560	22.4	C
		EB	16,632	3080	**	F	16,628	3079	**	F

[1] ** Denotes oversaturated conditions. Density is greater than 45 pc/mi/ln and cannot be determined.

[2] Freeway mainline Levels of Service is based on the following scale:

Density (pc/mi/ln)	LOS
> 0.0 - 11.0	A
> 11.0 - 18.0	B
> 18.0 - 26.0	C
> 26.0 - 35.0	D
> 35.0 - 45.0	E
> 45.0	F

[3] CMP monitoring location.

TABLE R6
FREEWAY OPERATING CONDITIONS - FUTURE 2020 WITH PROJECT AM PEAK HOUR

			AM Peak Hour							
			Cumulative (2020) Base				Cumulative (2020) Plus Tier I and II Project			
Freeway Route	**Segment**	**Direction**	**Demand**	**Flow Rate (pc/h/ln)**	**Density [1] (pc/mi/ln)**	**LOS [2]**	**Demand**	**Flow Rate (pc/h/ln)**	**Density [1] (pc/mi/ln)**	**LOS [2]**
I-110	at Manchester Boulevard [3]	NB	11,517	2559	**	F	11,542	2565	**	F
		SB	11,943	2654	**	F	12,017	2670	**	F
I-110	n/o Rosecrans Avenue	NB	10,575	2350	42.5	E	10,596	2355	42.8	E
		SB	11,383	2530	**	F	11,391	2531	**	F
I-710	n/o Firestone Boulevard [3]	NB	8,695	2415	**	F	8,711	2420	**	F
		SB	7,532	2092	33.3	D	7,578	2105	33.6	D
I-710	n/o SR-91 Freeway	NB	7,614	2326	41.5	E	7,636	1697	24.7	C
		SB	10,468	1692	24.6	C	10,475	2328	41.6	E
I-105	e/o Crenshaw Boulevard [3]	WB	8,551	1900	28.5	D	8,576	1906	28.7	D
		EB	8,866	1970	30.1	D	8,940	1987	30.5	D
I-105	w/o Central Avenue	WB	10,896	3021	**	F	10,947	3041	**	F
		EB	8,094	2248	38.3	E	8,244	2290	39.9	E
I-105	w/o Wilmington Avenue	WB	10,236	2843	**	F	10,266	2852	**	F
		EB	7,494	2082	33.0	D	7,580	2106	33.7	D
I-105	w/o Long Beach Boulevard	WB	9,558	2655	**	F	9,700	2694	**	F
		EB	7,225	2015	31.2	D	7,274	2021	31.4	D
I-105	w/o I-710 Freeway [3]	WB	9,244	2568	**	F	9,391	2609	**	F
		EB	7,654	2126	34.2	D	7,703	2140	34.7	D
I-105	e/o Bellflower Boulevard [3]	WB	7,948	1766	25.9	C	7,998	1777	26.1	D
		EB	6,575	1461	20.9	C	6,592	1465	21.0	C
SR-91	w/o Wilmington Avenue	WB	12,053	2678	**	F	12,056	2679	**	F
		EB	6,749	1500	21.5	C	6,760	1502	21.5	C
SR-91	e/o Alameda Street [3]	WB	12,869	2860	**	F	12,886	2864	**	F
		EB	7,205	1334	19.1	C	7,209	1335	19.1	C

[1] ** Denotes oversaturated conditions. Density is greater than 45 pc/mi/ln and cannot be determined.

[2] Freeway mainline Levels of Service is based on the following scale:

Density (pc/mi/ln)	LOS
> 0.0 - 11.0	A
> 11.0 - 18.0	B
> 18.0 - 26.0	C
> 26.0 - 35.0	D
> 35.0 - 45.0	E
> 45.0	F

[3] CMP monitoring location.

TABLE R6 (continued)
FREEWAY OPERATING CONDITIONS - FUTURE 2020 WITH PROJECT PM PEAK HOUR

			PM Peak Hour							
			Cumulative (2020) Base				Cumulative (2020) Plus Tier I and II Project			
Freeway Route	Segment	Direction	Demand	Flow Rate (pc/h/ln)	Density [1] (pc/mi/ln)	LOS [2]	Demand	Flow Rate (pc/h/ln)	Density [1] (pc/mi/ln)	LOS [2]
I-110	at Manchester Boulevard [3]	NB	11,512	2558	**	F	11,604	2579	**	F
		SB	12,910	2869	**	F	12,956	2879	**	F
I-110	n/o Rosecrans Avenue	NB	9,234	2052	32.2	D	9,245	2054	32.2	D
		SB	10,870	2416	**	F	10,896	2421	**	F
I-710	n/o Firestone Boulevard [3]	NB	8,354	2321	41.2	E	8,413	2337	42.0	E
		SB	9,105	2529	**	F	9,133	2537	**	F
I-710	n/o SR-91 Freeway	NB	9,473	2105	33.6	D	9,486	2108	33.7	D
		SB	8,554	1901	28.6	D	8,582	1907	28.7	D
I-105	e/o Crenshaw Boulevard [3]	WB	7,079	1573	22.6	C	7,173	1594	22.9	C
		EB	9,372	2083	33.0	D	9,415	2092	33.3	D
I-105	w/o Central Avenue	WB	7,771	2159	35.3	E	7,961	2211	37.0	E
		EB	7,433	2065	32.5	D	7,522	2089	33.2	D
I-105	w/o Wilmington Avenue	WB	7,523	2090	33.2	D	7,631	2120	34.1	D
		EB	7,382	2051	32.1	D	7,433	1652	23.9	C
I-105	w/o Long Beach Boulevard	WB	7,476	2077	32.8	D	7,559	1680	24.4	C
		EB	7,682	2134	34.5	D	7,864	2184	36.1	E
I-105	w/o I-710 Freeway [3]	WB	7,951	2209	36.9	E	8,037	2233	37.8	E
		EB	8,133	2259	38.7	E	8,315	2310	40.8	E
I-105	e/o Bellflower Boulevard [3]	WB	7,220	1604	23.1	C	7,250	1611	23.2	C
		EB	6,836	1519	21.8	C	6,899	1533	22.0	C
SR-91	w/o Wilmington Avenue	WB	6,888	2678	**	F	6,902	1534	22.0	C
		EB	16,301	1500	21.5	C	16,307	3624	**	F
SR-91	e/o Alameda Street [3]	WB	7,319	2860	**	F	7,329	1629	23.5	C
		EB	17,331	1334	19.1	C	17,352	3213	**	F

[1] ** Denotes oversaturated conditions. Density is greater than 45 pc/mi/ln and cannot be determined.

[2] Freeway mainline Levels of Service is based on the following scale:

Density (pc/mi/ln)	LOS
> 0.0 - 11.0	A
> 11.0 - 18.0	B
> 18.0 - 26.0	C
> 26.0 - 35.0	D
> 35.0 - 45.0	E
> 45.0	F

[3] CMP monitoring location.

TABLE R7
FUTURE CONDITIONS (YEAR 2014)
ON-RAMPS EVALUATION

INT #	STREET NAME	CROSS STREET	LANE CONFIG	EXISTING (2010) CONDITIONS			CUMULATIVE (2014) BASE			CUMULATIVE (2014) PLUS TIER I PROJECT		
				ON-RAMP VOLUME (VPH)		EXCEEDS CAPACITY	ON-RAMP VOLUME (VPH)		EXCEEDS CAPACITY	ON-RAMP VOLUME (VPH)		EXCEEDS CAPACITY
				A.M.	P.M.		A.M.	P.M.		A.M.	P.M.	
1.	I-110 SOUTHBOUND RAMPS	EL SEGUNDO BOULEVARD	2 LANES	797	761	NO	831	792	NO	829	790	NO
2.	I-110 NORTHBOUND RAMPS	EL SEGUNDO BOULEVARD	2 LANES	350	720	NO	366	744	NO	366	742	NO
16.	CENTRAL AVENUE	I-105 WESTBOUND RAMPS	2 LANES 1 HOV LANE	1,108	965	NO	1,168	1,018	NO	1,158	1,005	NO
17.	CENTRAL AVENUE	I-105 EASTBOUND RAMPS	2 LANES 1 HOV LANE	814	1,006	NO	840	1,038	NO	840	1,038	NO
34.	WILMINGTON AVENUE	I-105 EASTBOUND RAMPS	1 LANE 1 HOV LANE	737	692	NO	831	789	NO	810	758	NO
44.	WILMINGTON AVENUE	ARTESIA BOULEVARD (SR-90 WESTBOUND RAMPS)	1 LANE	593	471	NO	618	490	NO	616	488	NO
45.	WILMINGTON AVENUE	ARTESIA BOULEVARD (SR-90 EASTBOUND RAMPS)	2 LANES 1 HOV LANE	737	859	NO	765	890	NO	763	886	NO
49.	I-105 WESTBOUND RAMPS	IMPERIAL HIGHWAY	2 LANES 1 HOV LANE	1,347	843	NO	1,440	937	NO	1,428	918	NO
59.	LONG BEACH BOULEVARD	I-105 WESTBOUND RAMPS (NB APPROACH)	1 LANE 1 HOV LANE	494	347	NO	508	357	NO	508	357	NO
59.	LONG BEACH BOULEVARD	I-105 WESTBOUND RAMPS (SB APPROACH)	1 LANE 1 HOV LANE	666	645	NO	690	669	NO	690	669	NO
60.	LONG BEACH BOULEVARD	I-105 EASTBOUND RAMPS (SB APPROACH)	1 LANE 1 HOV LANE	885	677	NO	918	705	NO	918	705	NO
60.	LONG BEACH BOULEVARD	I-105 EASTBOUND RAMPS (NB APPROACH)	1 LANE 1 HOV LANE	510	449	NO	537	473	NO	537	473	NO

Notes:
VPH: Vehicles Per Hour.
HOV: High Occupancy Vehicle
Capacity of metered ramps are assumed to be 900 VPH per lane.
All metered ramps are assumed to be in operation in all directions.

TABLE R8
FUTURE CONDITIONS (YEAR 2020)
ON-RAMPS EVALUATION

INT #	STREET NAME	CROSS STREET	LANE CONFIG	EXISTING (2010) CONDITIONS			CUMULATIVE (2020) BASE			CUMULATIVE (2020) PLUS TIER I AND II PROJECT		
				ON-RAMP VOLUME (VPH)		EXCEEDS CAPACITY	ON-RAMP VOLUME (VPH)		EXCEEDS CAPACITY	ON-RAMP VOLUME (VPH)		EXCEEDS CAPACITY
				A.M.	P.M.		A.M.	P.M.		A.M.	P.M.	
1.	I-110 SOUTHBOUND RAMPS	EL SEGUNDO BOULEVARD	2 LANES	797	761	NO	865	824	NO	869	840	NO
2.	I-110 NORTHBOUND RAMPS	EL SEGUNDO BOULEVARD	2 LANES	350	720	NO	381	775	NO	384	781	NO
16.	CENTRAL AVENUE	I-105 WESTBOUND RAMPS	2 LANES 1 HOV LANE	1,108	965	NO	1,216	1,059	NO	1,237	1,141	NO
17.	CENTRAL AVENUE	I-105 EASTBOUND RAMPS	2 LANES 1 HOV LANE	814	1,006	NO	874	1,082	NO	874	1,082	NO
34.	WILMINGTON AVENUE	I-105 EASTBOUND RAMPS	1 LANE 1 HOV LANE	737	692	NO	878	844	NO	927	1,026	NO
44.	WILMINGTON AVENUE	ARTESIA BOULEVARD (SR-90 WESTBOUND RAMPS)	1 LANE	593	471	NO	644	510	NO	647	524	NO
45.	WILMINGTON AVENUE	ARTESIA BOULEVARD (SR-90 EASTBOUND RAMPS)	2 LANES 1 HOV LANE	737	859	NO	797	927	NO	801	948	NO
49.	I-105 WESTBOUND RAMPS	IMPERIAL HIGHWAY	2 LANES 1 HOV LANE	1,347	843	NO	1,527	1,024	NO	1,557	1,132	NO
59.	LONG BEACH BOULEVARD	I-105 WESTBOUND RAMPS (NB APPROACH)	1 LANE 1 HOV LANE	494	347	NO	530	372	NO	530	372	NO
59.	LONG BEACH BOULEVARD	I-105 WESTBOUND RAMPS (SB APPROACH)	1 LANE 1 HOV LANE	885	677	NO	967	753	NO	967	753	NO
60.	LONG BEACH BOULEVARD	I-105 EASTBOUND RAMPS (SB APPROACH)	1 LANE 1 HOV LANE	666	645	NO	719	696	NO	719	696	NO
60.	LONG BEACH BOULEVARD	I-105 EASTBOUND RAMPS (NB APPROACH)	1 LANE 1 HOV LANE	510	449	NO	559	492	NO	559	492	NO

Notes:
VPH: Vehicles Per Hour.
HOV: High Occupancy Vehicle
Capacity of metered ramps are assumed to be 900 VPH per lane.
All metered ramps are assumed to be in operation in all directions.

TABLE R9
FUTURE CONDITIONS (YEAR 2014)
OFF-RAMPS EVALUATION

INT #	STREET NAME	CROSS STREET	MOVEMENT	STORAGE LENGTH (FEET)	EXISTING (2010) CONDITIONS					CUMULATIVE (2014) BASE					CUMULATIVE (2014) PLUS PROJECT TIER 1				
					OFF-RAMP VOLUME (VPH)		85% QUEUE LENGTH (FEET)		EXCEEDS STORAGE LENGTH	OFF-RAMP VOLUME (VPH)		85% QUEUE LENGTH (FEET)		EXCEEDS STORAGE LENGTH	OFF-RAMP VOLUME (VPH)		85% QUEUE LENGTH (FEET)		EXCEEDS STORAGE LENGTH
					A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	
1.	I-110 SOUTHBOUND RAMPS	EL SEGUNDO BOULEVARD	SBL	450	1,221	717	306	227	NO	1,266	747	327	242	NO	1,264	746	327	242	NO
			SBLR	460			350	228				374	243				373	243	
			SBR	469			384	230				412	243				408	243	
			OFF-RAMP	918															
2.	I-110 NORTHBOUND RAMPS	EL SEGUNDO BOULEVARD	NBL	498	1,065	734	490	365	LANE	1,106	768	523	383	LANE	1,104	766	523	380	LANE
			NBLR	514			803	770				893	858				885	850	
			OFF-RAMP	1,429															
16.	CENTRAL AVENUE	I-105 WESTBOUND RAMPS	WBL	586	514	754	125	191	LANE	533	779	133	202	LANE	533	779	133	200	LANE
			WBTRL	583			365	219				388	231				385	230	
			WBR	343			288	238				303	250				300	250	
			OFF-RAMP	1,062															
17.	CENTRAL AVENUE	I-105 EASTBOUND RAMPS	EBL	219	1,354	1,022	355	263	LANE	1,416	1,088	380	278	LANE	1,403	1,078	380	278	LANE
			EBTRL	744			623	543				678	595				668	585	
			EBR	744			295	205				315	228				308	223	
			OFF-RAMP	1,358															
34.	WILMINGTON AVENUE	I-105 EASTBOUND RAMPS	EBL	1,044	1,001	574	375	418	NO	1,076	650	413	475	NO	1,057	637	403	460	NO
			EBR	1,049			568	213				720	310				663	285	
			OFF-RAMP	1,516															
44.	WILMINGTON AVENUE	ARTESIA BOULEVARD (SR-90 WESTBOUND RAMPS)	WBTL	432	1,322	939	425	320	NO	1,363	975	448	330	LANE	1,359	972	445	333	LANE
			WBTR	430			425	320				448	330				445	333	
			WBR	429			425	380				448	408				445	405	
			OFF-RAMP	1,006															
45.	WILMINGTON AVENUE	ARTESIA BOULEVARD (SR-90 EASTBOUND RAMPS)	EBL	734	841	1,067	155	255	NO	867	1,107	163	273	NO	865	1,105	163	270	NO
			EBTL	734			155	390				163	408				163	408	
			EBTR	733			498	390				525	408				525	408	
			OFF-RAMP	1,544															
49.	I-105 WESTBOUND RAMPS	IMPERIAL HIGHWAY	NBL	555	707	807	330	335	N0	798	910	383	388	NO	770	889	368	378	NO
			NBTL	409			330	335				383	388				368	378	
			NBR	383			155	240				158	248				158	248	
			OFF-RAMP	1,013															
59.	LONG BEACH BOULEVARD	I-105 WESTBOUND RAMPS	WBL	1,185	845	1,404	138	333	LANE	888	1,468	150	358	LANE	887	1,467	150	358	LANE
			WBTL	1,200			270	390				283	413				283	410	
			WBR	141			270	390				283	413				283	410	
			OFF-RAMP	1,644															
60.	LONG BEACH BOULEVARD	I-105 EASTBOUND RAMPS	EBL	1,035	1,016	733	283	213	LANE	1,053	763	300	225	LANE	1,053	763	300	225	LANE
			EBTL	1,061			283	213				300	225				300	225	
			EBR	121			335	255				355	268				355	268	
			OFF-RAMP	1,488															

Notes:
VPH: Vehicles Per Hour.
LANE: Storage capacity exceeded in turn pocket only.
YES: Storage capacity exceeded in entire ramp, resulting in back-up into the mainline.

TABLE R10
FUTURE CONDITIONS (YEAR 2020)
OFF-RAMPS EVALUATION

INT #	STREET NAME	CROSS STREET	MOVEMENT	STORAGE LENGTH (FEET)	EXISTING (2010) CONDITIONS					CUMULATIVE (2020) BASE					CUMULATIVE (2020) PLUS TIER I AND II PROJECT					CUMULATIVE (2020) PLUS TIER I AND II PROJECT W/MITIGATION				
					OFF-RAMP VOLUME (VPH)		85% QUEUE LENGTH (FEET)		EXCEEDS STORAGE LENGTH	OFF-RAMP VOLUME (VPH)		85% QUEUE LENGTH (FEET)		EXCEEDS STORAGE LENGTH	OFF-RAMP VOLUME (VPH)		85% QUEUE LENGTH (FEET)		EXCEEDS STORAGE LENGTH	OFF-RAMP VOLUME (VPH)		85% QUEUE LENGTH (FEET)		EXCEEDS STORAGE LENGTH
					A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	
1.	I-110 SOUTHBOUND RAMPS	EL SEGUNDO BOULEVARD	SBL	450	1,221	717	306	227	NO	1,319	778	350	257	NO	1,325	782	357	262	NO	1,325	782	357	262	NO
			SBLR	460			350	228				403	258				408	261				408	261	
			SBR	469			384	230				443	258				447	260				447	260	
			OFF-RAMP	918																				
2.	I-110 NORTHBOUND RAMPS	EL SEGUNDO BOULEVARD	NBL	498	1,065	734	490	365	LANE	1,152	800	560	405	LANE	1,165	807	565	405	LANE	1,165	807	565	405	LANE
			NBLR	514			803	770				983	948				1,023	970				1,023	970	
			OFF-RAMP	1,429																				
16.	CENTRAL AVENUE	I-105 WESTBOUND RAMPS	WBL	586	514	754	125	191	LANE	555	812	138	213	LANE	555	812	138	216	LANE	555	812	138	216	LANE
			WBTRL	583			365	219				413	244				415	251				415	251	
			WBR	343			288	238				320	266				320	275				320	275	
			OFF-RAMP	1,062																				
17.	CENTRAL AVENUE	I-105 EASTBOUND RAMPS	EBL	219	1,354	1,022	355	263	LANE	1,474	1,133	403	293	LANE	1,538	1,171	408	300	LANE	1,538	1,171	408	300	LANE
			EBTRL	744			623	543				733	638				788	683				788	683	
			EBR	744			295	205				333	240				365	263				365	263	
			OFF-RAMP	1,358																				
34.	WILMINGTON AVENUE	I-105 EASTBOUND RAMPS	EBL	1,044	1,001	574	375	418	NO	1,147	722	480	575	NO	1,233	773	503	695	LANE	1,233	773	243	242	NO
			EBR	1,049			568	213				783	305				1,128	433				354	230	
			OFF-RAMP	1,516																		314[1]	236[1]	
44.	WILMINGTON AVENUE	ARTESIA BOULEVARD (SR-90 WESTBOUND RAMPS)	WBTL	432	1,322	939	425	320	NO	1,420	1,015	475	350	LANE	1,437	1,025	483	350	LANE	1,437	1,025	483	350	LANE
			WBTR	430			425	320				475	350				483	350				483	350	
			WBR	429			425	380				475	433				483	448				483	448	
			OFF-RAMP	1,006																				
45.	WILMINGTON AVENUE	ARTESIA BOULEVARD (SR-90 EASTBOUND RAMPS)	EBL	734	841	1,067	155	255	NO	905	1,153	170	288	NO	916	1,159	178	295	NO	916	1,159	178	295	NO
			EBTL	734			155	390				170	433				178	435				178	435	
			EBTR	733			498	390				563	433				565	435				565	435	
			OFF-RAMP	1,544																				
49.	I-105 WESTBOUND RAMPS	IMPERIAL HIGHWAY	NBL	555	707	807	330	335	N0	843	969	405	408	LANE	985	1,052	478	455	LANE	985	1,052	335	298	NO
			NBTL	409			350	343				405	408				478	455				343	305	
			NBR	383			155	240				185	295				188	295				218	330	
			OFF-RAMP	1,013																				
59.	LONG BEACH BOULEVARD	I-105 WESTBOUND RAMPS	WBL	1,185	845	1,404	138	333	LANE	935	1,544	158	380	LANE	940	1,547	158	378	LANE	940	1,547	158	378	LANE
			WBTL	1,200			270	390				305	450				305	453				305	453	
			WBR	141			270	390				305	450				305	453				305	453	
			OFF-RAMP	1,644																				
60.	LONG BEACH BOULEVARD	I-105 EASTBOUND RAMPS	EBL	1,035	1,016	733	283	213	LANE	1,096	796	315	238	LANE	1,096	796	315	238	LANE	1,096	796	315	238	LANE
			EBTL	1,061			283	213				315	238				315	238				315	238	
			EBR	121			335	255				375	283				375	283				375	283	
			OFF-RAMP	1,488																				

Notes:
VPH: Vehicles Per Hour.
LANE: Storage capacity exceeded in turn pocket only.
YES: Storage Capacity exceeded in entire ramp, resulting in back-up into the mainline.

TABLE R11
CALTRANS INTERSECTIONS
INTERSECTION PEAK HOUR LEVELS OF SERVICE (YEAR 2014)

No.	Intersection	Peak Hour	Existing (2010) Conditions		Cumulative (2014) Base		Cumulative (2014) Plus Tier I Project	
			Delay	LOS	Delay	LOS	Delay	LOS
1.	I-110 Southbound Ramps & El Segundo Boulevard	A.M. P.M.	23.0 17.6	C B	23.8 18.1	C B	23.8 18.1	C B
2.	I-110 Northbound Ramps & El Segundo Boulevard	A.M. P.M.	25.9 29.7	C C	27.2 32.5	C C	27.1 32.3	C C
16.	Central Avenue & I-105 Westbound Ramps	A.M. P.M.	17.2 20.0	B B	17.8 20.5	B C	17.7 20.3	B C
17.	Central Avenue & I-105 Eastbound Ramps	A.M. P.M.	25.3 25.1	C C	25.9 25.7	C C	25.8 25.6	C C
34.	Wilmington Avenue & I-105 Eastbound Ramps	A.M. P.M.	26.8 21.8	C C	29.9 22.6	C C	28.7 22.3	C C
44.	Wilmington Avenue & Artesia Boulevard/SR-90 Westbound Ramps	A.M. P.M.	23.7 24.3	C C	24.1 24.7	C C	24.1 24.6	C C
45.	Wilmington Avenue & Artesia Boulevard/SR-90 Eastbound Ramps	A.M. P.M.	24.9 21.6	C C	25.3 21.9	C C	25.3 21.9	C C
49.	I-105 Westbound Ramps & Imperial Highway	A.M. P.M.	26.7 24.8	C C	27.6 25.6	C C	27.4 25.5	C C
59.	Long Beach Boulevard & I-105 Westbound Ramps	A.M. P.M.	15.4 18.4	B B	15.6 18.7	B B	15.6 18.7	B B
60.	Long Beach Boulevard & I-105 Eastbound Ramps	A.M. P.M.	15.9 13.3	B B	16.0 13.4	B B	16.0 13.4	B B

TABLE R12
CALTRANS INTERSECTIONS
INTERSECTION PEAK HOUR LEVELS OF SERVICE (YEAR 2020)

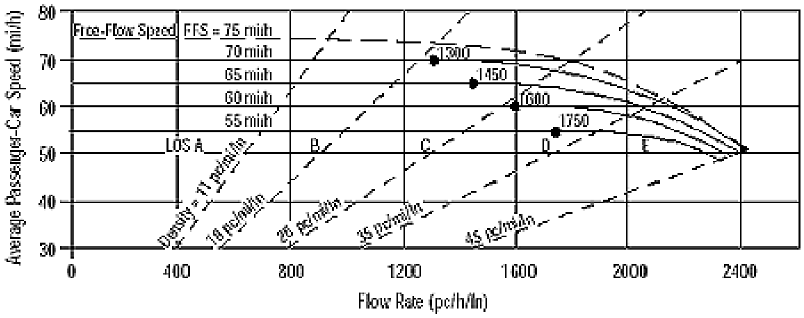
No.	Intersection	Peak Hour	Existing (2010) Conditions		Cumulative (2020) Base		Cumulative (2020) Plus Tier I and II Project		Cumulative (2020) Plus Tier I and II Project W/Mitigation	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	I-110 Southbound Ramps & El Segundo Boulevard	A.M.	23.0	C	24.8	C	24.9	C	24.9	C
		P.M.	17.6	B	18.4	B	19.0	B	19.0	B
2.	I-110 Northbound Ramps & El Segundo Boulevard	A.M.	25.9	C	28.6	C	29.2	C	29.2	C
		P.M.	29.7	C	36.1	D	37.2	D	37.2	D
16.	Central Avenue & I-105 Westbound Ramps	A.M.	17.2	B	18.4	B	18.6	B	18.6	B
		P.M.	20.0	B	21.0	C	21.9	C	21.9	C
17.	Central Avenue & I-105 Eastbound Ramps	A.M.	25.3	C	26.5	C	27.0	C	27.0	C
		P.M.	25.1	C	26.2	C	26.6	C	26.6	C
34.	Wilmington Avenue & I-105 Eastbound Ramps	A.M.	26.8	C	31.5	C	45.8	D	24.3	C
		P.M.	21.8	C	24.4	C	29.4	C	19.9	B
44.	Wilmington Avenue & Artesia Boulevard/SR-90 Westbound Ramps	A.M.	23.7	C	24.6	C	24.6	C	24.6	C
		P.M.	24.3	C	25.1	C	25.4	C	25.4	C
45.	Wilmington Avenue & Artesia Boulevard/SR-90 Eastbound Ramps	A.M.	24.9	C	26.0	C	25.9	C	25.9	C
		P.M.	21.6	C	22.3	C	22.6	C	22.6	C
49.	I-105 Westbound Ramps & Imperial Highway	A.M.	26.7	C	28.1	C	29.3	C	27.3	C
		P.M.	24.8	C	26.1	C	26.9	C	25.5	C
59.	Long Beach Boulevard & I-105 Westbound Ramps	A.M.	15.4	B	15.8	B	15.9	B	15.9	B
		P.M.	18.4	B	19.2	B	19.2	B	19.2	B
60.	Long Beach Boulevard & I-105 Eastbound Ramps	A.M.	15.9	B	16.3	B	16.3	B	16.3	B
		P.M.	13.3	B	13.6	B	13.6	B	13.6	B

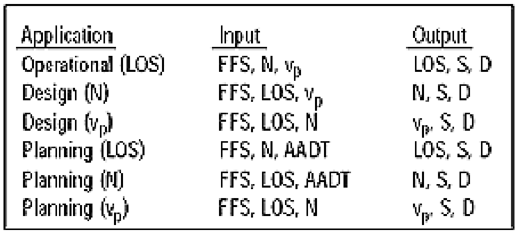
FREEWAY SEGMENT ANALYSIS

HCS WORKSHEETS

EXISTING CONDITIONS

BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*		
Agency or Company	*Raju Associates*		
Date Performed	*6/29/2010*		
Analysis Time Period	*AM*		

Site Information

Highway/Direction of Travel	*I-110 Northbound*
From/To	*at Manchester Bl*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10497*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2333*	pc/h/ln
S	*55.8*	mi/h
D = v_p / S	*41.8*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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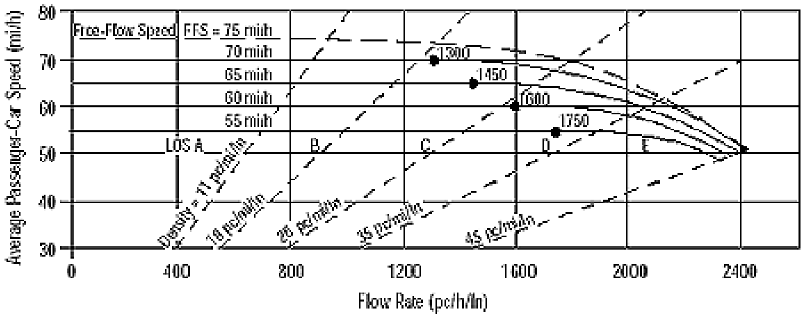
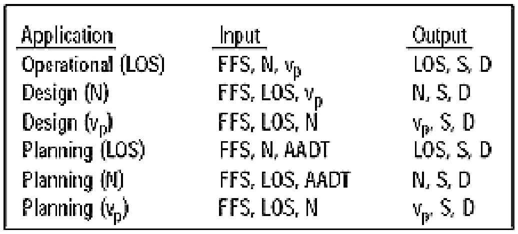
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Northbound*
From/To	*at Manchester Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10382*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2307*	pc/h/ln
S	*56.8*	mi/h
D = v_p / S	*40.6*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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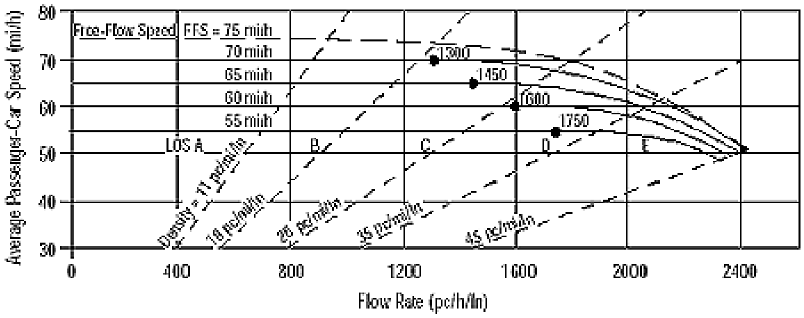
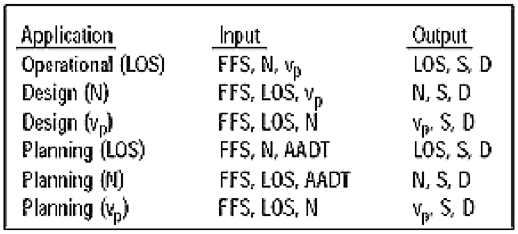
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*at Manchester Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10899*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2422*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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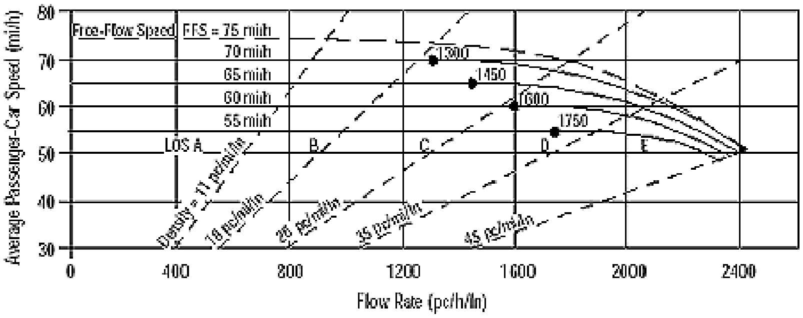
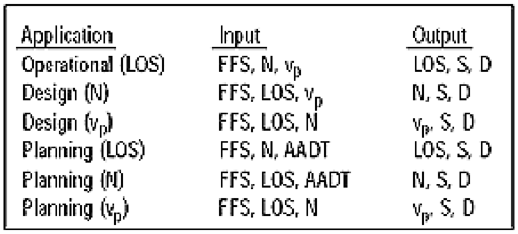
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-110 Southbound*
Agency or Company	*Raju Associates*	From/To	*at Manchester Bl*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11674*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2594*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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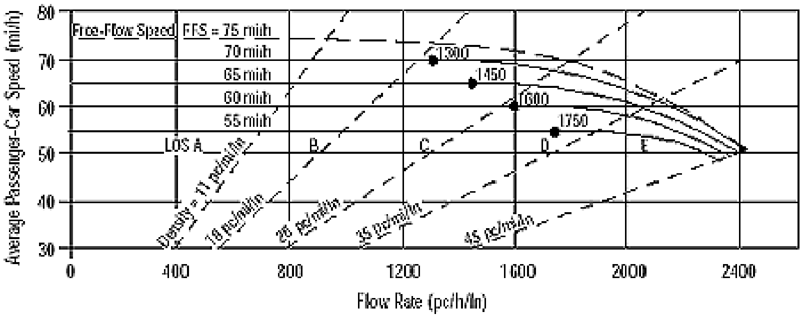
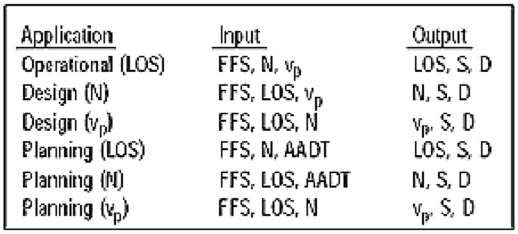
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of Rosecrans Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9836*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2186*	pc/h/ln
S	*60.5*	mi/h
D = v_p / S	*36.1*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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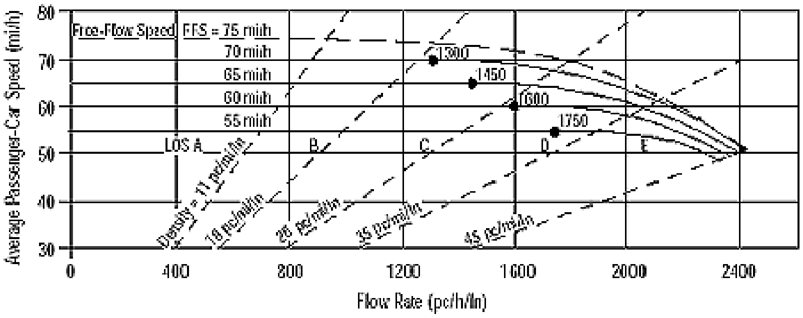
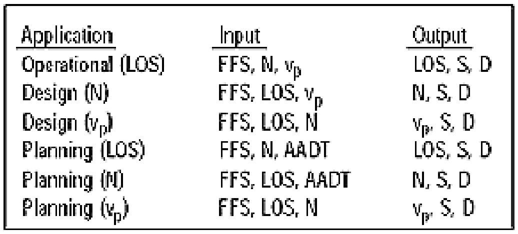
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Northbound*
From/To	*North of Rosecrans Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8578*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1906*	pc/h/ln
S	*66.5*	mi/h
D = v_p / S	*28.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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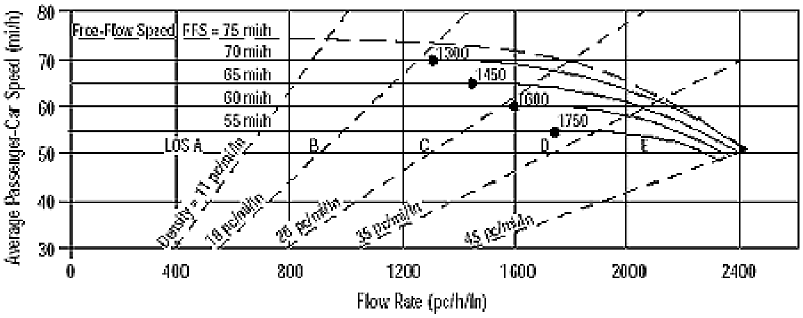
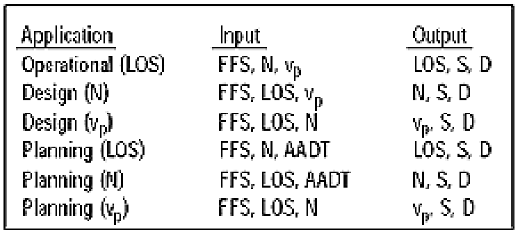
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*North of Rosecrans Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10592*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2354*	pc/h/ln
S	*55.1*	mi/h
D = v_p / S	*42.7*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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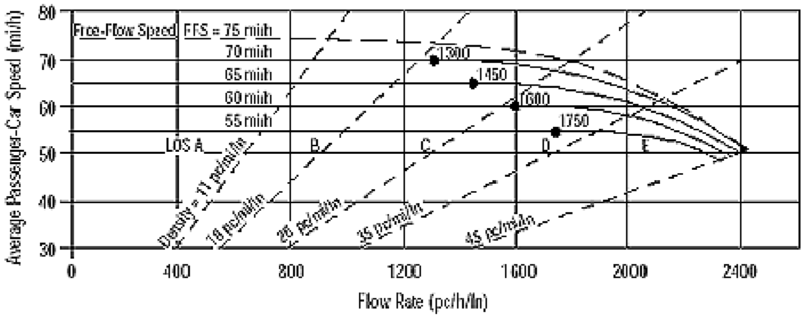
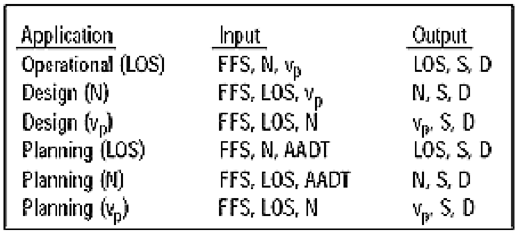
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*North of Rosecrans Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10106*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2246*	pc/h/ln
S	*58.7*	mi/h
D = v_p / S	*38.2*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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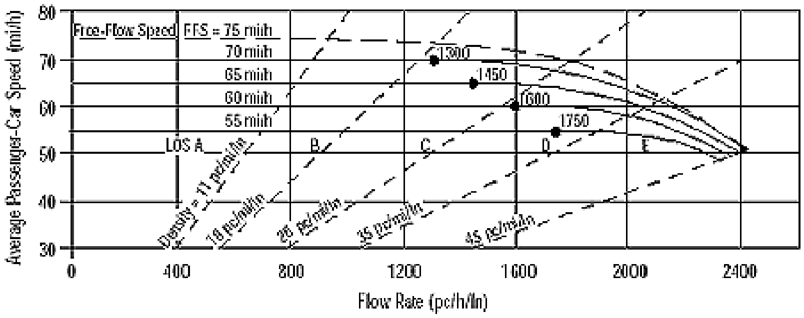
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of Firestone Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7794*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2165*	pc/h/ln
S	*61.1*	mi/h
D = v_p / S	*35.4*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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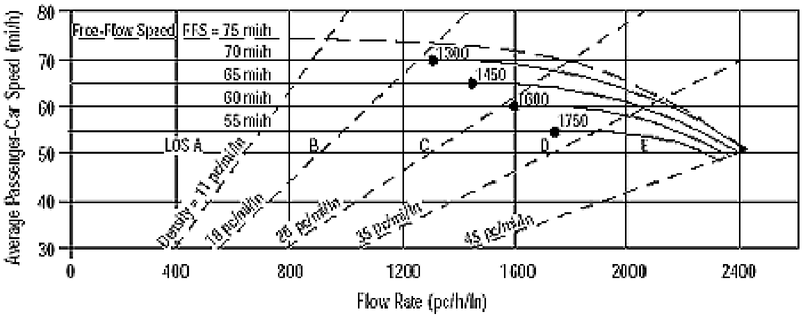
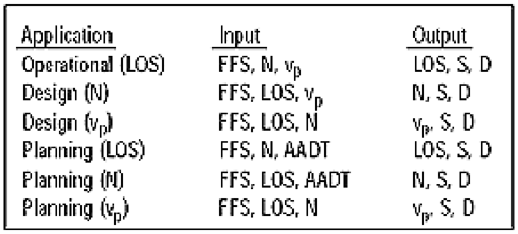
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-710 Northbound*
From/To	*North of Firestone Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7322*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2034*	pc/h/ln
S	*64.2*	mi/h
D = v_p / S	*31.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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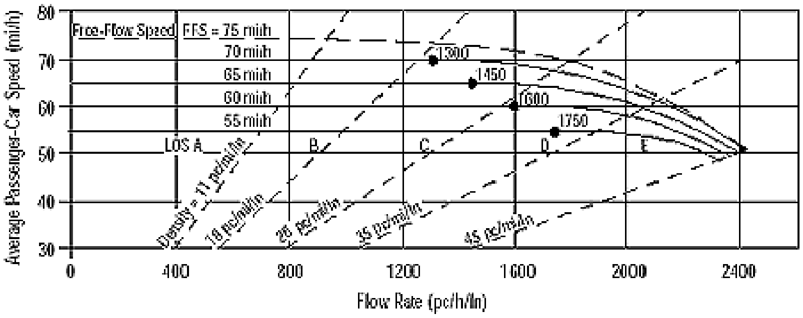
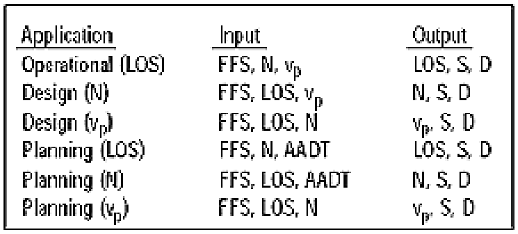
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-710 Southbound*
From/To	*North of Firestone Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6718*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1866*	pc/h/ln
S	*67.0*	mi/h
D = v_p / S	*27.8*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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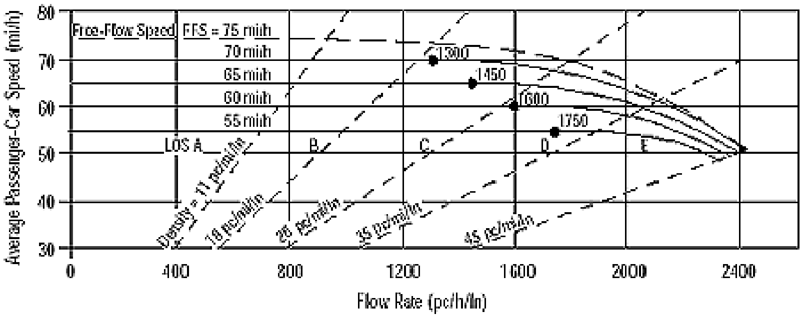
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-710 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of Firestone Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8025*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2229*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*59.3*	mi/h	S	mi/h
D = v_p / S	*37.6*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*E*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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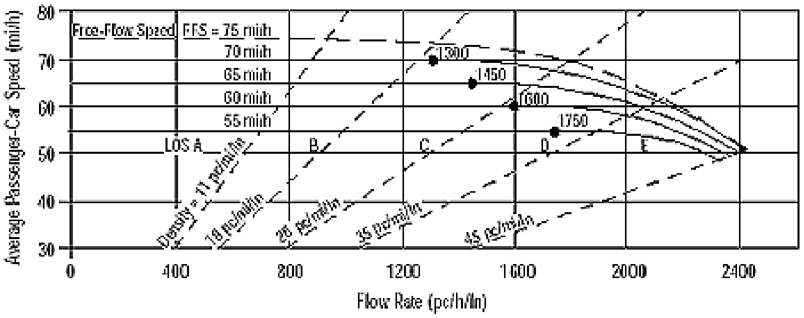
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-710 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of SR-91 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT..

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8025*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1783*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*68.0*	mi/h	S	mi/h
D = v_p / S	*26.2*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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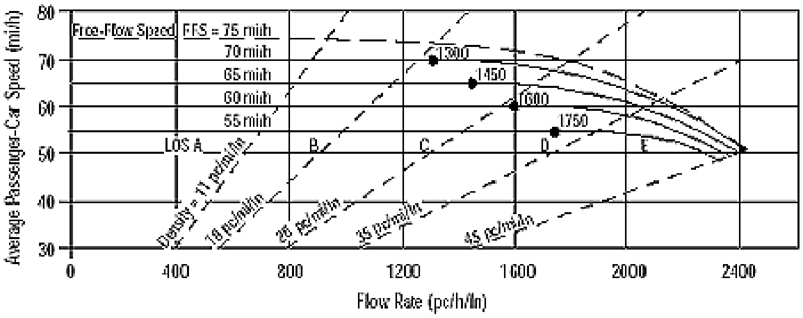
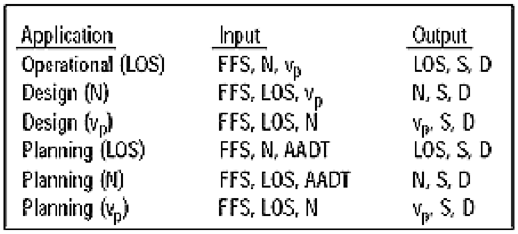
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-710 Northbound*
From/To	*North of SR-91 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT..

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8800*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1956*	pc/h/ln
S	*65.7*	mi/h
D = v_p / S	*29.8*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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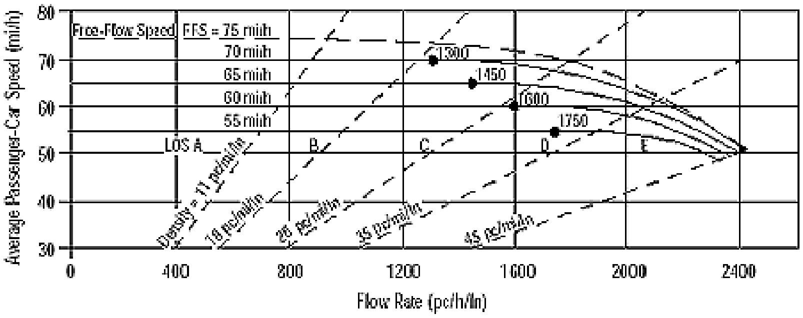
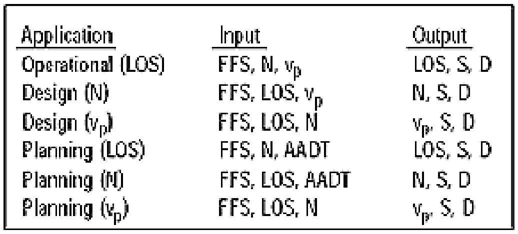
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of SR-91 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9736*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2164*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*61.1*	mi/h	S	mi/h
D = v_p / S	*35.4*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*E*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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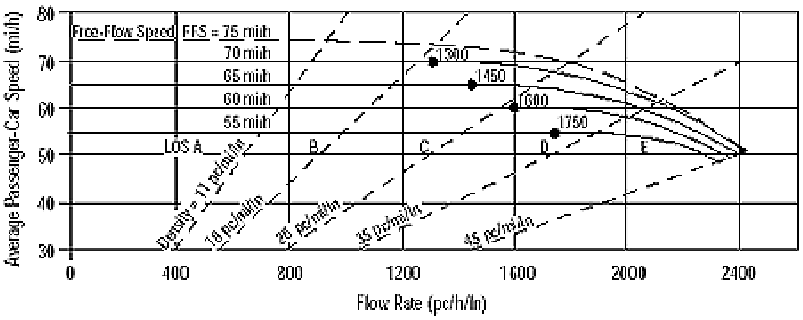
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of SR-91 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7940*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1764*	pc/h/ln
S	*68.2*	mi/h
D = v_p / S	*25.9*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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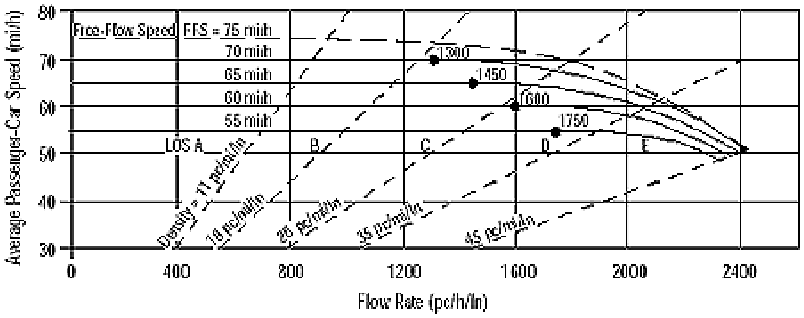
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Crenshaw Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Existing 2010*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7925*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1761*	pc/h/ln
S	*68.3*	mi/h
D = v_p / S	*25.8*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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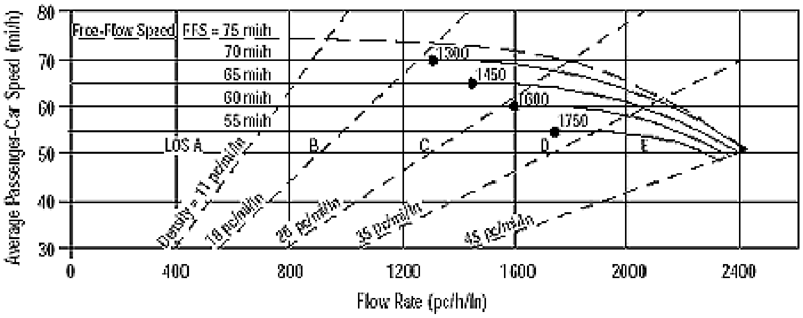
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*		
Agency or Company	*Raju Associates*		
Date Performed	*6/29/2010*		
Analysis Time Period	*PM*		

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6533*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1452*	pc/h/ln
S	*69.9*	mi/h
D = v_p / S	*20.8*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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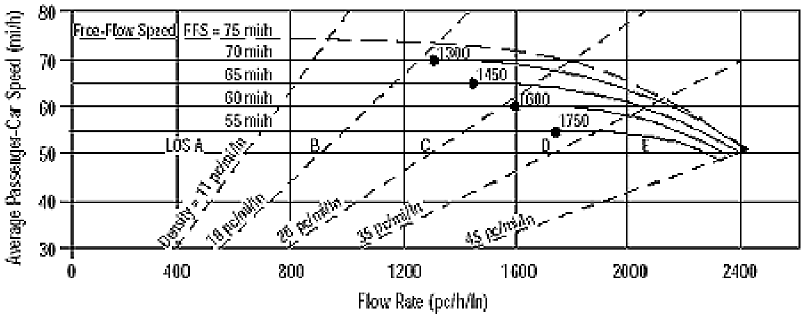
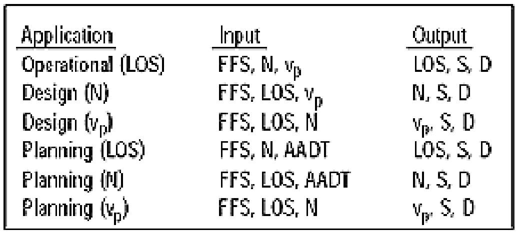
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Crenshaw Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8222*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1827*	pc/h/ln
S	*67.5*	mi/h
D = v_p / S	*27.1*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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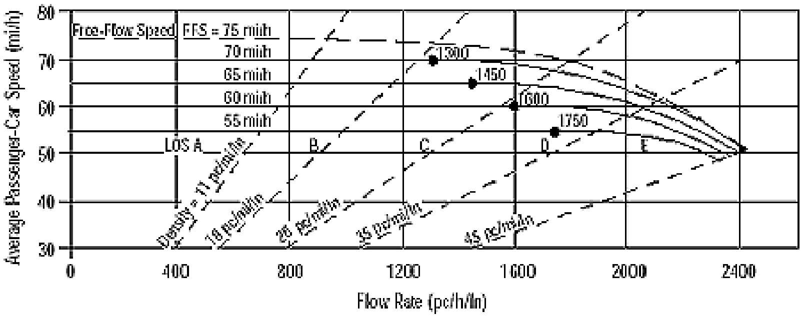
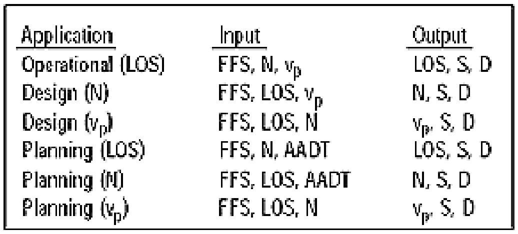
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Crenshaw Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8668*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1926*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*66.2*	mi/h	S	mi/h
D = v_p / S	*29.1*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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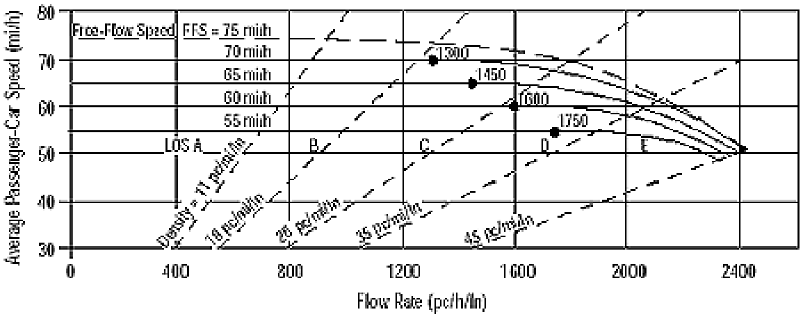
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Central Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10062*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2795*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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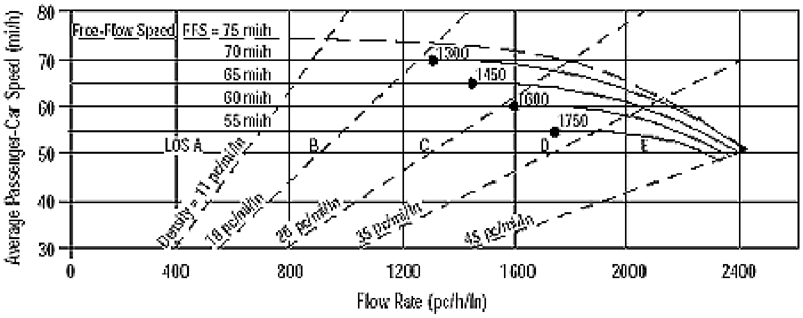
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Central Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7116*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1977*	pc/h/ln
S	*65.3*	mi/h
D = v_p / S	*30.3*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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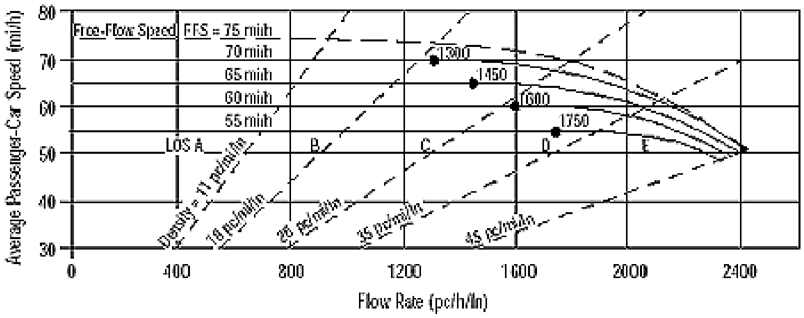
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7453*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2070*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*63.4*	mi/h	S	mi/h
D = v_p / S	*32.6*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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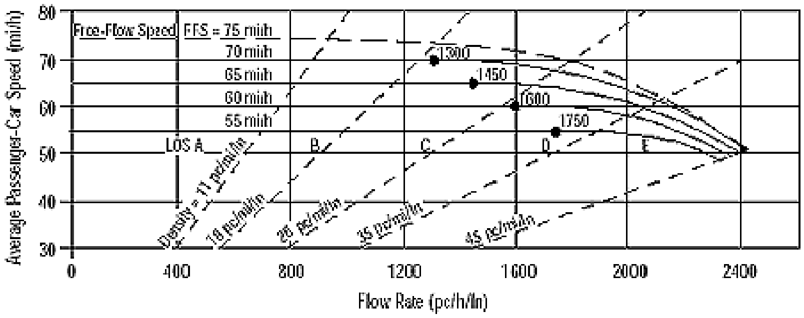
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Central Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6791*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1886*	pc/h/ln
S	*66.8*	mi/h
D = v_p / S	*28.3*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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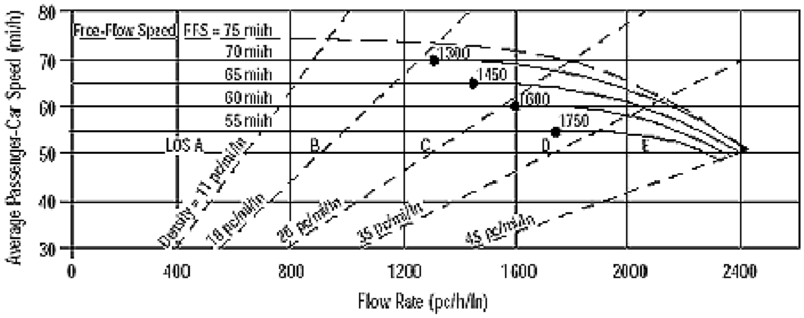
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9468*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2630*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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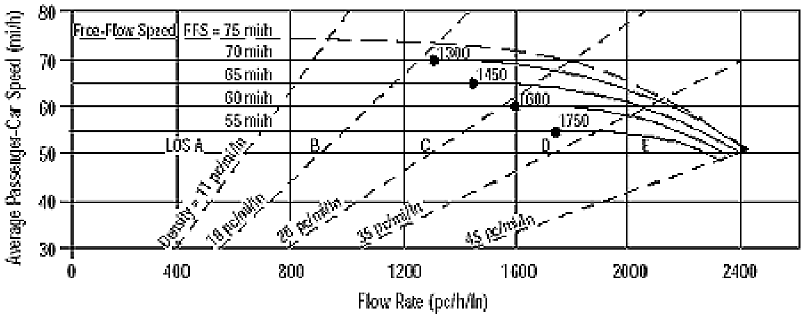
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6905*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1918*	pc/h/ln
S	*66.3*	mi/h
D = v_p / S	*28.9*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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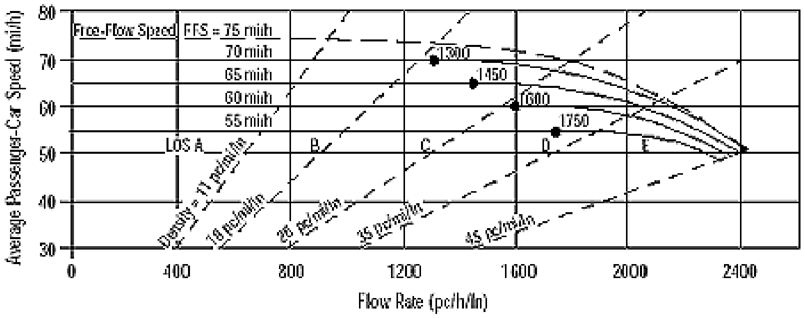
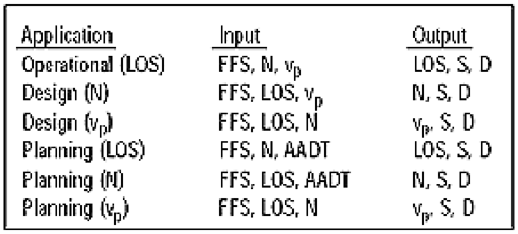
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6913*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1920*	pc/h/ln
S	*66.2*	mi/h
D = v_p / S	*29.0*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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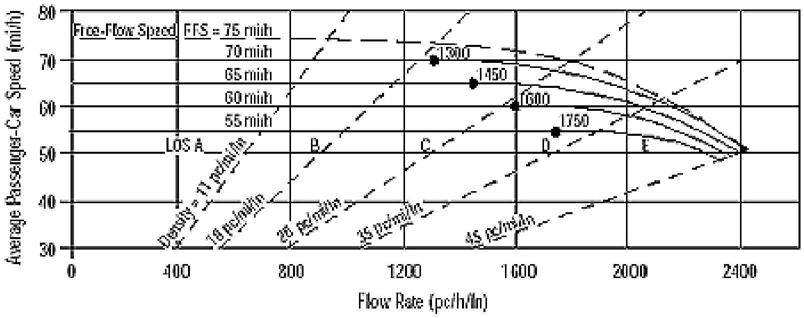
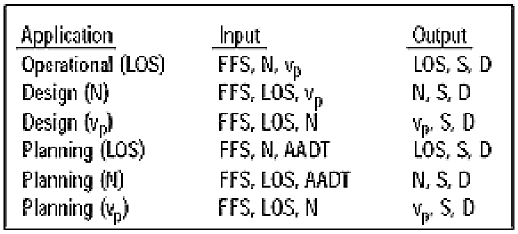
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6775*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1882*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*66.8*	mi/h	S	mi/h
D = v_p / S	*28.2*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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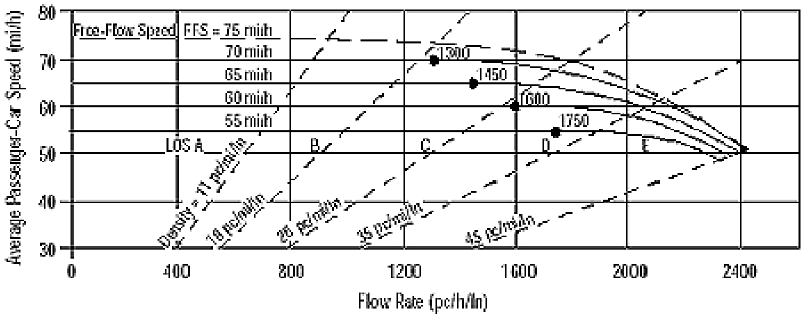
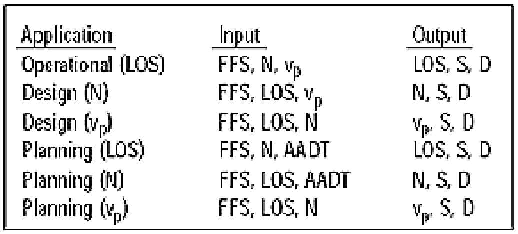
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Long Beach Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8828*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2452*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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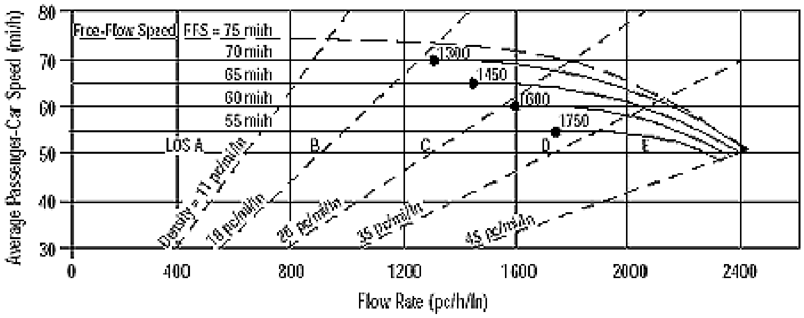
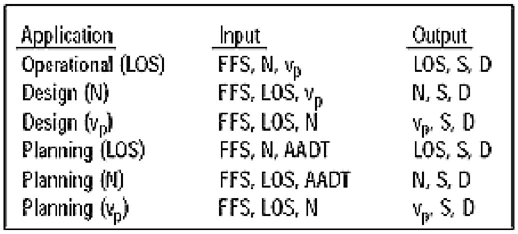
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Long Beach Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6869*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1908*	pc/h/ln
S	*66.4*	mi/h
D = v_p / S	*28.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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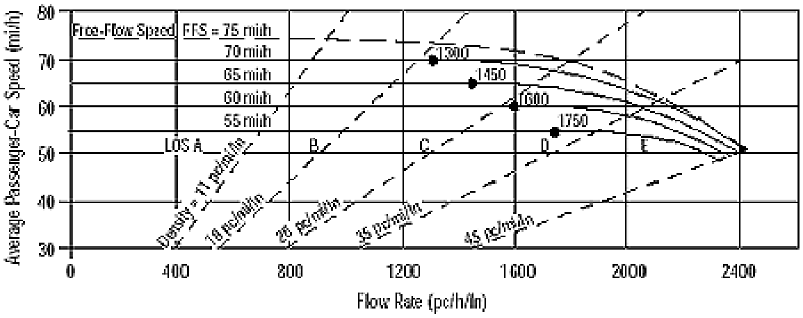
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Long Beach Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6649*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1847*	pc/h/ln
S	*67.3*	mi/h
D = v_p / S	*27.4*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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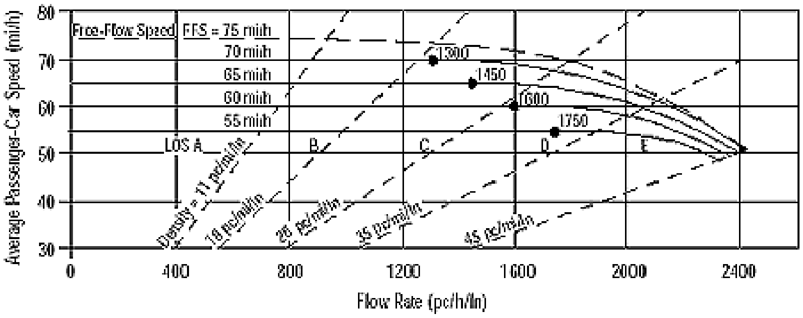
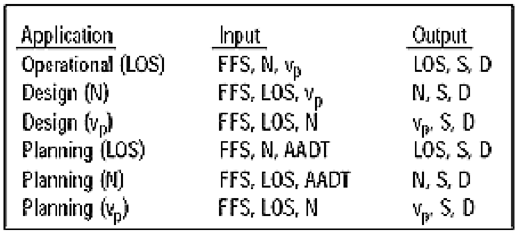
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Long Beach Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7060*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1961*	pc/h/ln
S	*65.6*	mi/h
D = v_p / S	*29.9*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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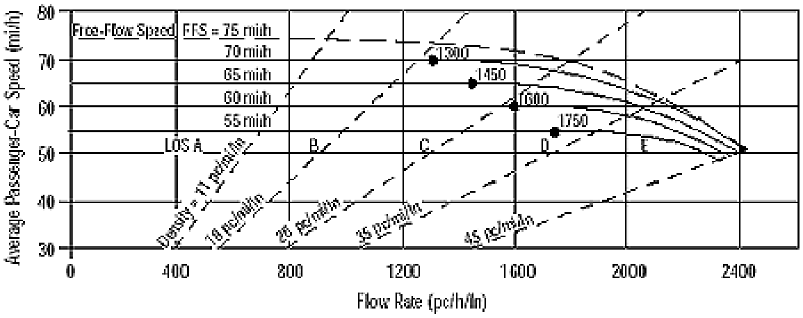
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of I-710 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8513*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2365*	pc/h/ln
S	*54.7*	mi/h
D = v_p / S	*43.3*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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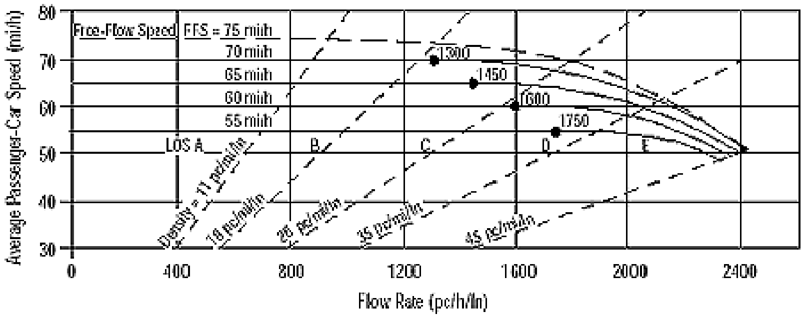
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*		
Agency or Company	*Raju Associates*		
Date Performed	*6/29/2010*		
Analysis Time Period	*PM*		

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of I-710 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7281*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2023*	pc/h/ln
S	*64.4*	mi/h
D = v_p / S	*31.4*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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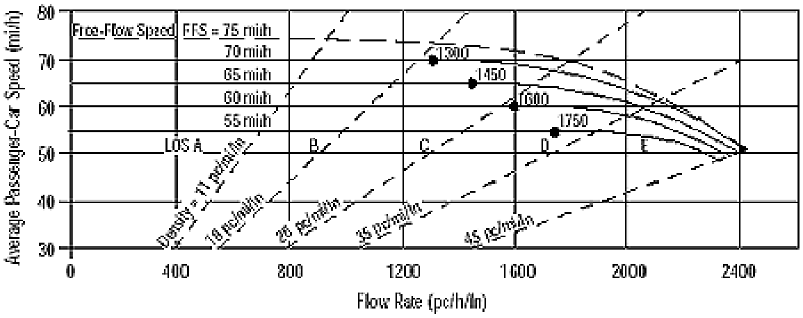
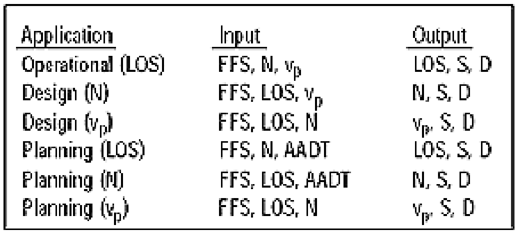
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of I-710 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7028*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1952*	pc/h/ln
S	*65.7*	mi/h
D = v_p / S	*29.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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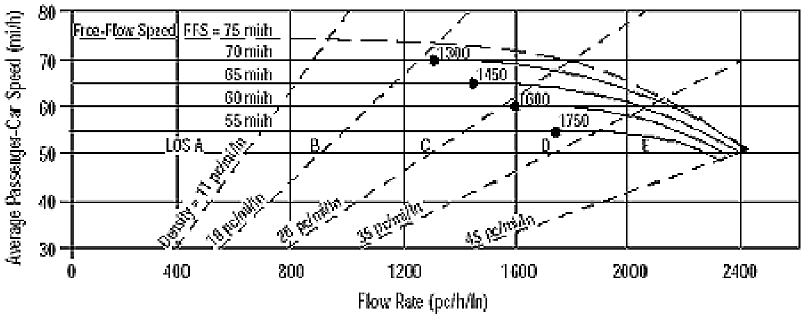
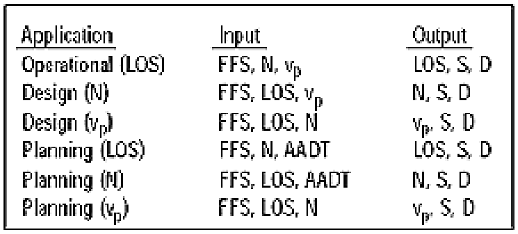
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of I-710 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7453*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2070*	pc/h/ln
S	*63.4*	mi/h
D = v_p / S	*32.6*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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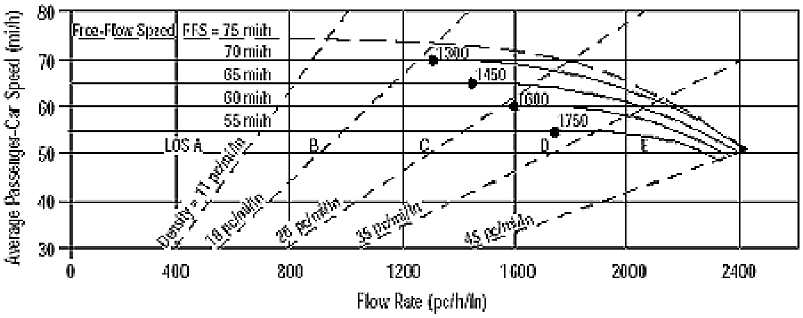
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Bellflower Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7361*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1636*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*69.2*	mi/h	S	mi/h
D = v_p / S	*23.6*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*C*		Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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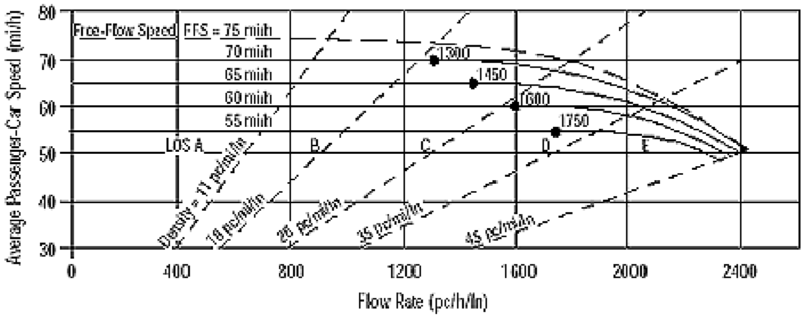
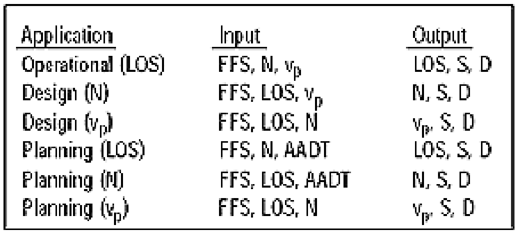
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*East of Bellflower Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6665*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1481*	pc/h/ln
S	*69.8*	mi/h
D = v_p / S	*21.2*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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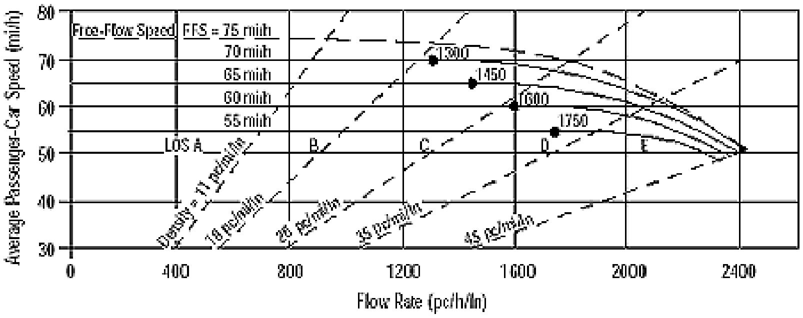
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Bellflower Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6076*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1350*	pc/h/ln
S	*70.0*	mi/h
D = v_p / S	*19.3*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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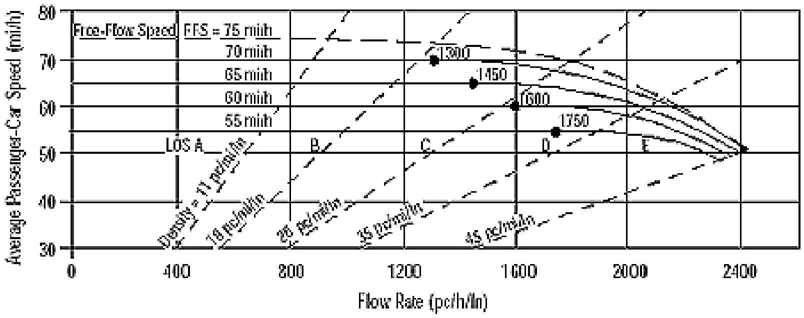
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Bellflower Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6310*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1402*	pc/h/ln
S	*70.0*	mi/h
D = v_p / S	*20.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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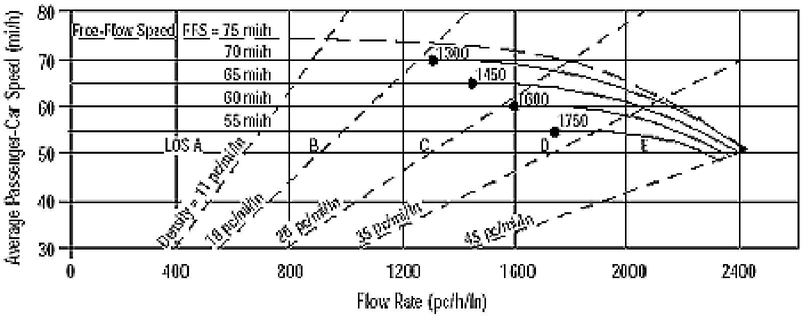
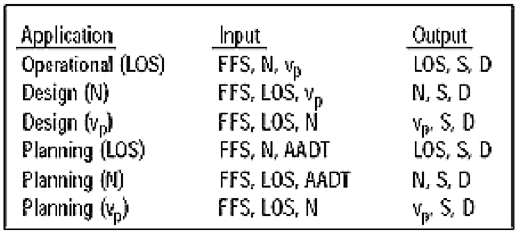
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11236*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2497*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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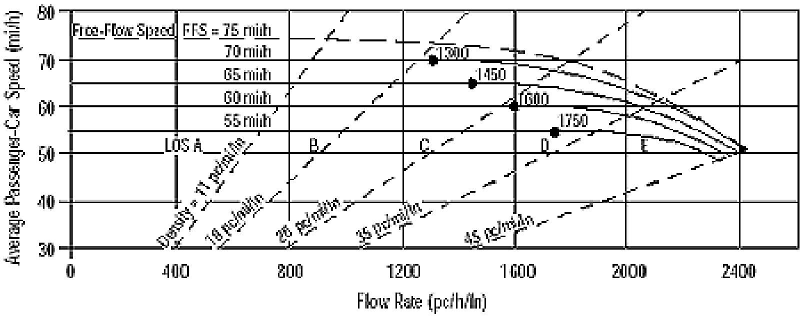
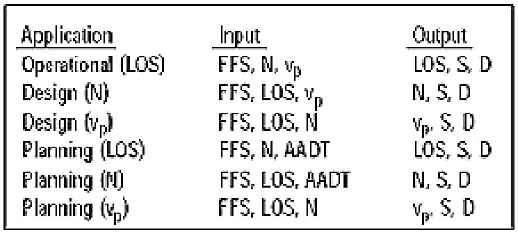
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6421*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1427*	pc/h/ln
S	*69.9*	mi/h
D = v_p / S	*20.4*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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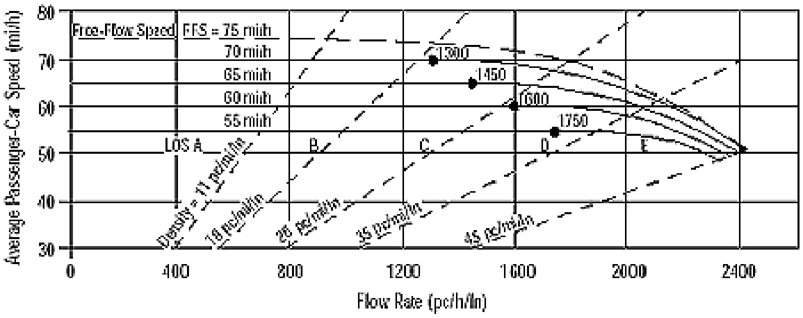
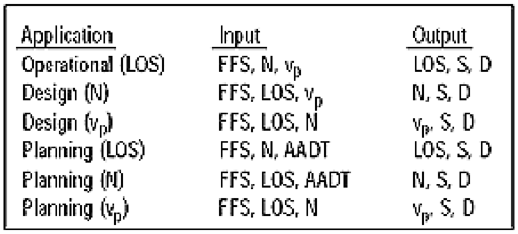
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*SR-91 Eastbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6293*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1398*	pc/h/ln
S	*70.0*	mi/h
D = v_p / S	*20.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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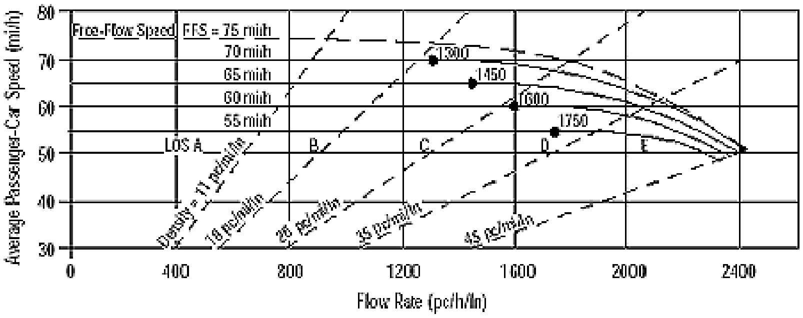
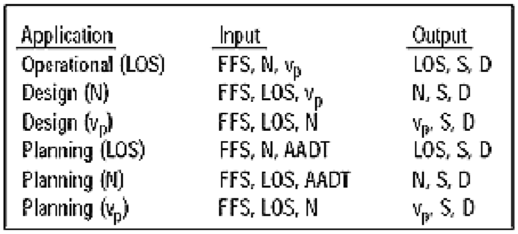
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Eastbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*15198*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3377*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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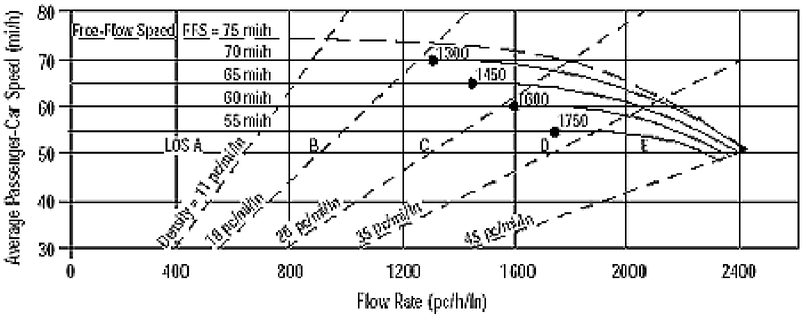
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Alameda Street*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12002*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2667*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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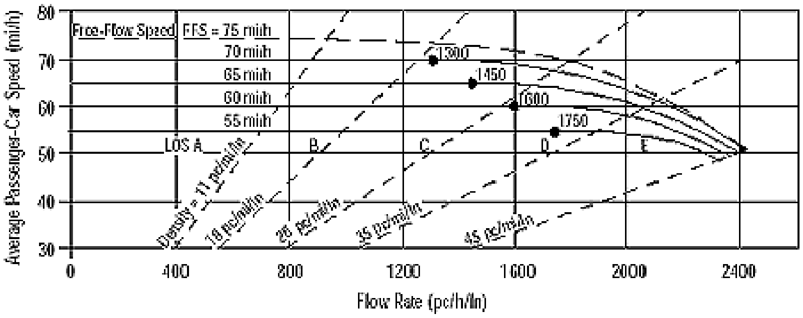
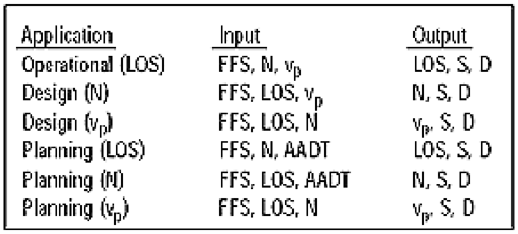
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*East of Alameda Street*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6819*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1515*	pc/h/ln
S	*69.8*	mi/h
D = v_p / S	*21.7*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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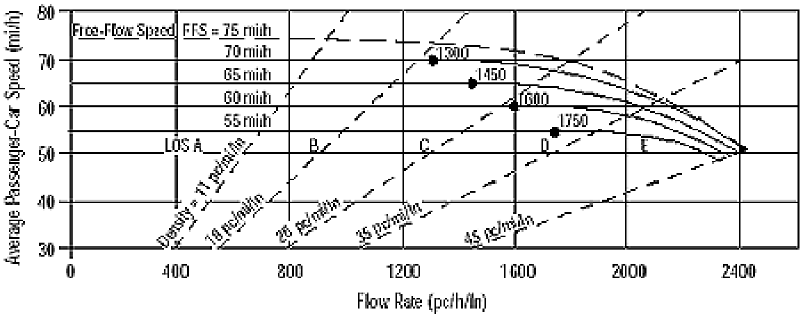
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*SR-91 Eastbound*
From/To	*East of Alameda Street*
Jurisdiction	*Caltrans*
Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6715*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*6*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1244*	pc/h/ln
S	*70.0*	mi/h
D = v_p / S	*17.8*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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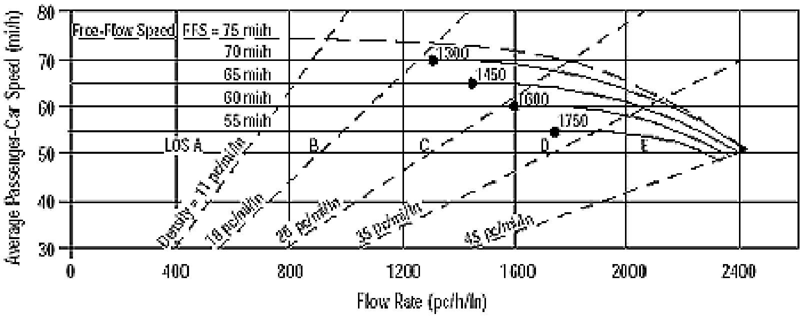
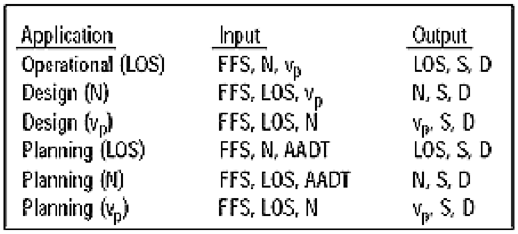
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / *Site Information*

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Alameda Street*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*16161*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*6*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2993*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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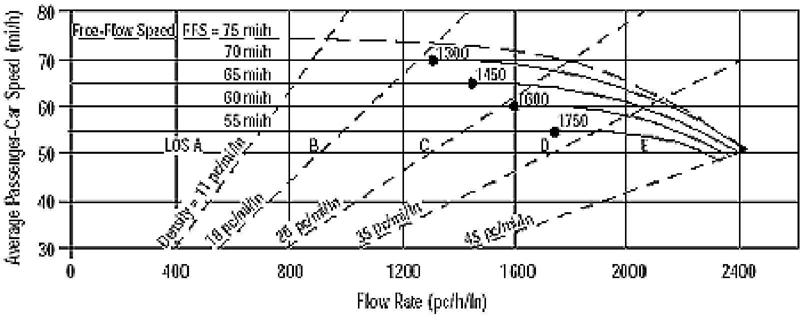
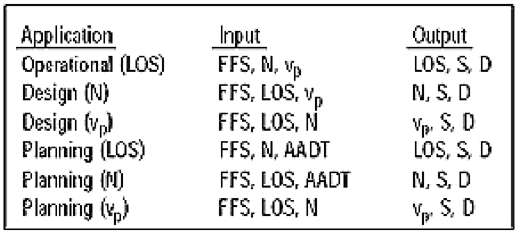
HCS WORKSHEETS

CUMULATIVE (2014) BASE CONDITIONS

BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-110 Northbound*
From/To	*at Manchester Bl*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10917*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2426*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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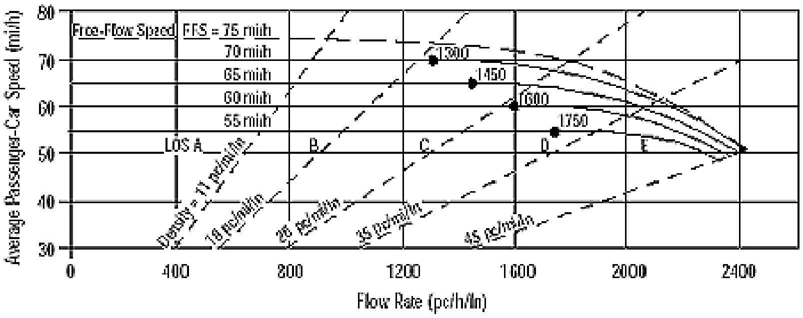
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*at Manchester Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10804*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2401*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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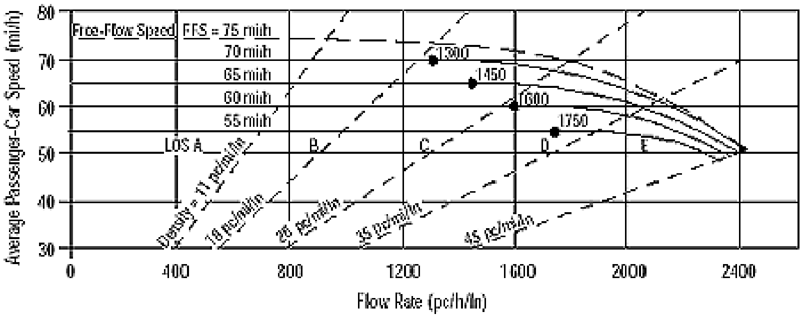
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*at Manchester Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11328*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2517*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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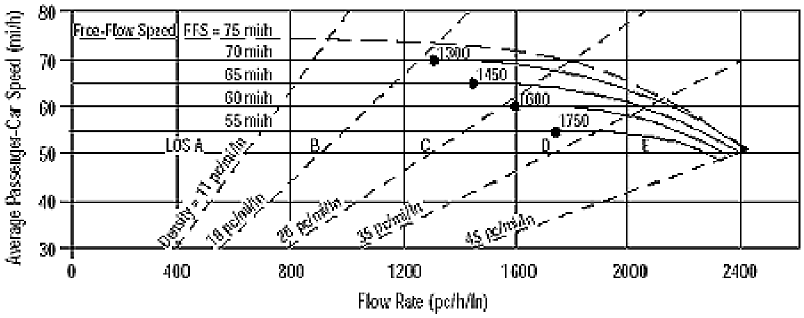
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*at Manchester Bl*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12157*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2702*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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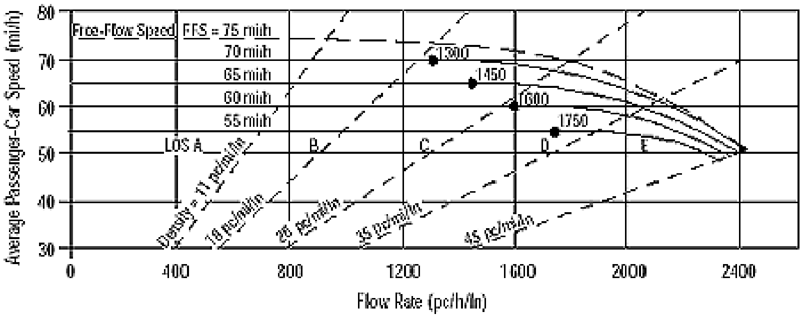
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-110 Northbound*
From/To	*North of Rosecrans Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10141*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2254*	pc/h/ln
S	*58.5*	mi/h
D = v_p / S	*38.5*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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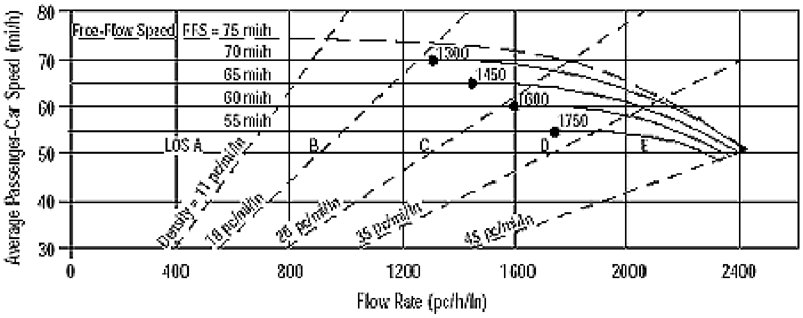
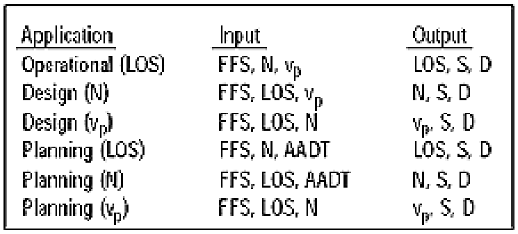
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of Rosecrans Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8850*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1967*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*65.5*	mi/h	S	mi/h
D = v_p / S	*30.0*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary

N - Number of lanes

V - Hourly volume

v_p - Flow rate

LOS - Level of service

DDHV - Directional design hour volume

S - Speed

D - Density

FFS - Free-flow speed

BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10

E_T - Exhibits 23-8, 23-10, 23-11

f_p - Page 23-12

LOS, S, FFS, v_p - Exhibits 23-2, 23-3

f_{LW} - Exhibit 23-4

f_{LC} - Exhibit 23-5

f_N - Exhibit 23-6

f_{ID} - Exhibit 23-7

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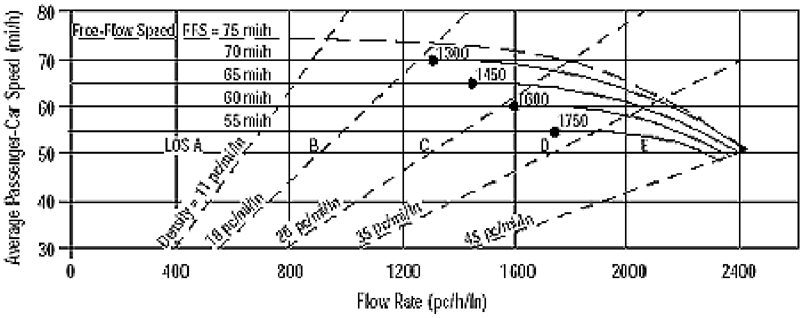
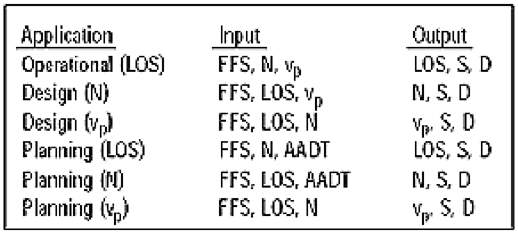
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-110 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of Rosecrans Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10916*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2426*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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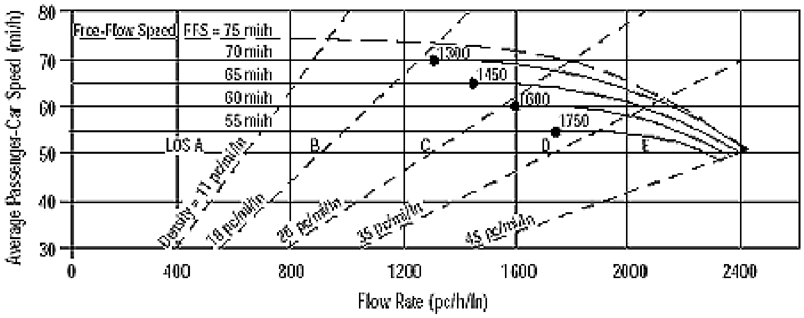
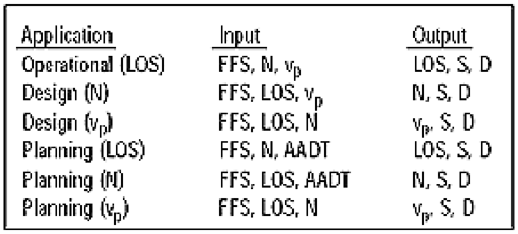
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*North of Rosecrans Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10416*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2315*	pc/h/ln
S	*56.5*	mi/h
D = v_p / S	*41.0*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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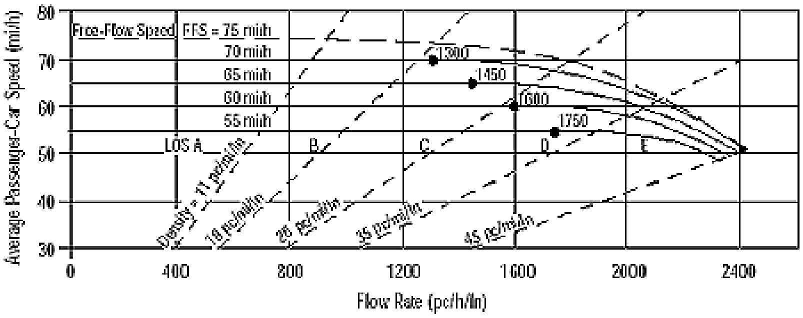
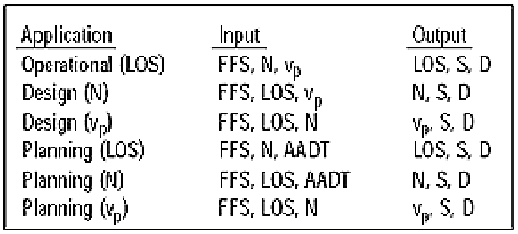
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-710 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of Firestone Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8155*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2265*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*58.1*	mi/h	S	mi/h
D = v_p / S	*39.0*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*E*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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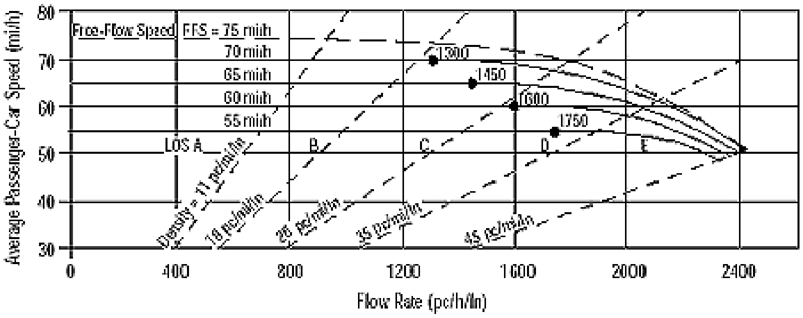
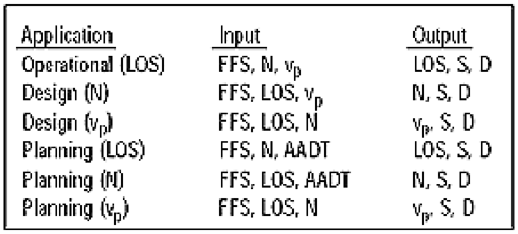
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-710 Northbound*
From/To	*North of Firestone Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7674*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2132*	pc/h/ln
S	*61.9*	mi/h
D = v_p / S	*34.4*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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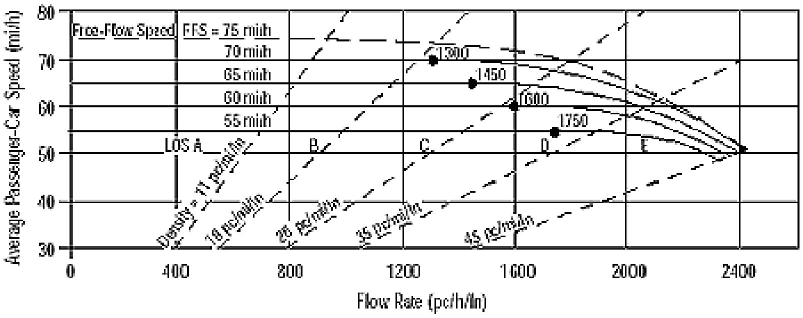
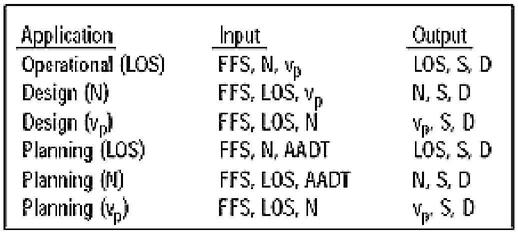
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-710 Southbound*
From/To	*North of Firestone Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7040*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1956*	pc/h/ln
S	*65.7*	mi/h
D = v_p / S	*29.8*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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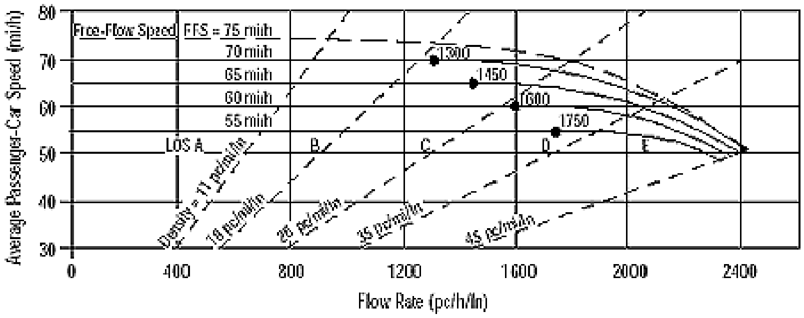
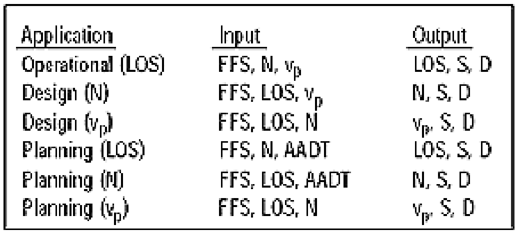
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of Firestone Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8412*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2337*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*55.7*	mi/h	S	mi/h
D = v_p / S	*42.0*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*E*		Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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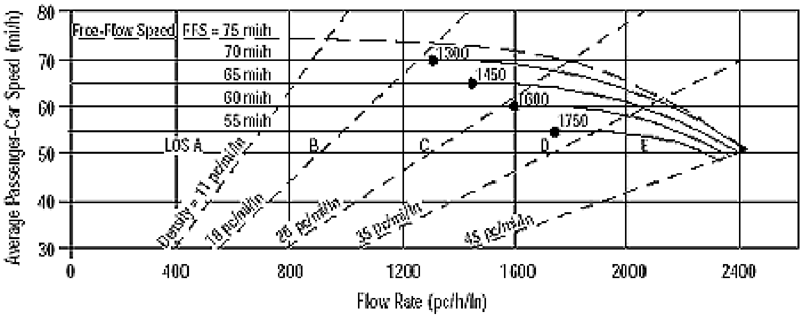
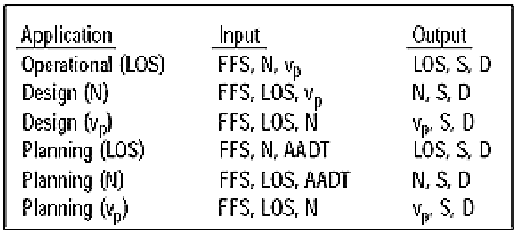
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-710 Northbound*
From/To	*North of SR-91 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT..

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7298*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1622*	pc/h/ln
S	*69.3*	mi/h
D = v_p / S	*23.4*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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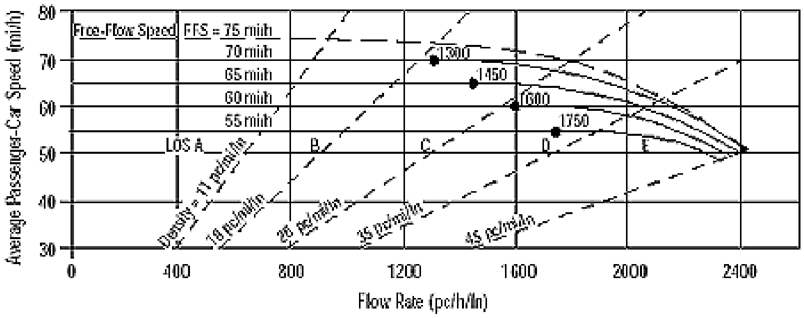
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of SR-91 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT..

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9077*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2017*	pc/h/ln
S	*64.5*	mi/h
D = v_p / S	*31.3*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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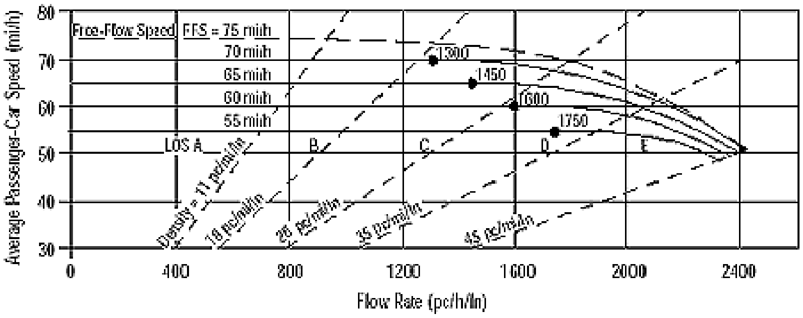
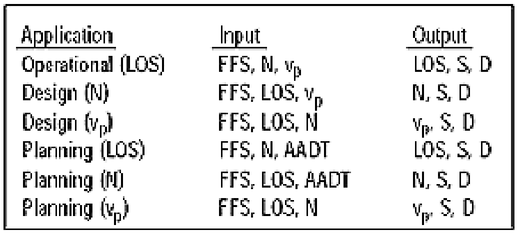
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-710 Southbound*
From/To	*North of SR-91 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10037*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2230*	pc/h/ln
S	*59.2*	mi/h
D = v_p / S	*37.7*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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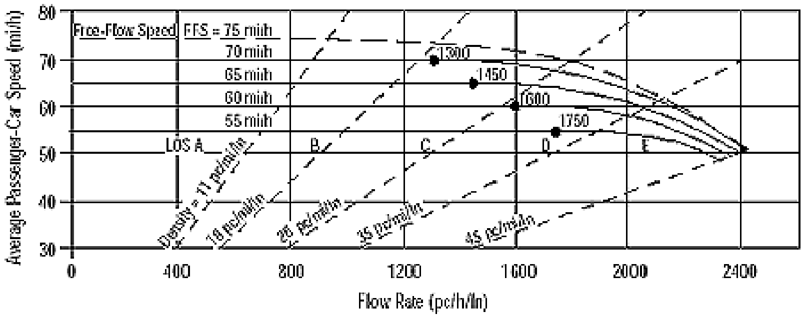
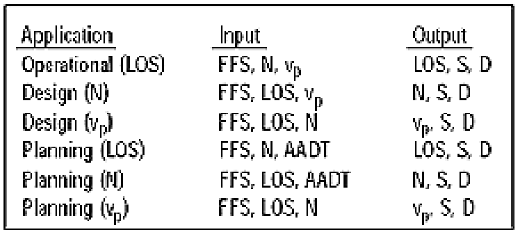
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		**Site Information**	
Analyst	*SM*	Highway/Direction of Travel	*I-710 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of SR-91 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8193*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
			Design (N)	
Operational (LOS)			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1821*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*67.6*	mi/h	S	mi/h
D = v_p / S	*26.9*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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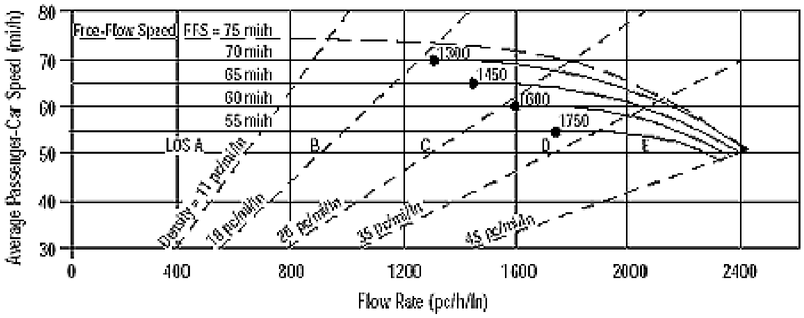
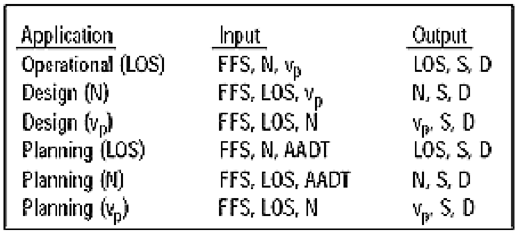
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8189*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1820*	pc/h/ln
S	*67.6*	mi/h
D = v_p / S	*26.9*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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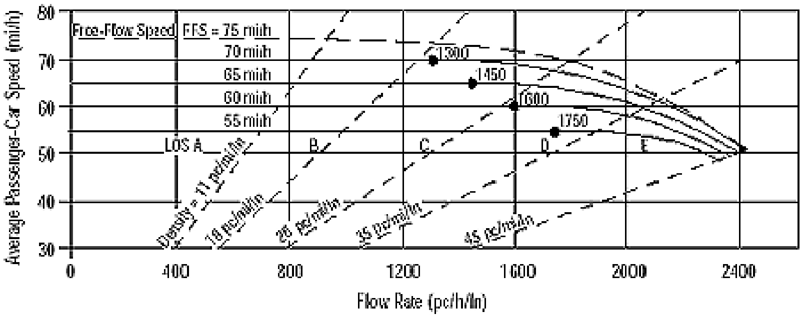
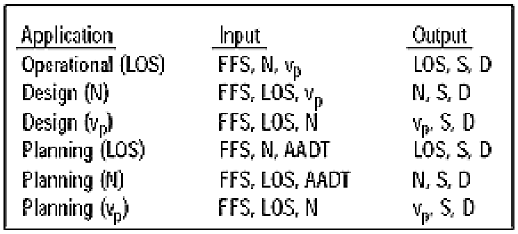
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Crenshaw Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6763*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1503*	pc/h/ln
S	*69.8*	mi/h
D = v_p / S	*21.5*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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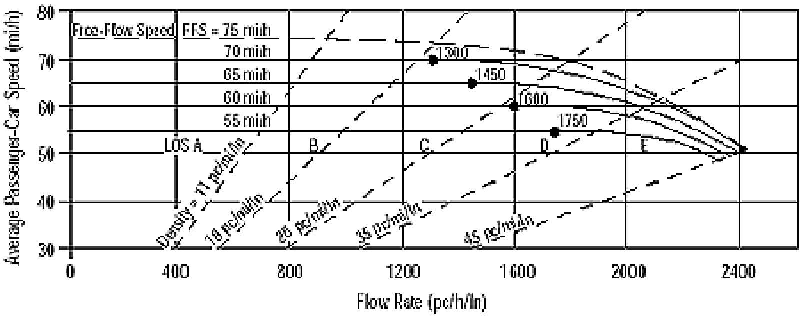
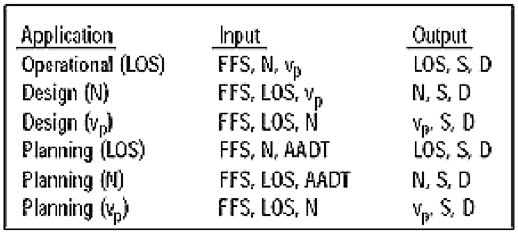
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8492*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1887*	pc/h/ln
S	*66.7*	mi/h
D = v_p / S	*28.3*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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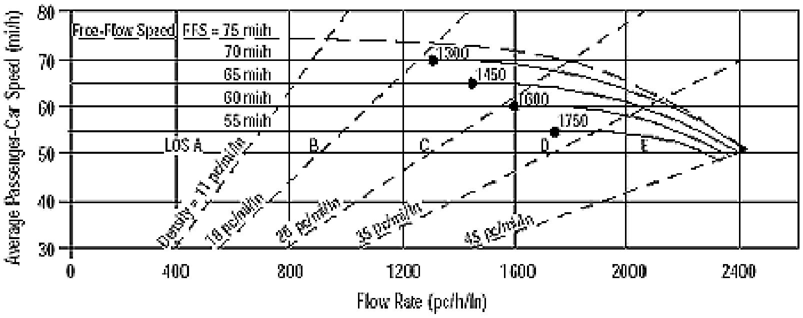
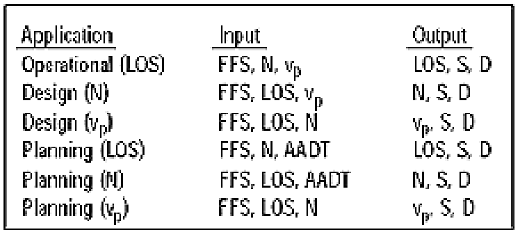
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information | Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Crenshaw Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8964*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]	*1.000*

Speed Inputs | Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures | Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1992*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*65.0*	mi/h	S	mi/h
D = v_p / S	*30.6*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary | Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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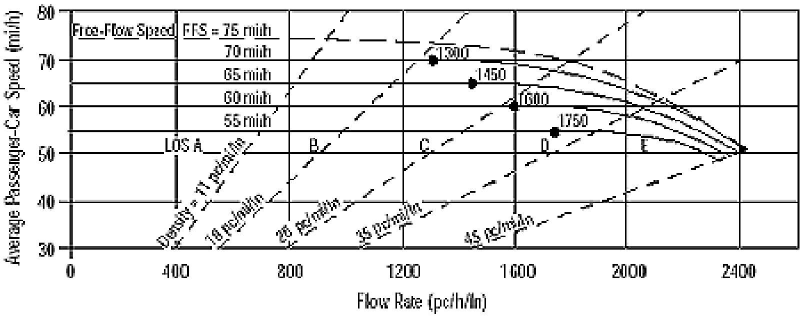
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Central Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10433*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2898*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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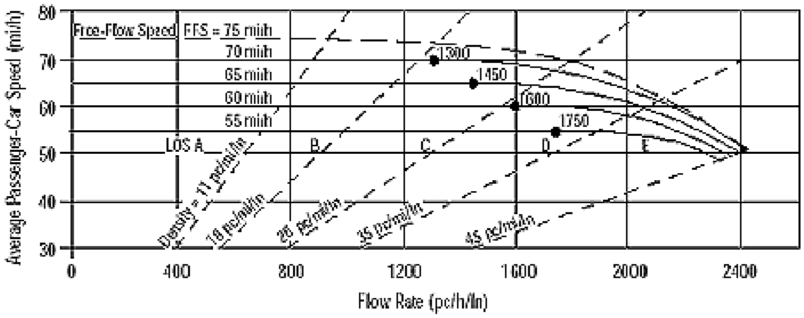
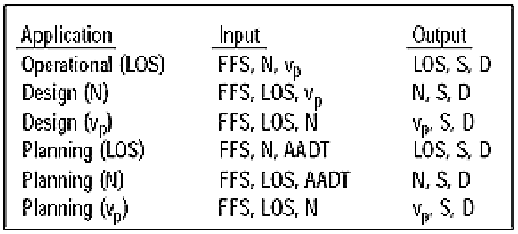
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Central Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7414*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2059*	pc/h/ln
S	*63.6*	mi/h
D = v_p / S	*32.3*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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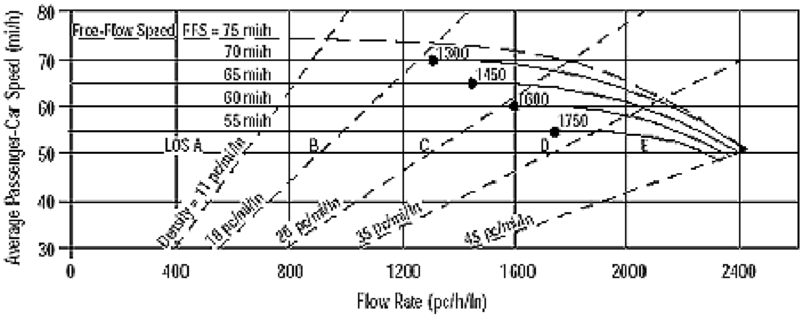
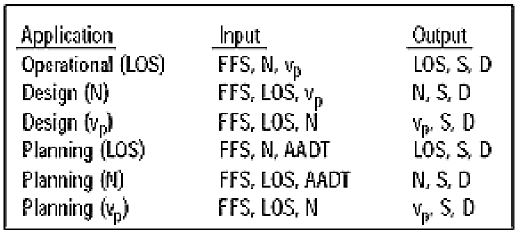
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / *Site Information*

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7744*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2151*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*61.4*	mi/h	S	mi/h
D = v_p / S	*35.0*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*E*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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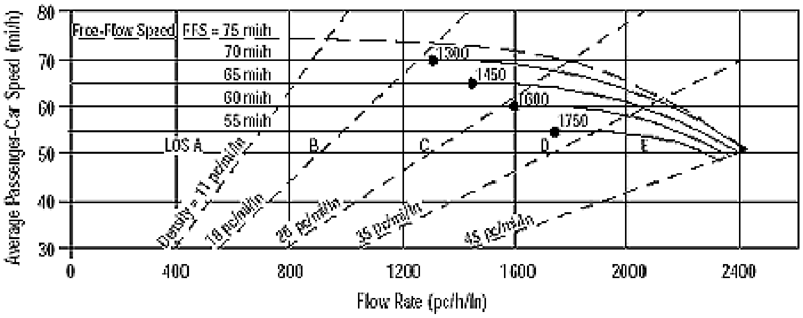
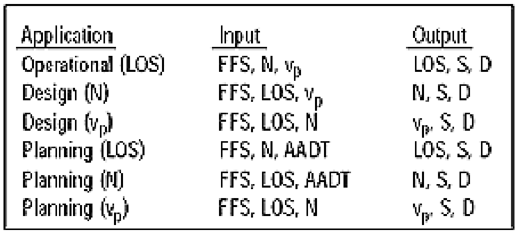
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7092*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1970*	pc/h/ln
S	*65.4*	mi/h
D = v_p / S	*30.1*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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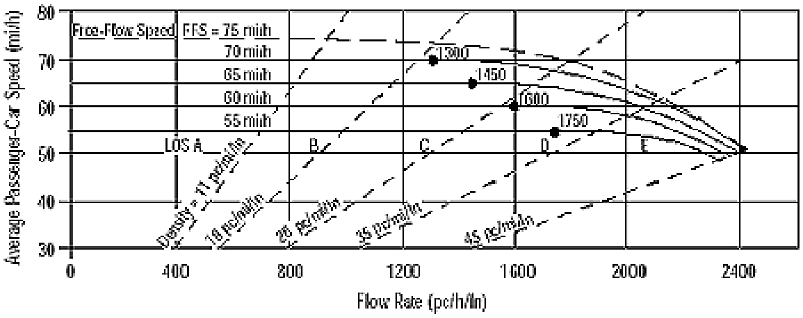
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9798*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2722*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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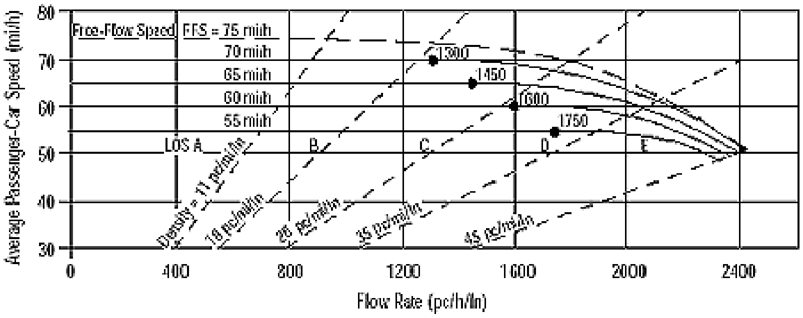
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7175*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1993*	pc/h/ln
S	*65.0*	mi/h
D = v_p / S	*30.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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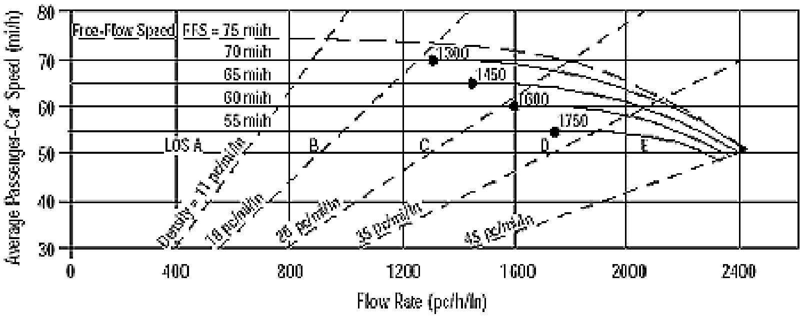
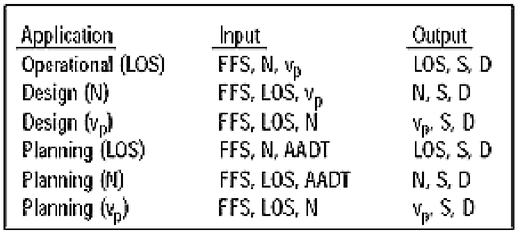
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7167*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1991*	pc/h/ln
S	*65.0*	mi/h
D = v_p / S	*30.6*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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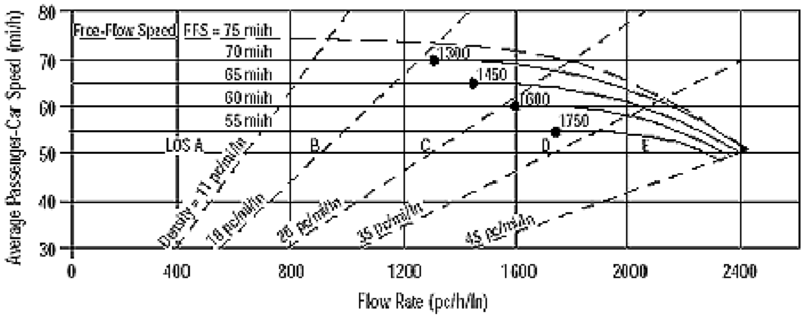
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7041*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1956*	pc/h/ln
S	*65.7*	mi/h
D = v_p / S	*29.8*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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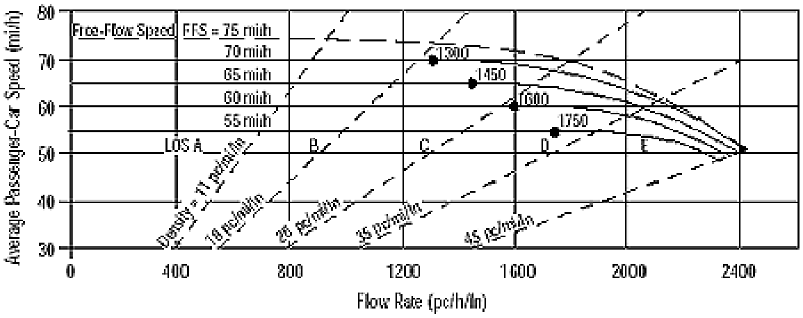
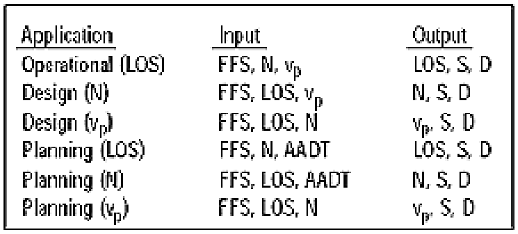
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Long Beach Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014) Base*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9162*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2545*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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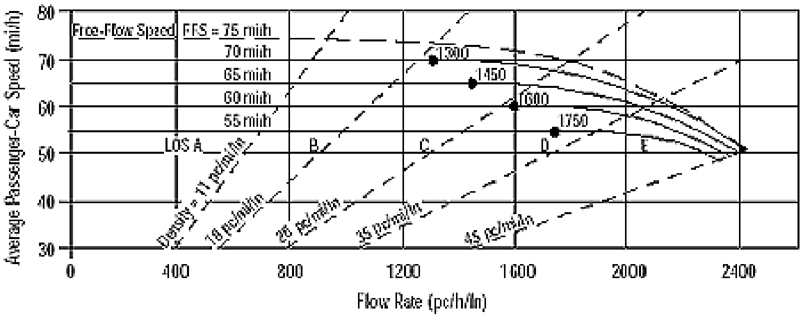
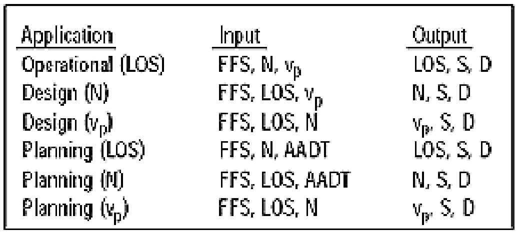
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Long Beach Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7155*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1988*	pc/h/ln
S	*65.1*	mi/h
D = v_p / S	*30.5*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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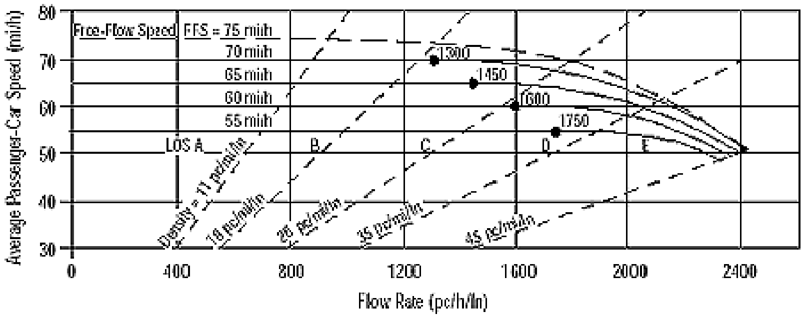
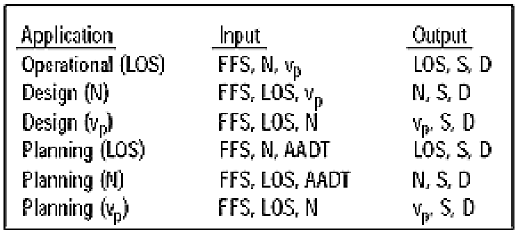
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Long Beach Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6922*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1923*	pc/h/ln
S	*66.2*	mi/h
D = v_p / S	*29.0*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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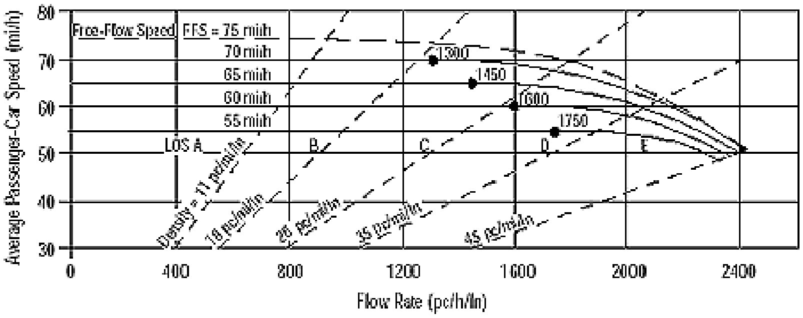
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Long Beach Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7352*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
<u>Operational (LOS)</u>			<u>Design (N)</u>	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2042*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*64.0*	mi/h	S	mi/h
D = v_p / S	*31.9*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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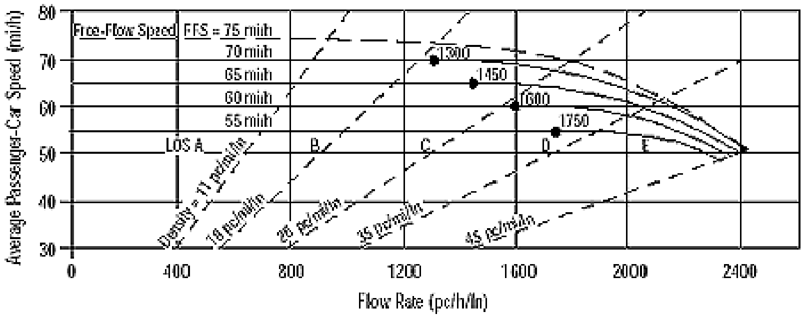
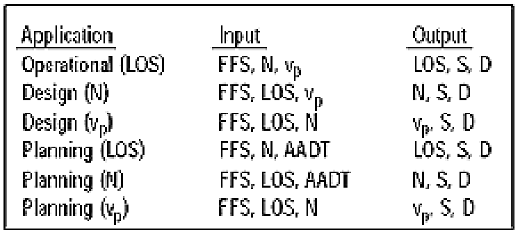
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of I-710 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8852*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2459*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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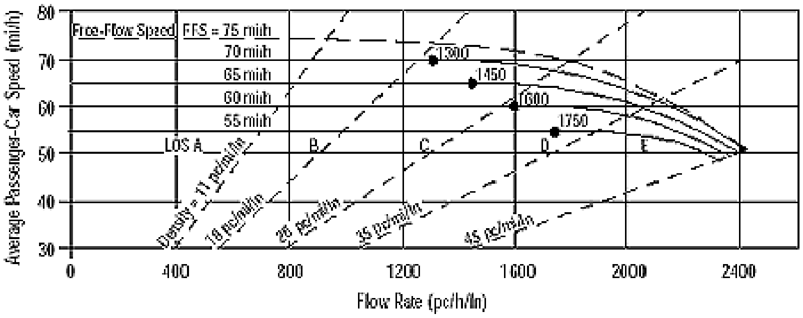
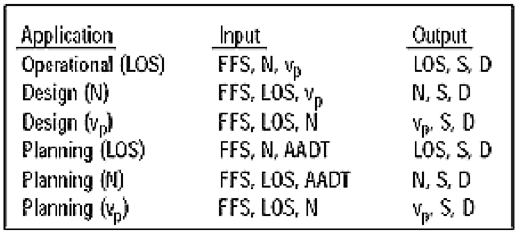
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of I-710 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7597*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2110*	pc/h/ln
S	*62.5*	mi/h
D = v_p / S	*33.8*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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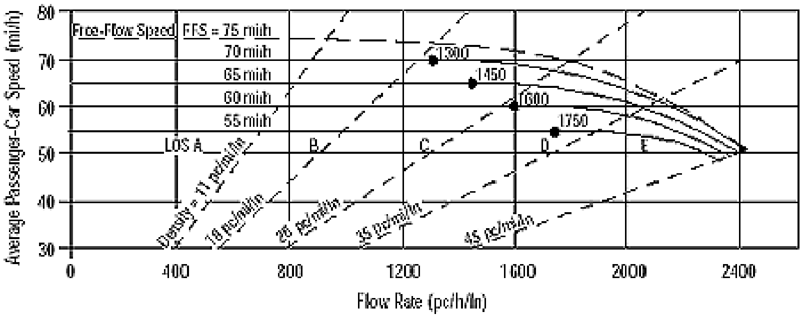
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of I-710 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7325*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2035*	pc/h/ln
S	*64.2*	mi/h
D = v_p / S	*31.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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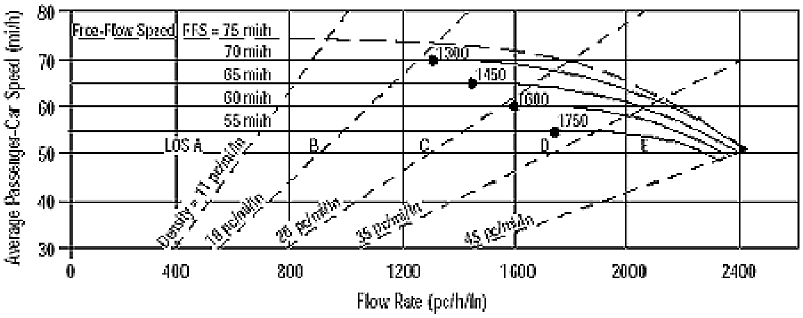
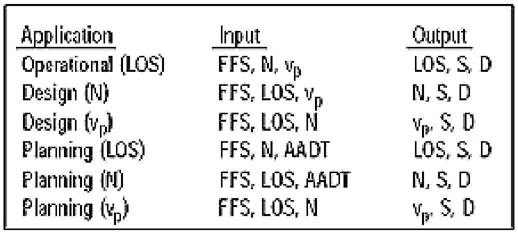
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of I-710 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7768*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2158*	pc/h/ln
S	*61.3*	mi/h
D = v_p / S	*35.2*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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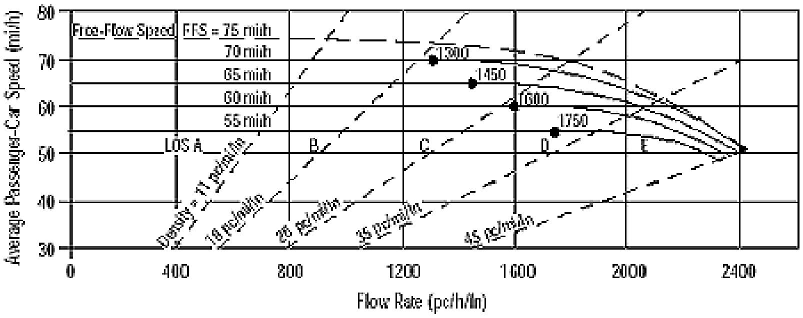
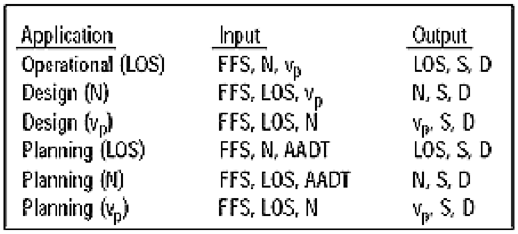
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*East of Bellflower Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7616*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1692*	pc/h/ln
S	*68.9*	mi/h
D = v_p / S	*24.6*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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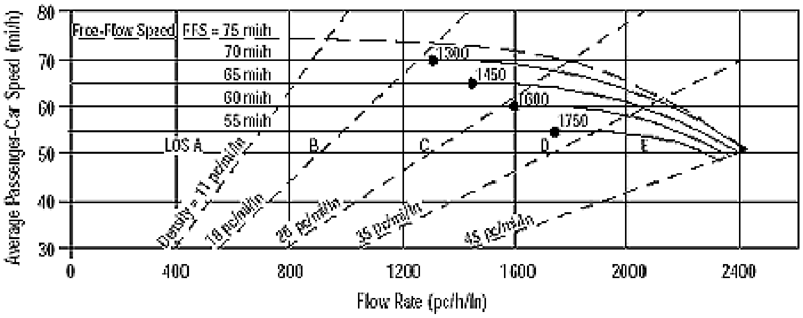
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Bellflower Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6908*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1535*	pc/h/ln
S	*69.7*	mi/h
D = v_p / S	*22.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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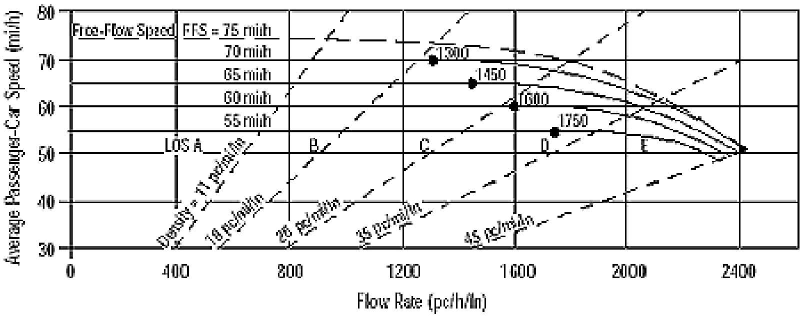
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Bellflower Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6297*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1399*	pc/h/ln
S	*70.0*	mi/h
D = v_p / S	*20.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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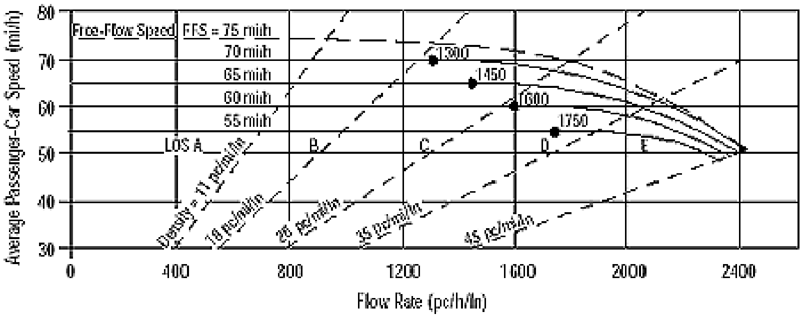
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Bellflower Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6538*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1453*	pc/h/ln
S	*69.9*	mi/h
D = v_p / S	*20.8*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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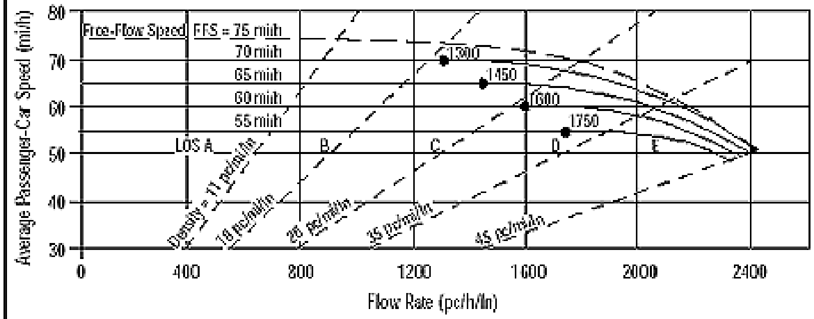
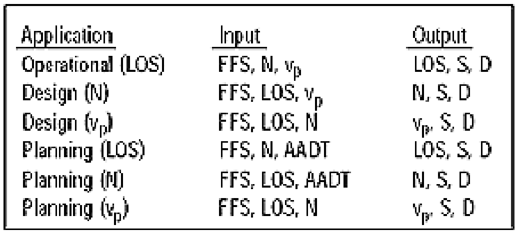
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11568*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2571*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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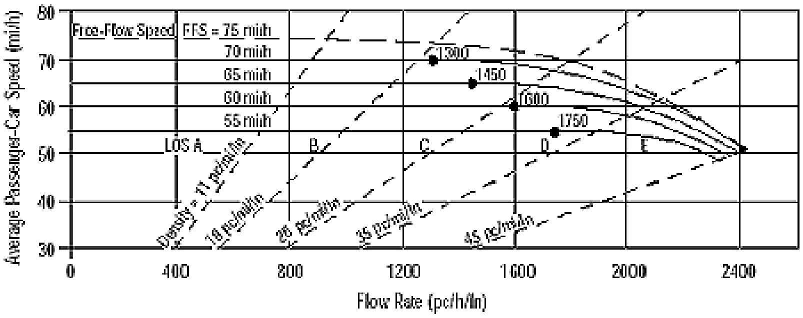
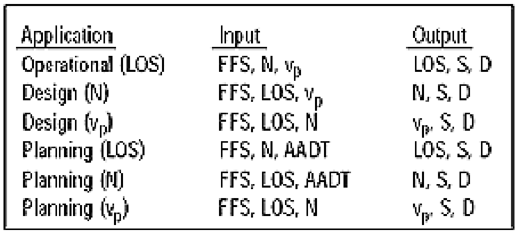
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6611*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1469*	pc/h/ln
S	*69.9*	mi/h
D = v_p / S	*21.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes

V - Hourly volume

v_p - Flow rate

LOS - Level of service

DDHV - Directional design hour volume

S - Speed

D - Density

FFS - Free-flow speed

BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10

E_T - Exhibits 23-8, 23-10, 23-11

f_p - Page 23-12

LOS, S, FFS, v_p - Exhibits 23-2, 23-3

f_{LW} - Exhibit 23-4

f_{LC} - Exhibit 23-5

f_N - Exhibit 23-6

f_{ID} - Exhibit 23-7

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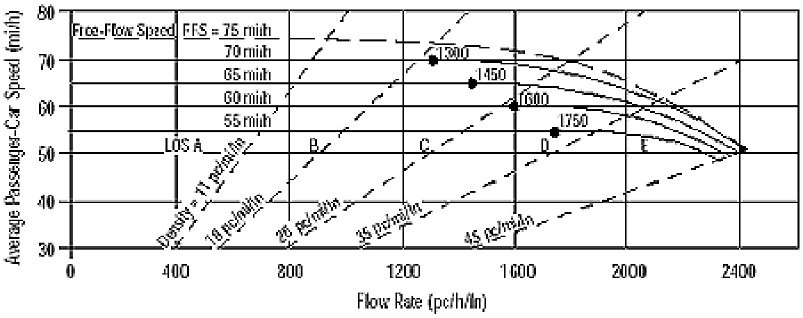
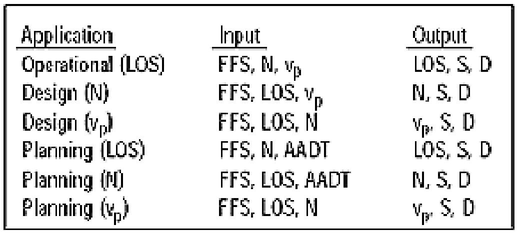
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6477*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1439*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*69.9*	mi/h	S	mi/h
D = v_p / S	*20.6*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*C*		Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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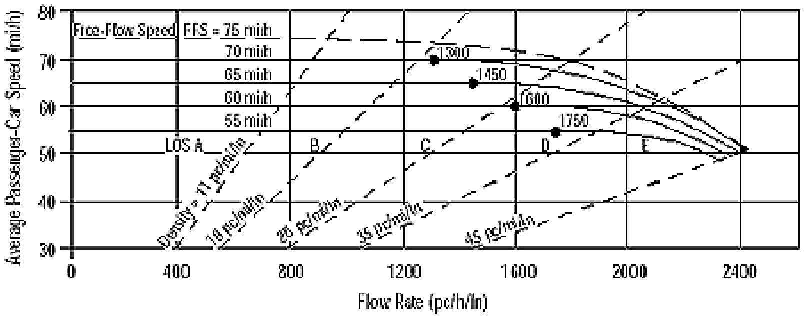
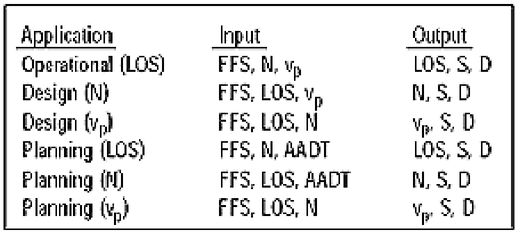
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Eastbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*15645*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3477*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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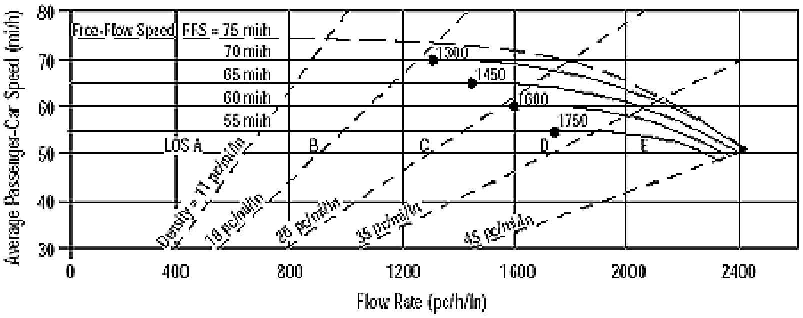
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Alameda Street*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014) Base*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12351*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2745*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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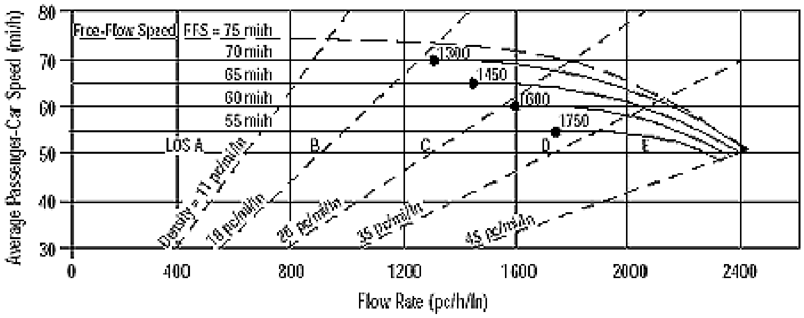
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Alameda Street*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7024*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1561*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*69.6*	mi/h	S	mi/h
D = v_p / S	*22.4*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*C*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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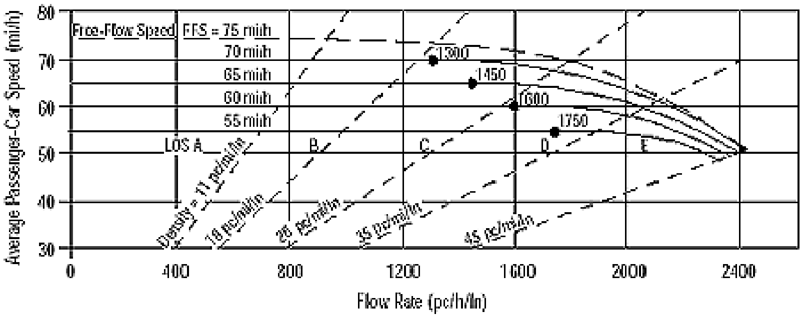
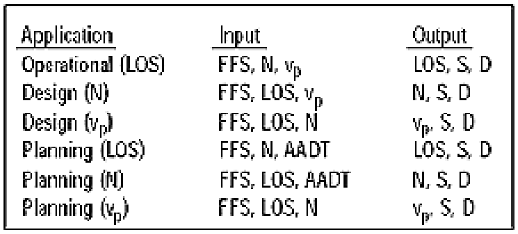
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*SR-91 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Alameda Street*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6915*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*6*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1281*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*70.0*	mi/h	S	mi/h
D = v_p / S	*18.3*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*C*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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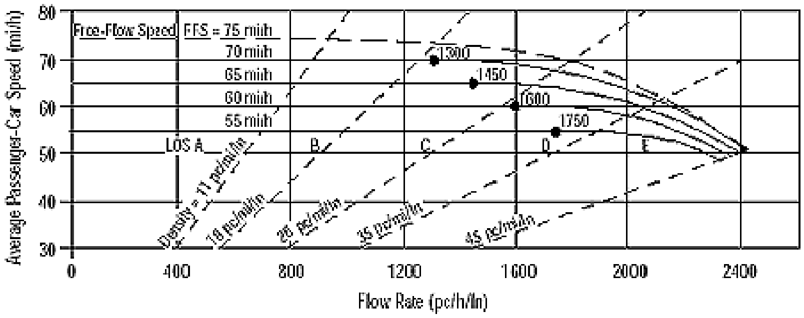
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Eastbound*
From/To	*East of Alameda Street*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*16632*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*6*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3080*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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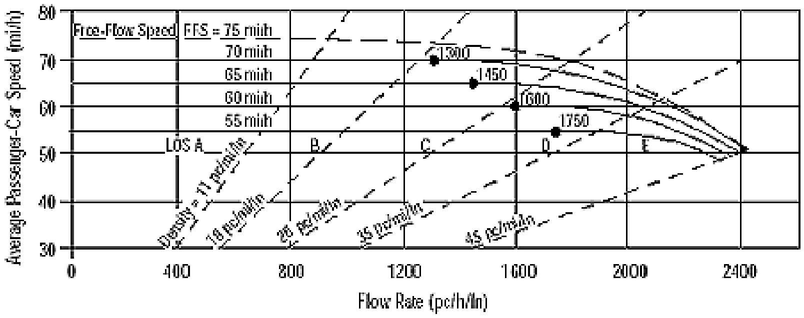
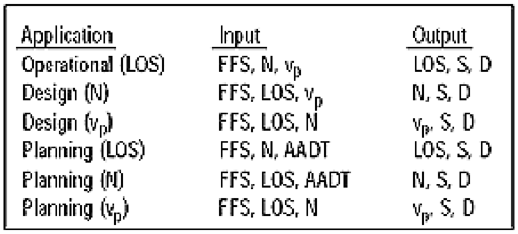
HCS WORKSHEETS

CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS

BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*at Manchester Bl*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10906*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)		
			Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2424*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h	S		mi/h
D = v_p / S		pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*F*		Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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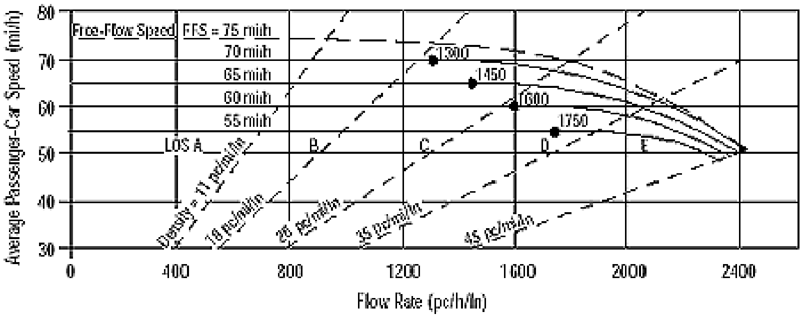
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*at Manchester Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10788*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2397*	pc/h/ln
S	*53.5*	mi/h
D = v_p / S	*44.8*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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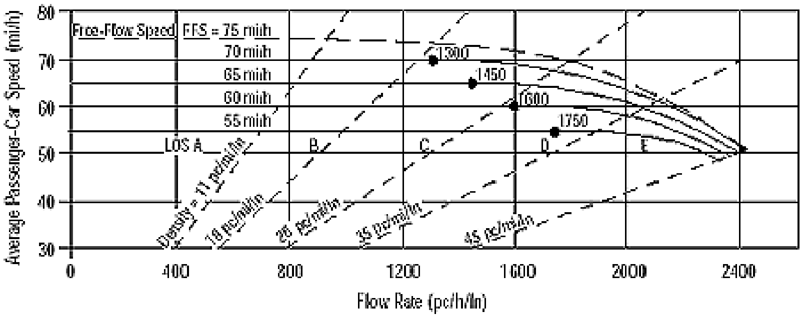
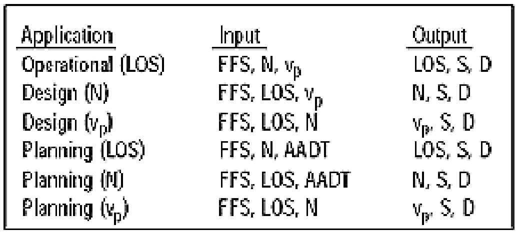
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-110 Southbound*
Agency or Company	*Raju Associates*	From/To	*At Manchester Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11312*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2514*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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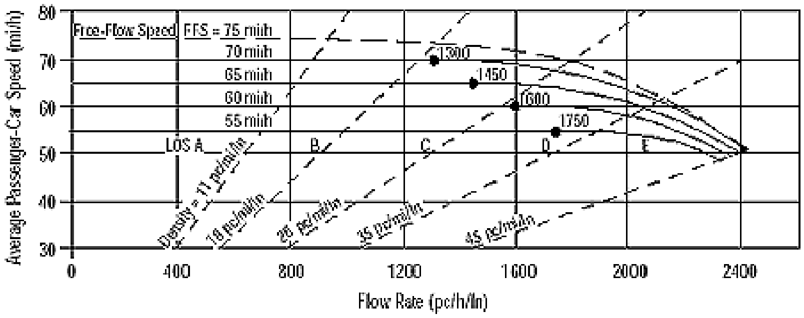
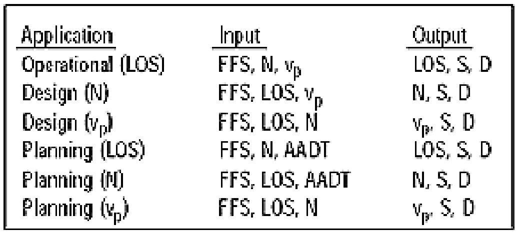
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*at Manchester Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12147*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2699*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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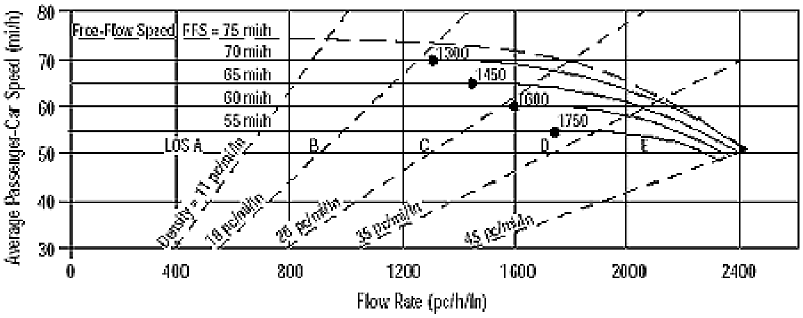
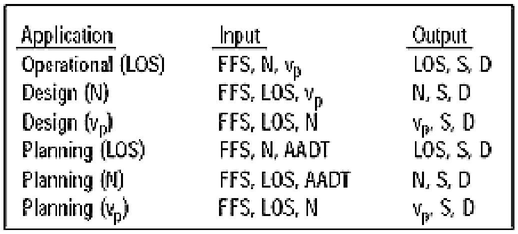
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-110 Northbound*
From/To	*North of Rosecrans Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10137*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2253*	pc/h/ln
S	*58.5*	mi/h
D = v_p / S	*38.5*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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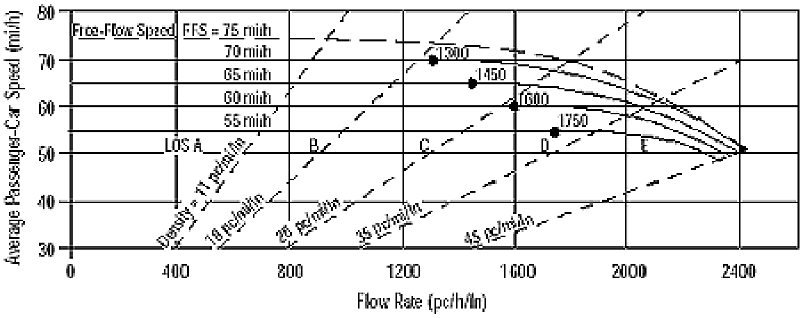
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / *Site Information*

Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of Rosecrans Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8846*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1966*	pc/h/ln
S	*65.5*	mi/h
D = v_p / S	*30.0*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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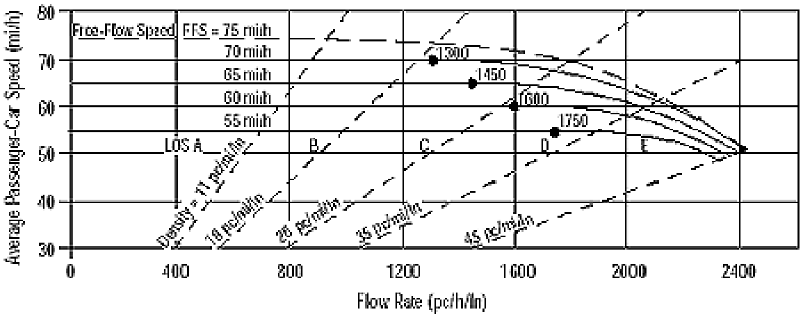
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / *Site Information*

Analyst	*SM*	Highway/Direction of Travel	*I-110 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of Rosecrans Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10914*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2425*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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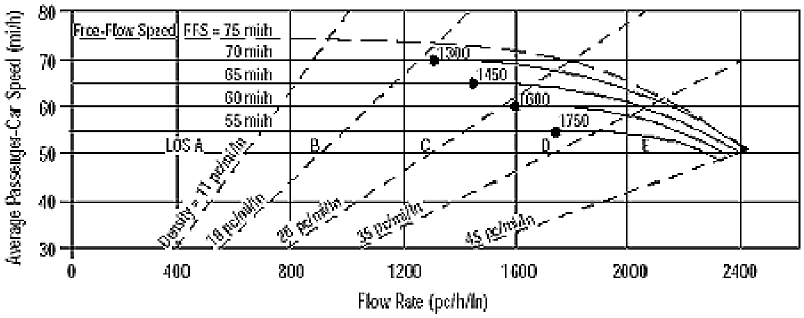
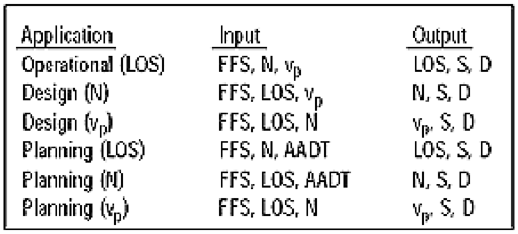
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*North of Rosecrans Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10412*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2314*	pc/h/ln
S	*56.5*	mi/h
D = v_p / S	*40.9*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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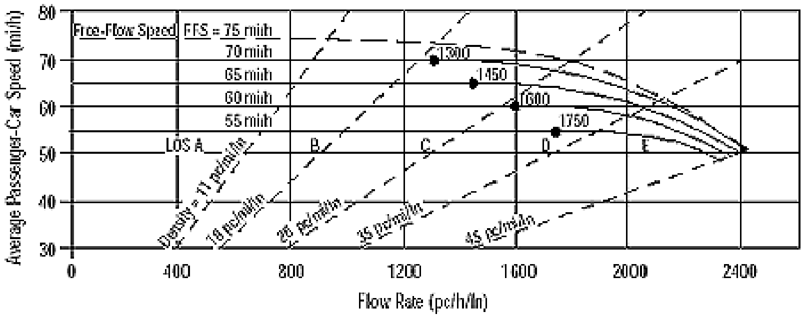
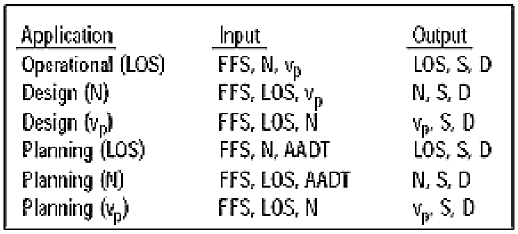
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-710 Northbound*
From/To	*North of Firestone Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8148*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2263*	pc/h/ln
S	*58.2*	mi/h
D = v_p / S	*38.9*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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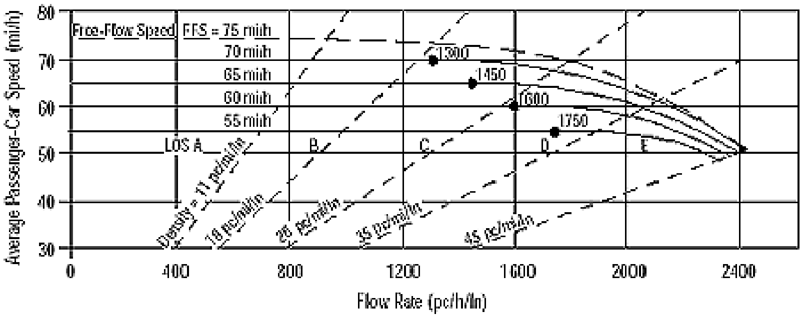
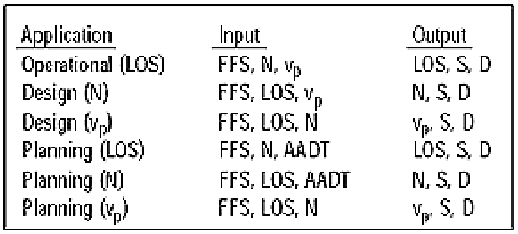
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of Firestone Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7664*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2129*	pc/h/ln
S	*62.0*	mi/h
D = v_p / S	*34.3*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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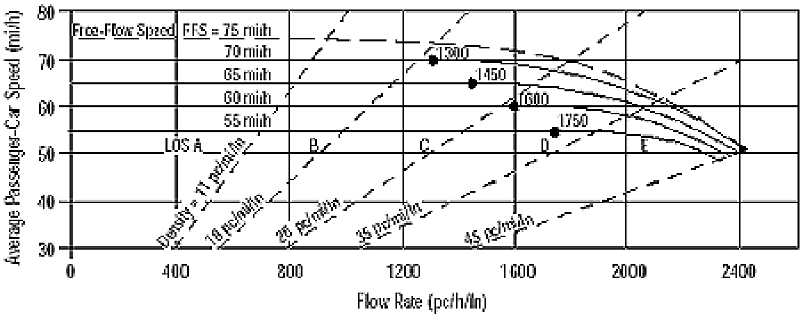
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-710 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of Firestone Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7030*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1953*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*65.7*	mi/h	S	mi/h
D = v_p / S	*29.7*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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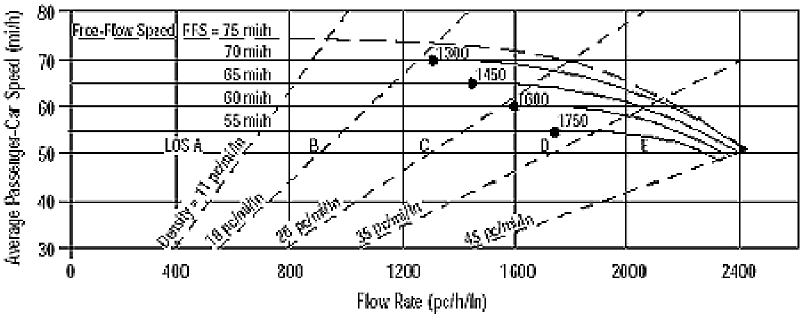
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-710 Southbound*
From/To	*North of Firestone Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8405*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2335*	pc/h/ln
S	*55.8*	mi/h
D = v_p / S	*41.9*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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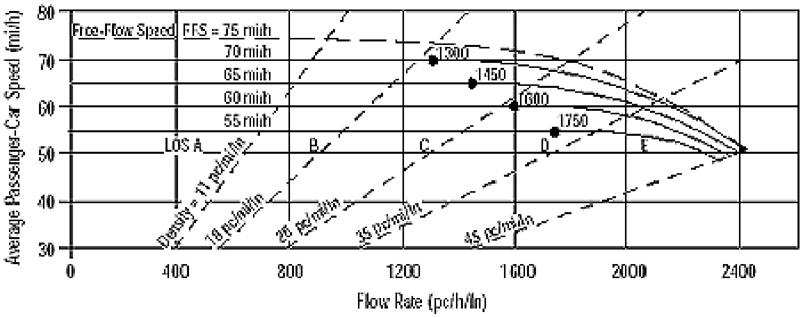
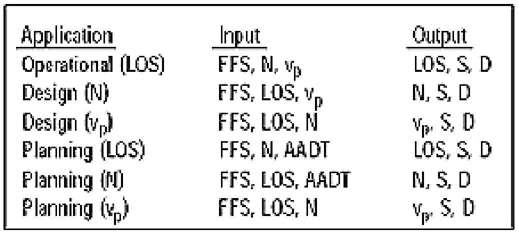
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-710 Northbound*
From/To	*North of SR-91 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT..

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7293*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1621*	pc/h/ln
S	*69.3*	mi/h
D = v_p / S	*23.4*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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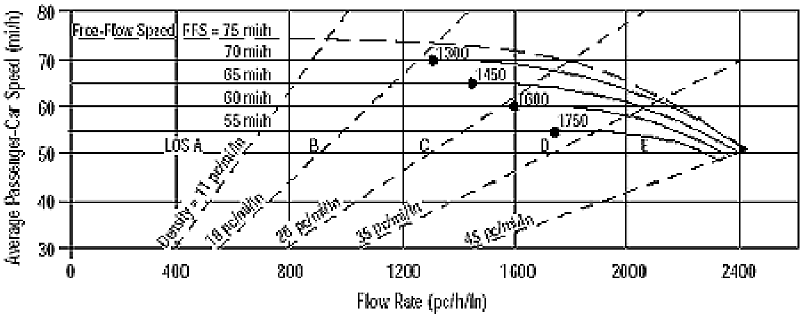
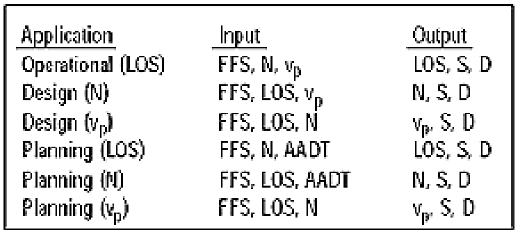
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of SR-91 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT..

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9074*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2016*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*64.5*	mi/h	S	mi/h
D = v_p / S	*31.2*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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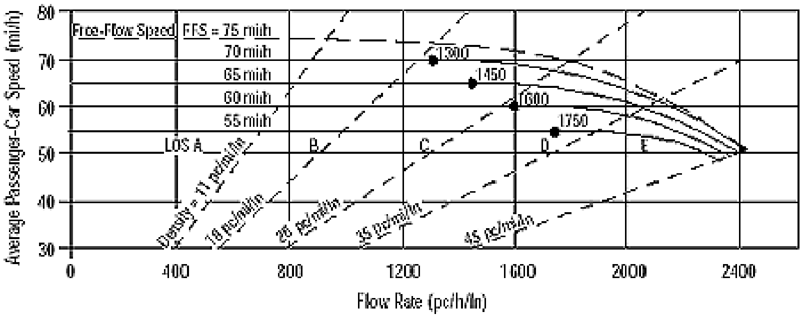
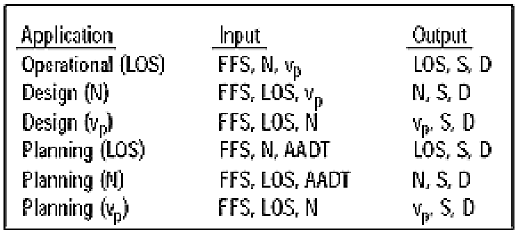
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of SR-91 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10034*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2230*	pc/h/ln
S	*59.2*	mi/h
D = v_p / S	*37.7*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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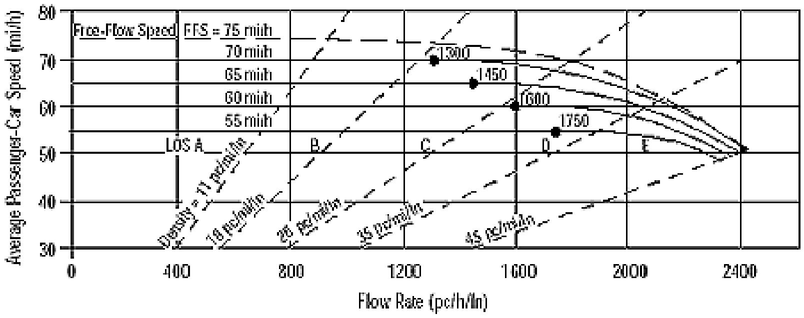
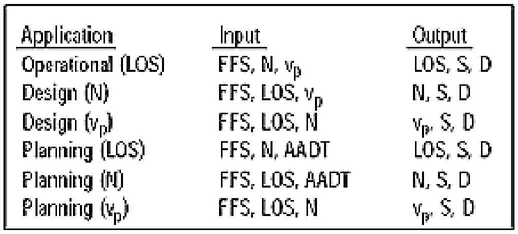
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-710 Southbound*
From/To	*North of SR-91 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8188*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1820*	pc/h/ln
S	*67.6*	mi/h
D = v_p / S	*26.9*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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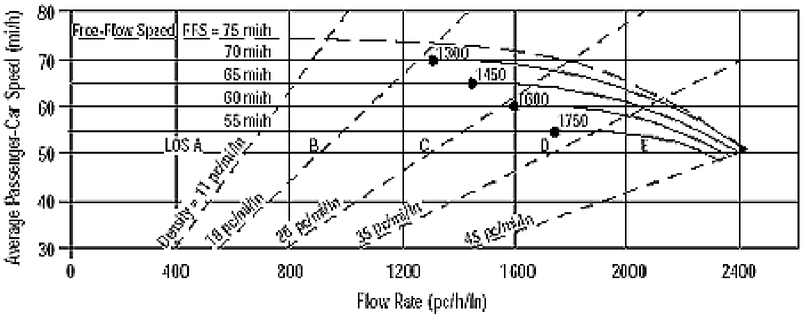
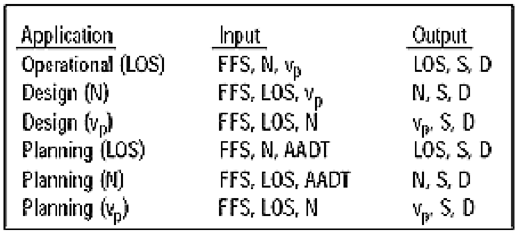
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Crenshaw Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8178*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1817*	pc/h/ln
S	*67.7*	mi/h
D = v_p / S	*26.9*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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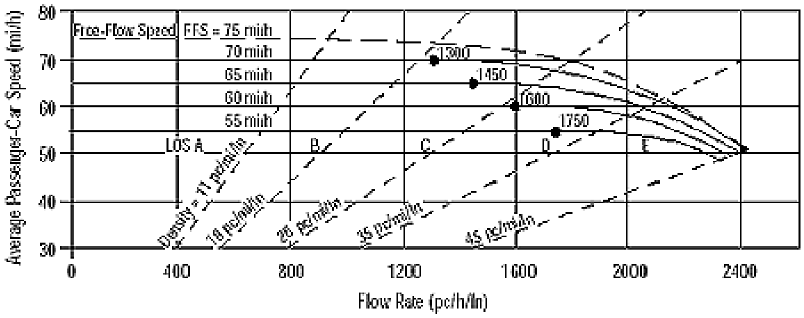
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6747*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1499*	pc/h/ln
S	*69.8*	mi/h
D = v_p / S	*21.5*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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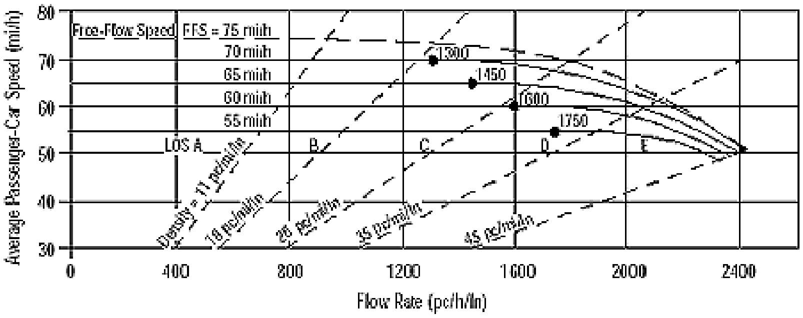
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Crenshaw Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8476*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1884*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*66.8*	mi/h	S	mi/h
D = v_p / S	*28.2*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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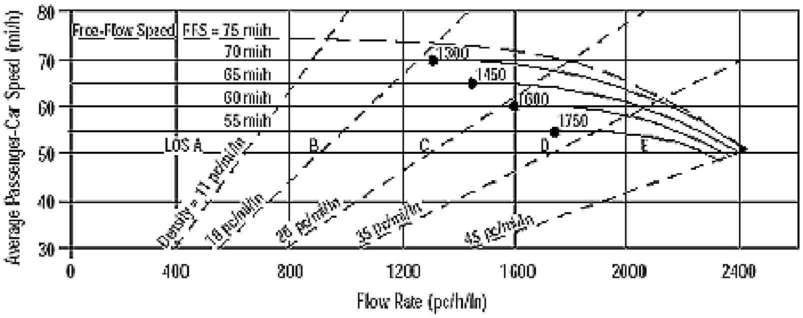
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8952*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1989*	pc/h/ln
S	*65.1*	mi/h
D = v_p / S	*30.6*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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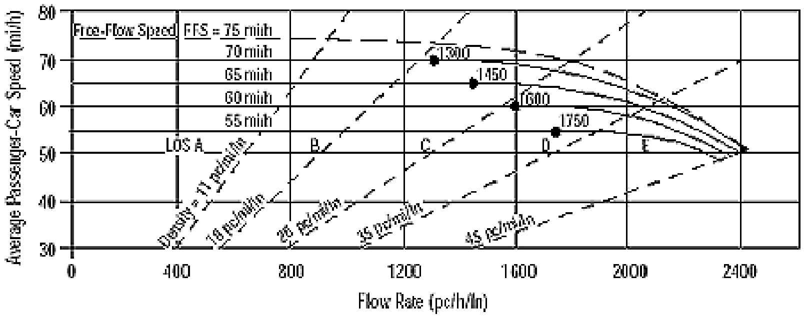
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10411*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2892*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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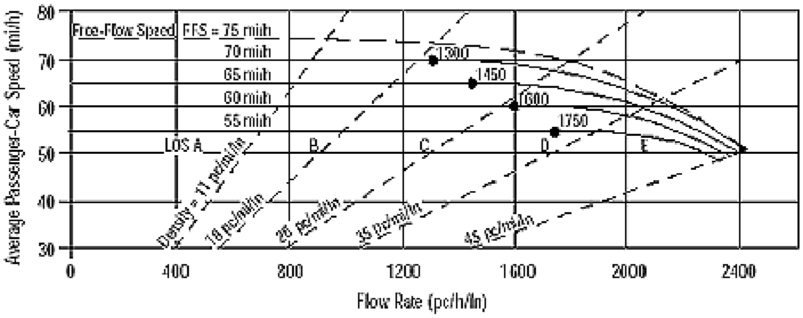
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7382*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2051*	pc/h/ln
S	*63.8*	mi/h
D = v_p / S	*32.1*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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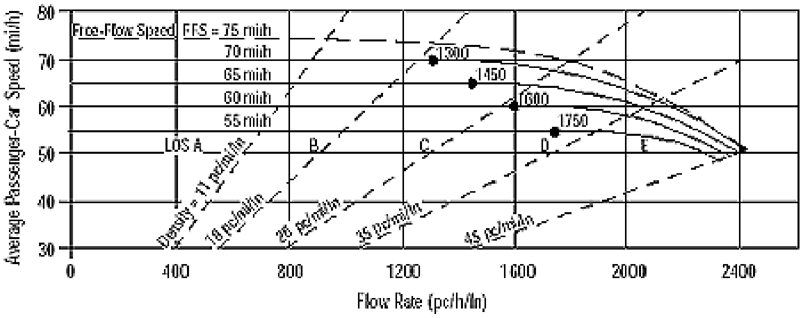
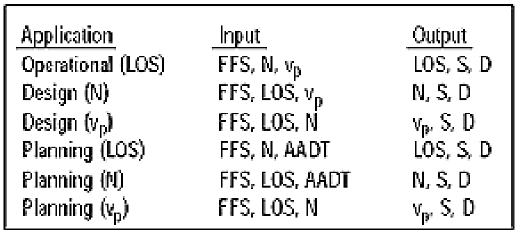
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7712*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2142*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*61.7*	mi/h	S	mi/h
D = v_p / S	*34.7*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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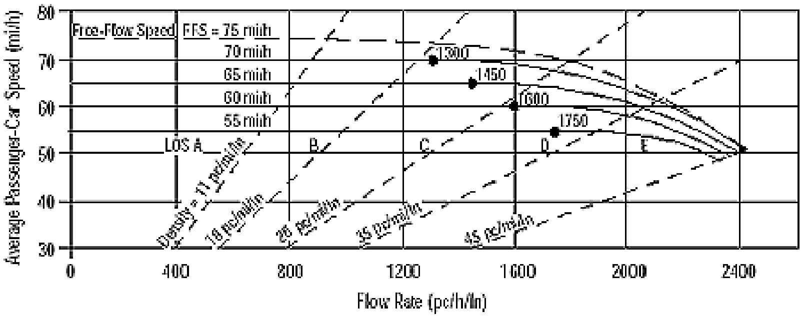
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information | Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7069*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs | Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures | Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1964*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*65.5*	mi/h	S	mi/h
D = v_p / S	*30.0*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary | Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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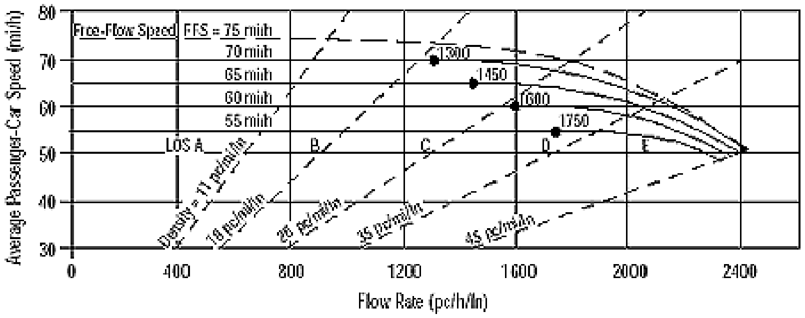
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9786*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2718*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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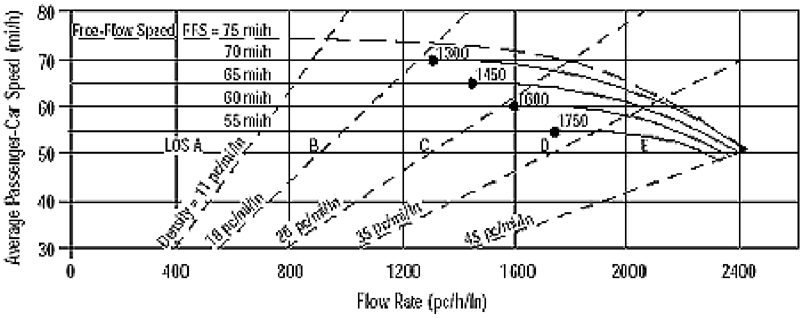
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7156*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1988*	pc/h/ln
S	*65.1*	mi/h
D = v_p / S	*30.5*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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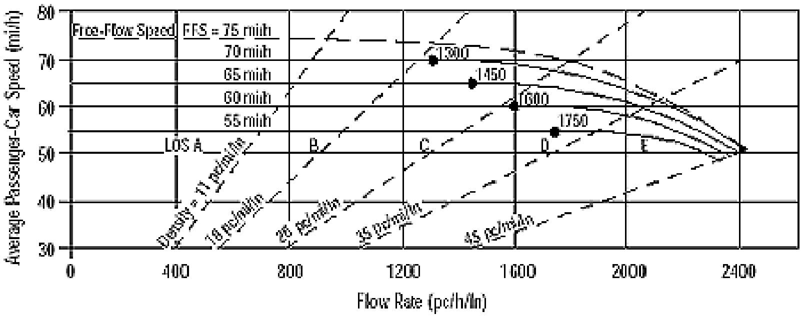
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7148*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1986*	pc/h/ln
S	*65.1*	mi/h
D = v_p / S	*30.5*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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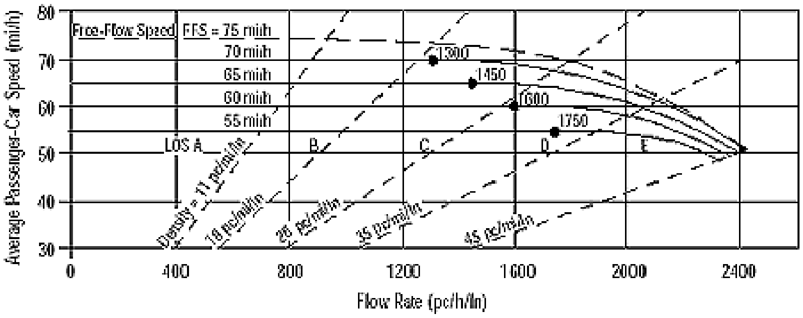
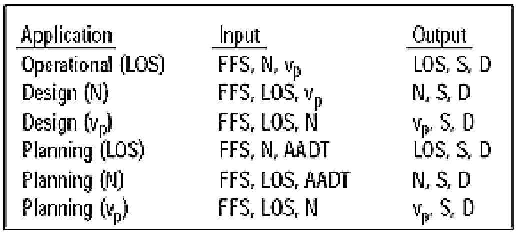
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7028*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1952*	pc/h/ln
S	*65.7*	mi/h
D = v_p / S	*29.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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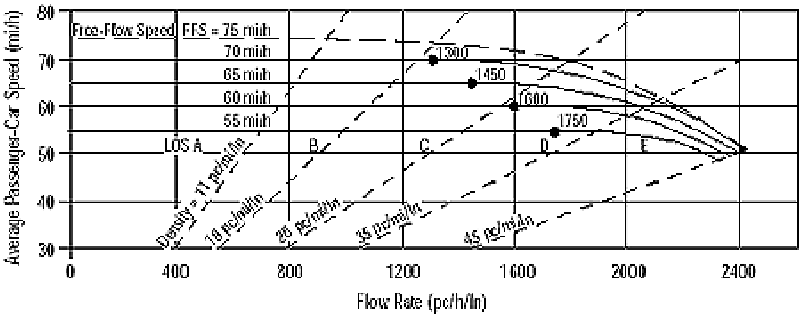
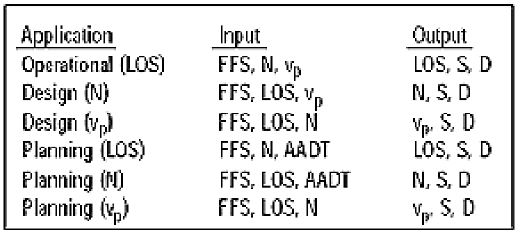
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Long Beach Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9134*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2537*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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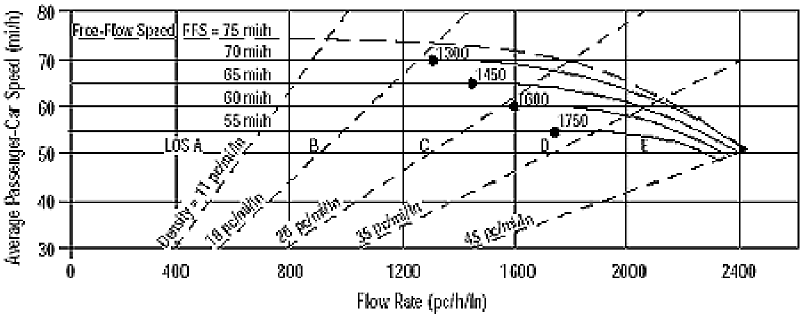
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Long Beach Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7134*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)		
			Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1982*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S	*65.2*	mi/h	S		mi/h
D = v_p / S	*30.4*	pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*D*		Required Number of Lanes, N		

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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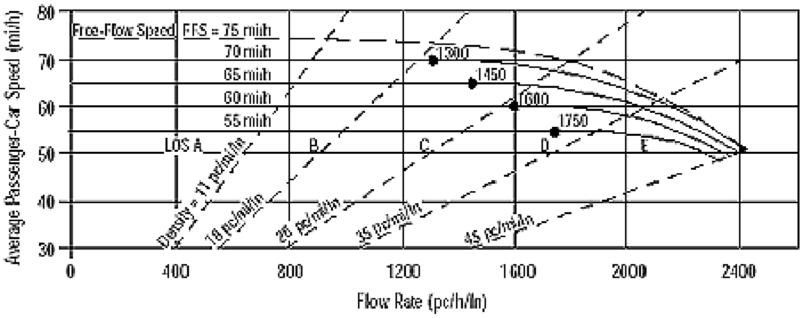
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Long Beach Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6901*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)		
			Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1917*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S	*66.3*	mi/h	S		mi/h
D = v_p / S	*28.9*	pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*D*		Required Number of Lanes, N		

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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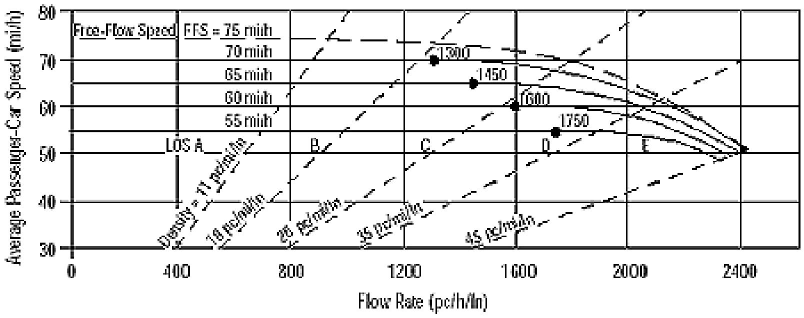
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Site Information

Analyst	*SM*	Highway/Direction of Travel	*Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Long Beach Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7321*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2034*	pc/h/ln
S	*64.2*	mi/h
D = v_p / S	*31.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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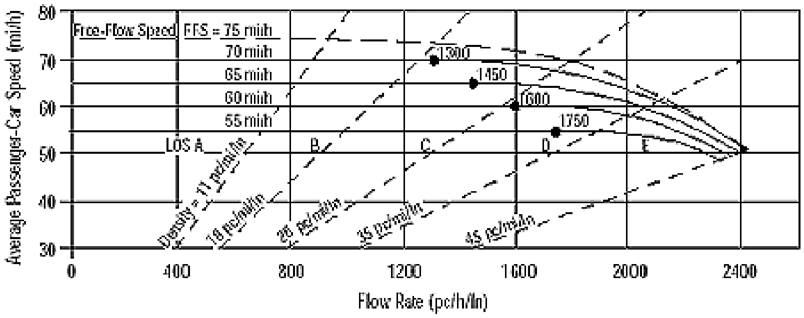
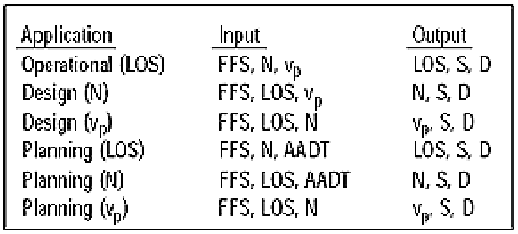
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of I-710 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8823*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2451*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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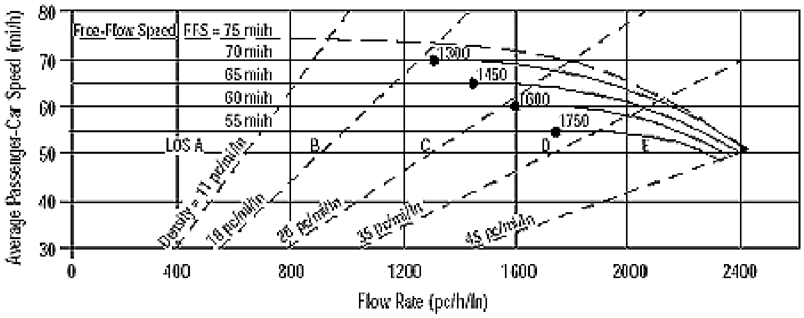
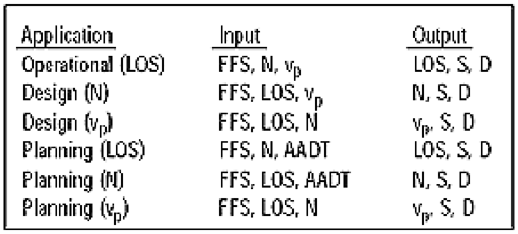
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*		
Agency or Company	*Raju Associates*		
Date Performed	*6/29/2010*		
Analysis Time Period	*PM*		

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of I-710 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7575*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2104*	pc/h/ln
S	*62.6*	mi/h
D = v_p / S	*33.6*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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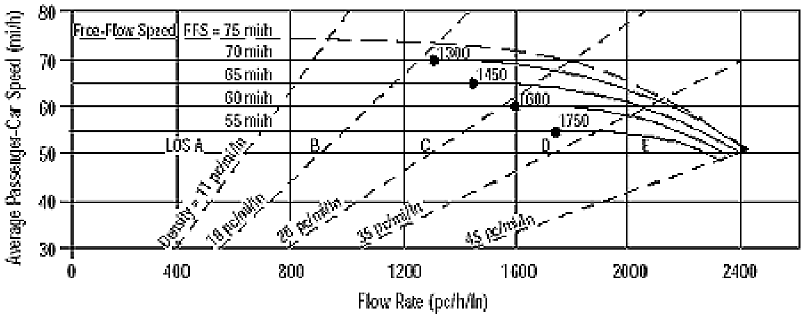
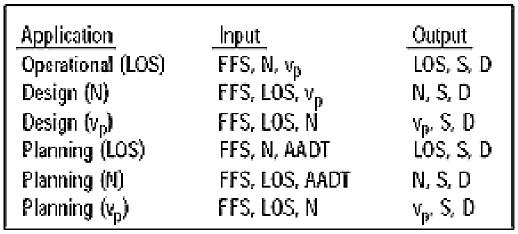
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of I-710 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7304*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2029*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*64.3*	mi/h	S	mi/h
D = v_p / S	*31.6*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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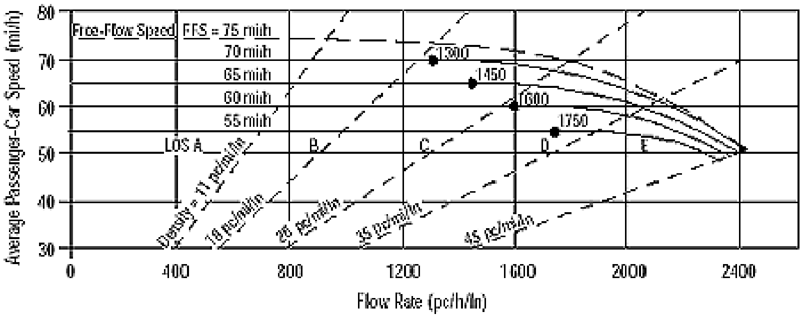
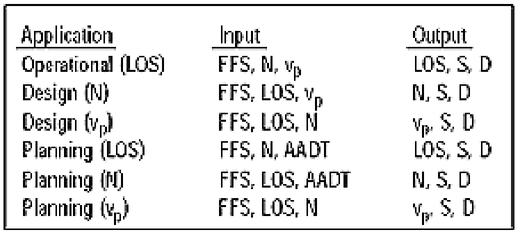
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of I-710 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7737*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2149*	pc/h/ln
S	*61.5*	mi/h
D = v_p / S	*34.9*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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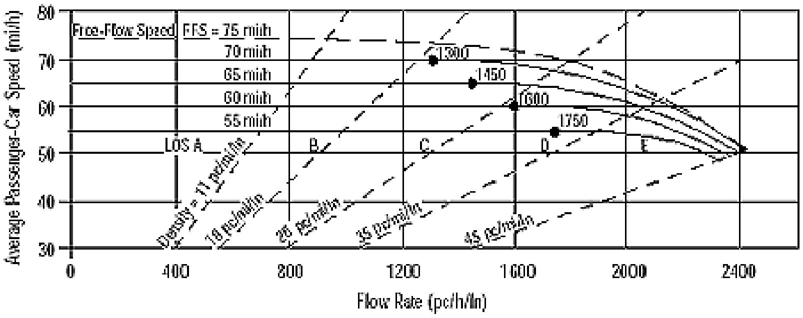
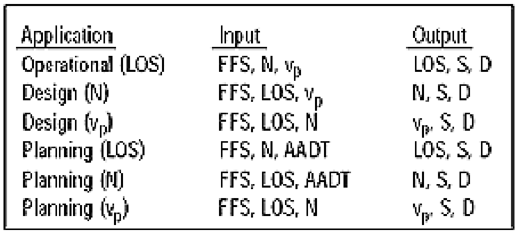
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*East of Bellflower Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7604*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1690*	pc/h/ln
S	*68.9*	mi/h
D = v_p / S	*24.5*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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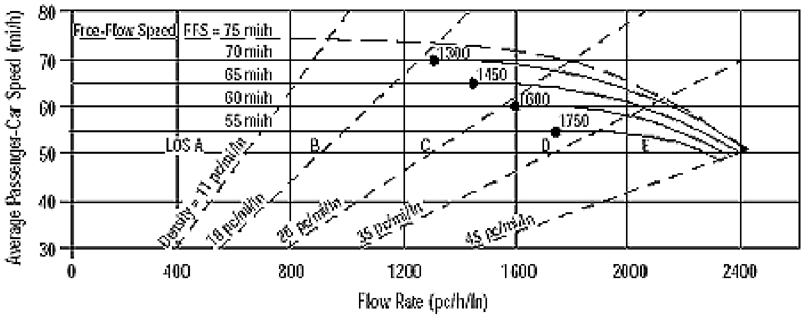
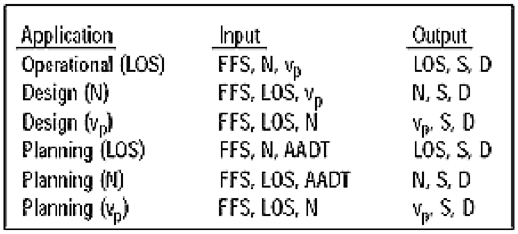
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Bellflower Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

(Site Information is the right-hand half of the table above.)

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6900*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1533*	pc/h/ln
S	*69.7*	mi/h
D = v_p / S	*22.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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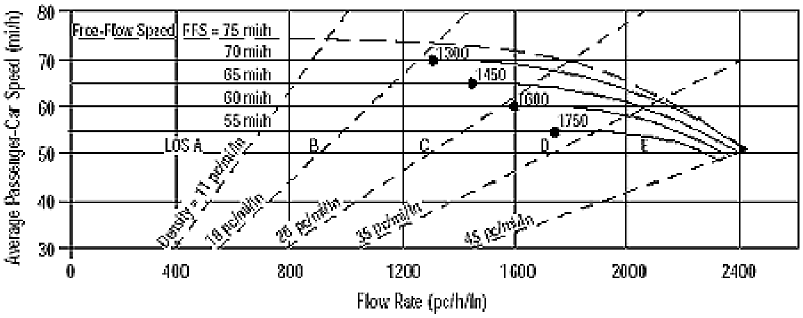
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Bellflower Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6289*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1398*	pc/h/ln
S	*70.0*	mi/h
D = v_p / S	*20.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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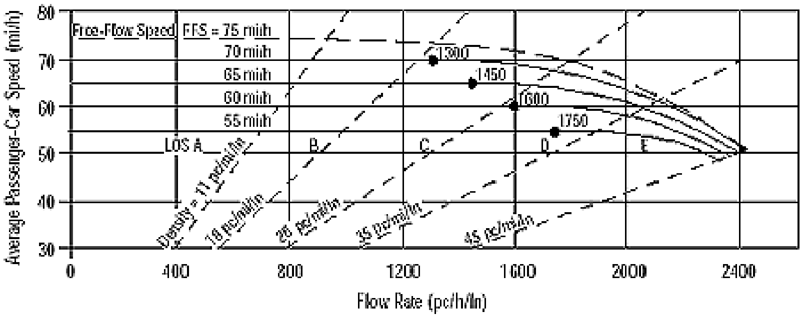
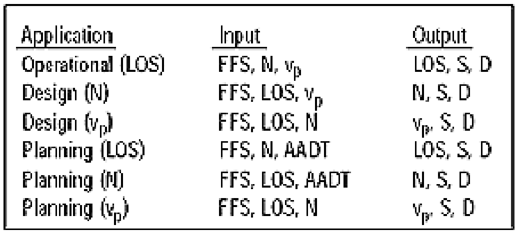
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Bellflower Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6526*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1450*	pc/h/ln
S	*69.9*	mi/h
D = v_p / S	*20.7*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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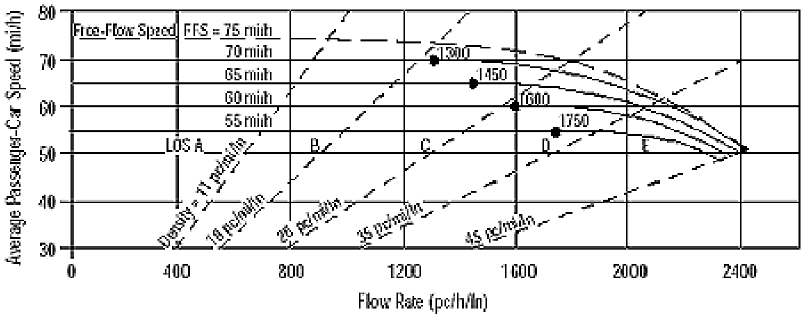
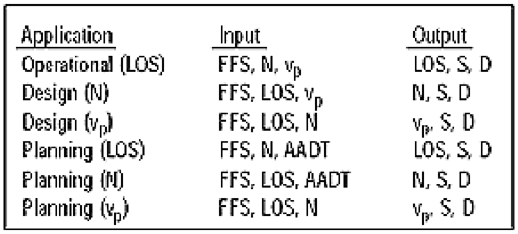
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11566*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2570*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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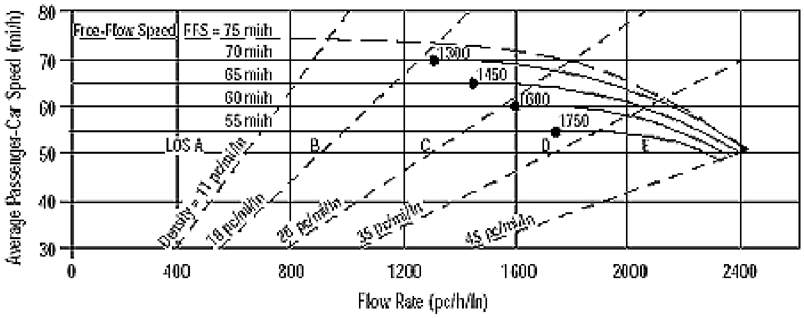
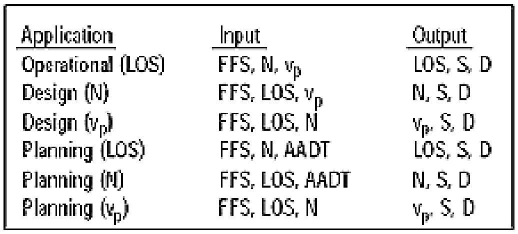
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6609*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1469*	pc/h/ln
S	*69.9*	mi/h
D = v_p / S	*21.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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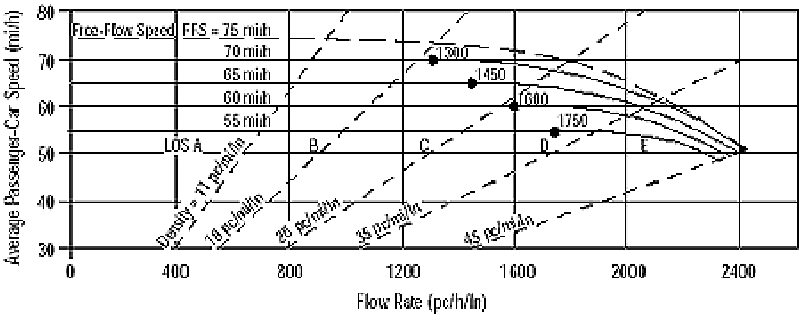
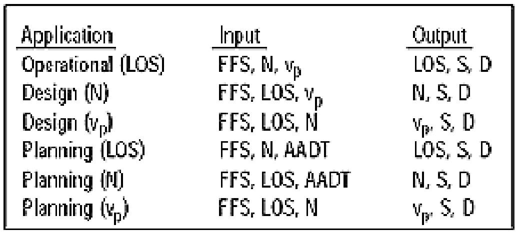
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*SR-91 Eastbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6475*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1439*	pc/h/ln
S	*69.9*	mi/h
D = v_p / S	*20.6*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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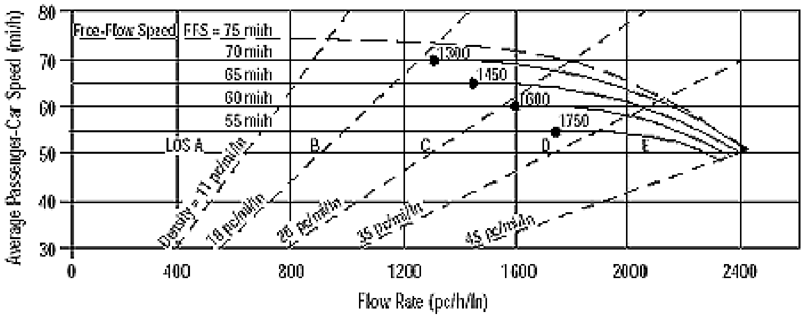
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*SR-91 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*15643*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3476*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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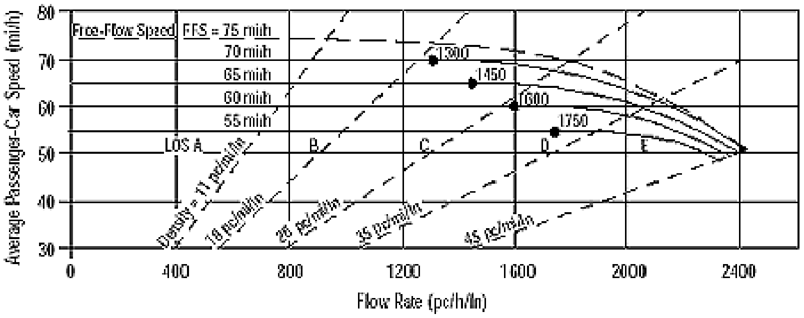
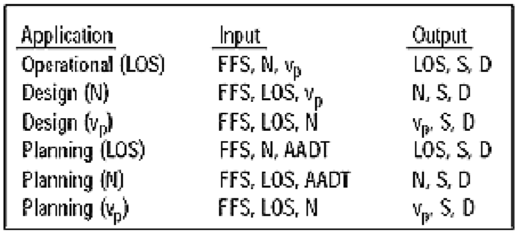
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*East of Alameda Street*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12347*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2744*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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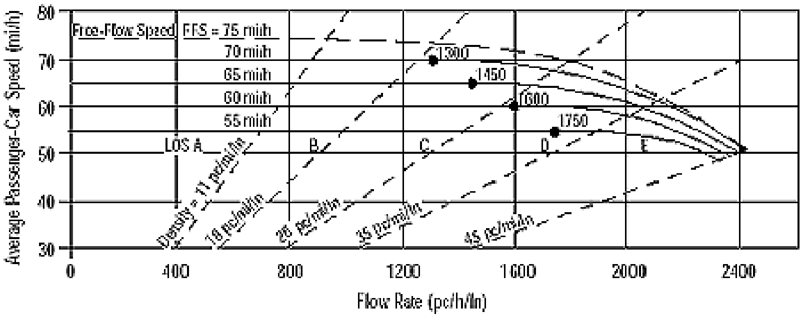
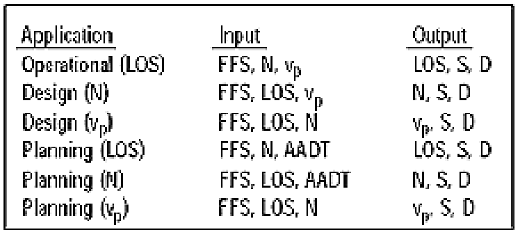
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*East of Alameda Street*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7021*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1560*	pc/h/ln
S	*69.6*	mi/h
D = v_p / S	*22.4*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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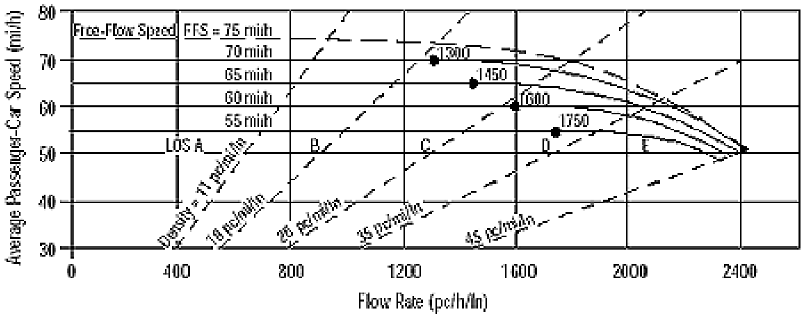
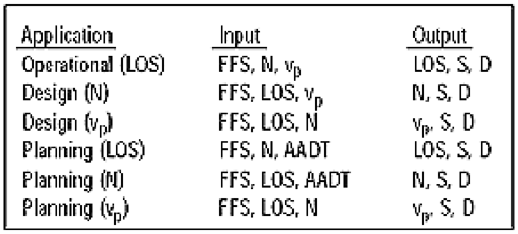
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Alameda Street*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6913*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*6*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1280*	pc/h/ln
S	*70.0*	mi/h
D = v_p / S	*18.3*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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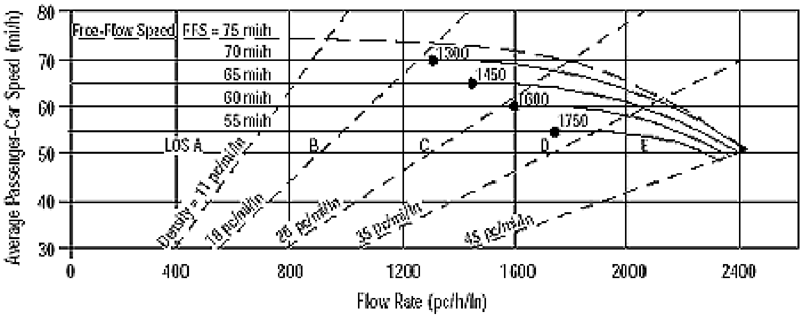
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Eastbound*
From/To	*East of Alameda Street*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2014)Project Tier 1*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*16628*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*6*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3079*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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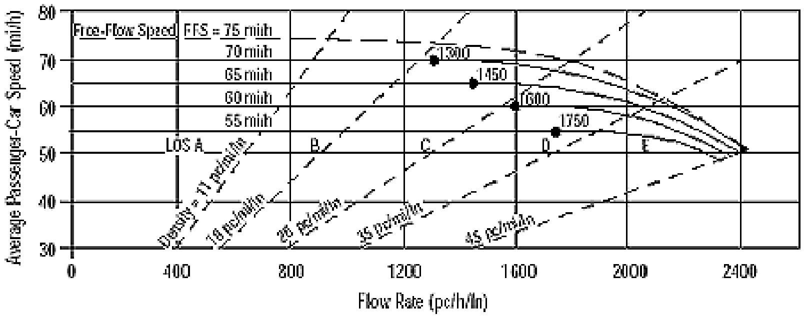
HCS WORKSHEETS

CUMULATIVE (2020) BASE CONDITIONS

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*at Manchester Bl*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11517*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2559*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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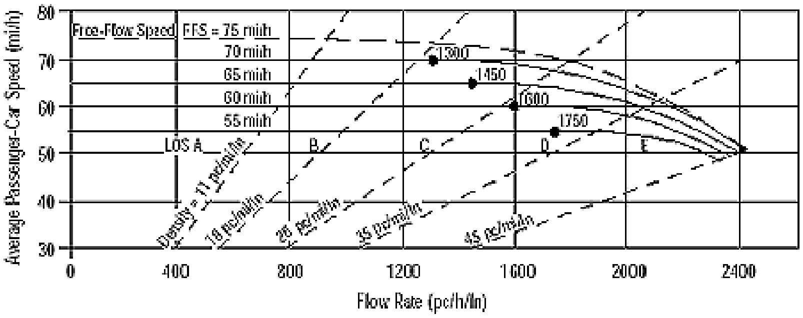
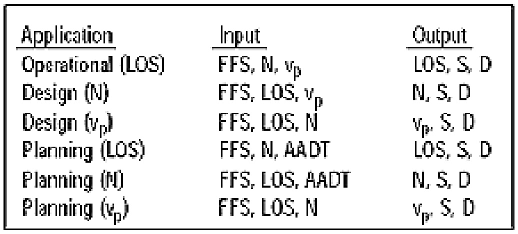
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Northbound*
From/To	*at Manchester Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11512*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2558*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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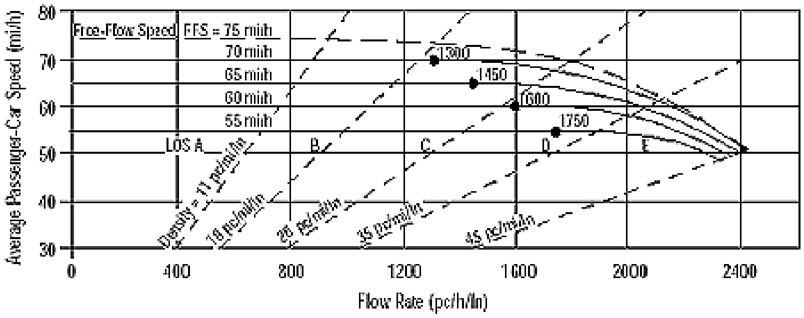
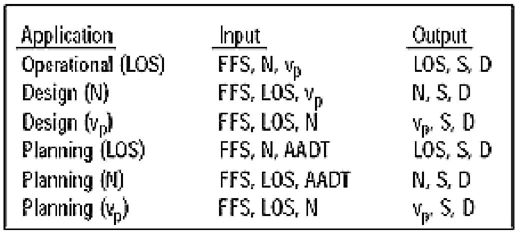
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		**Site Information**	
Analyst	*SM*	Highway/Direction of Travel	*I-110 Southbound*
Agency or Company	*Raju Associates*	From/To	*at Manchester Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11943*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2654*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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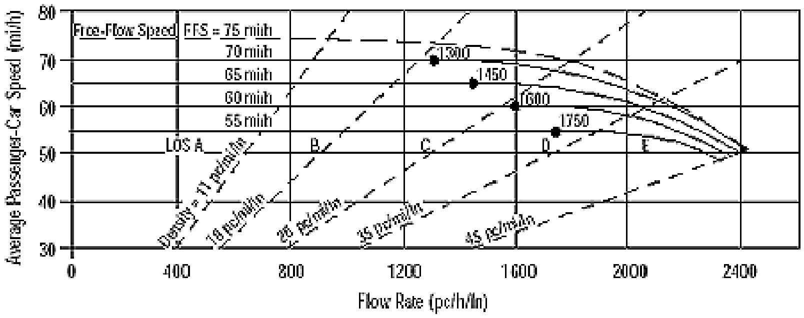
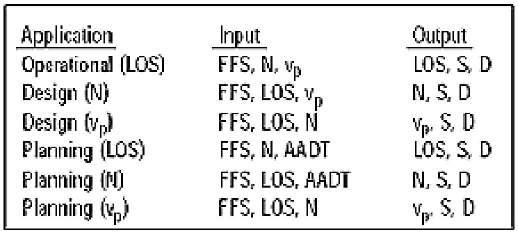
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*at Manchester Bl*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12910*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2869*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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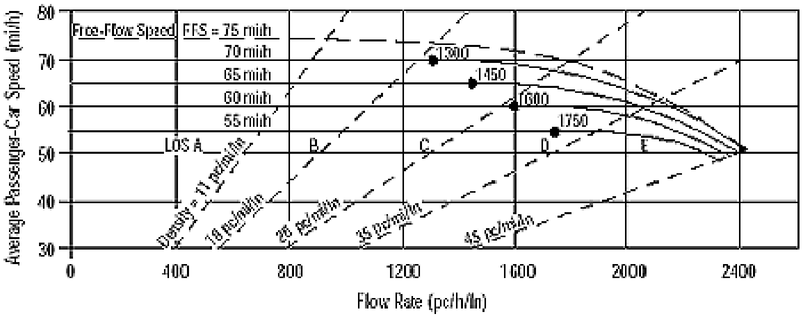
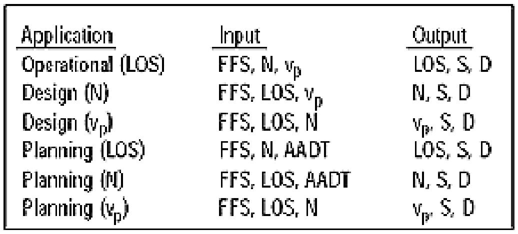
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of Rosecrans Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10575*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2350*	pc/h/ln
S	*55.2*	mi/h
D = v_p / S	*42.5*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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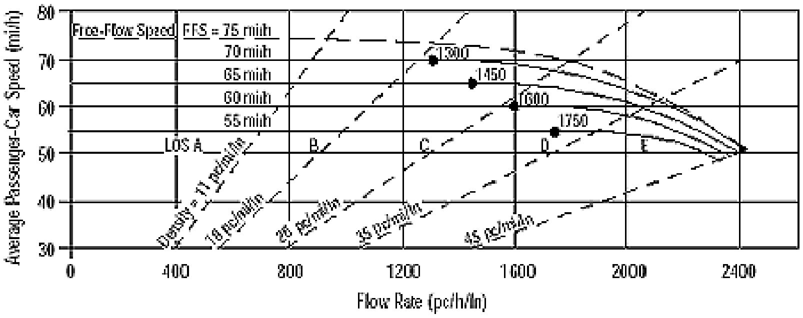
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of Rosecrans Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9234*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2052*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*63.8*	mi/h	S	mi/h
D = v_p / S	*32.2*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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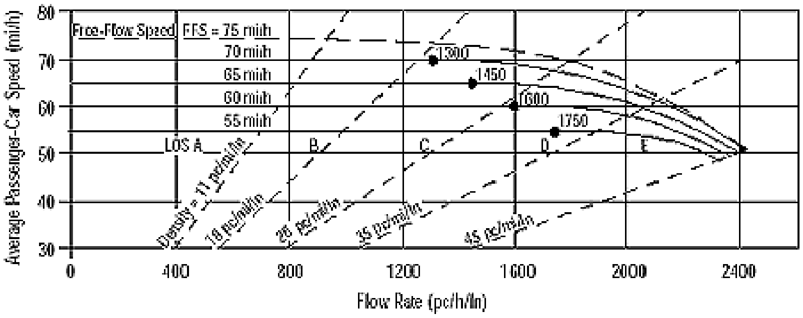
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-110 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of Rosecrans Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11383*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2530*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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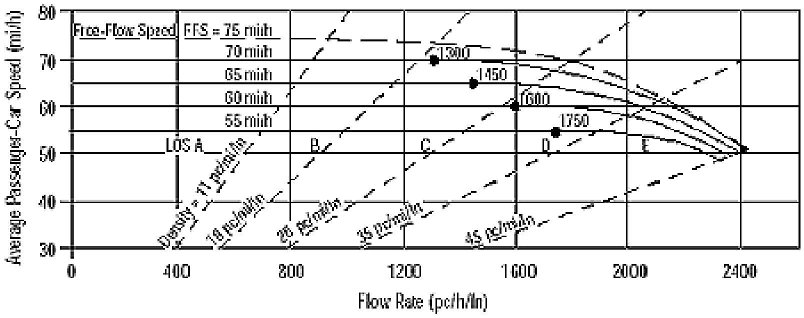
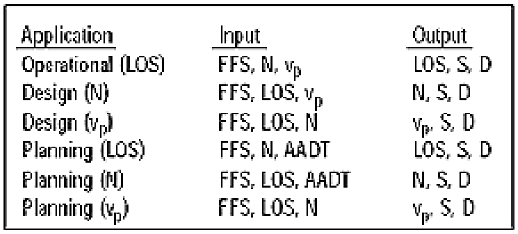
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-110 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of Rosecrans Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10870*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2416*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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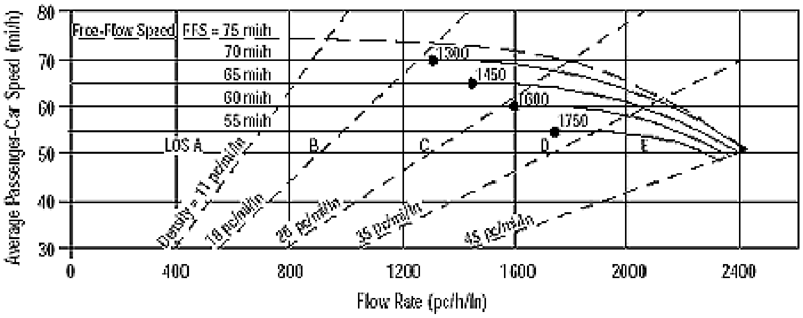
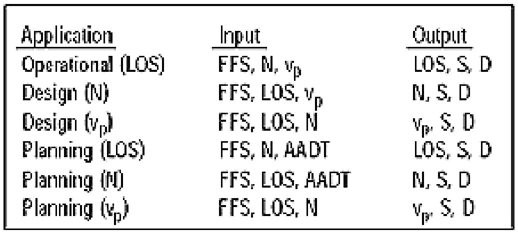
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-710 Northbound*
From/To	*North of Firestone Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8695*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2415*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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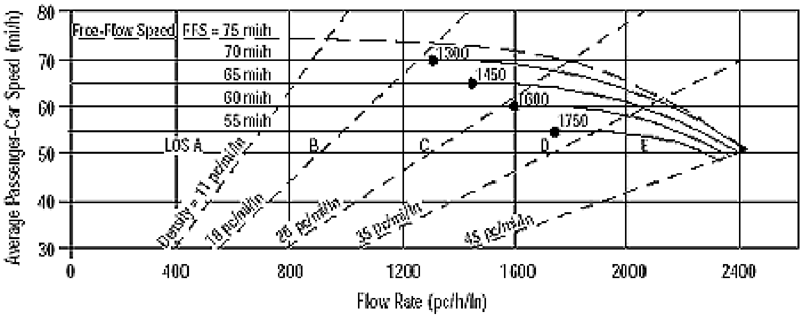
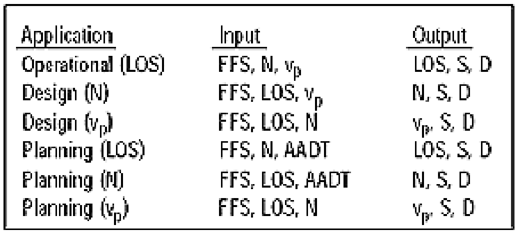
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-710 Northbound*
From/To	*North of Firestone Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8354*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2321*	pc/h/ln
S	*56.3*	mi/h
D = v_p / S	*41.2*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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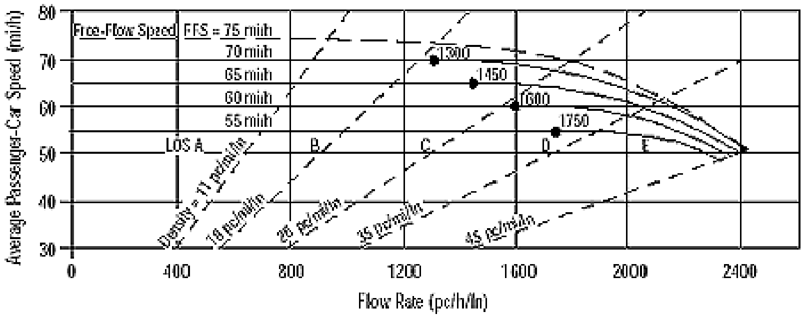
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of Firestone Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7532*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2092*	pc/h/ln
S	*62.9*	mi/h
D = v_p / S	*33.3*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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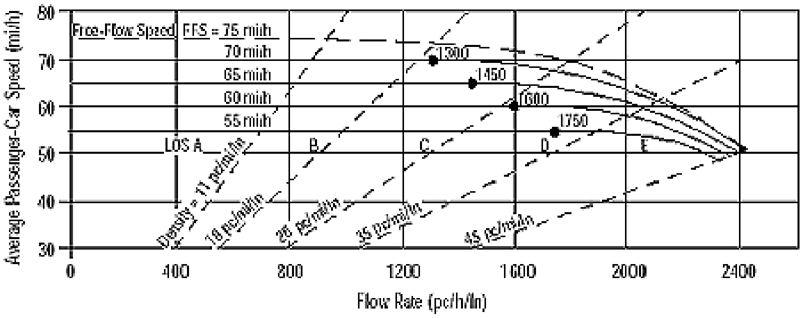
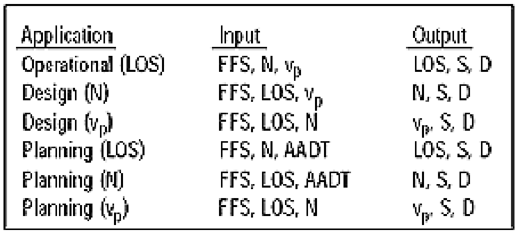
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-710 Southbound*
From/To	*North of Firestone Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9105*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2529*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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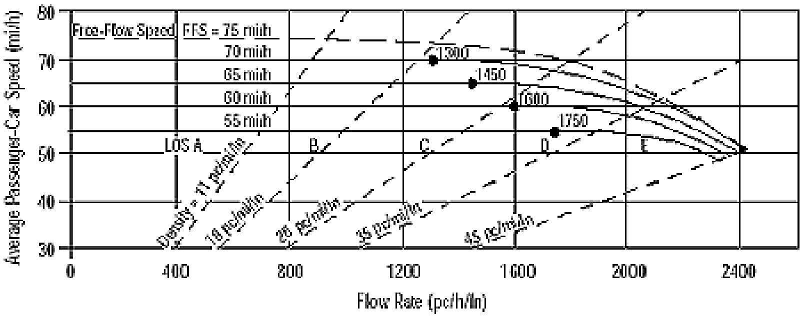
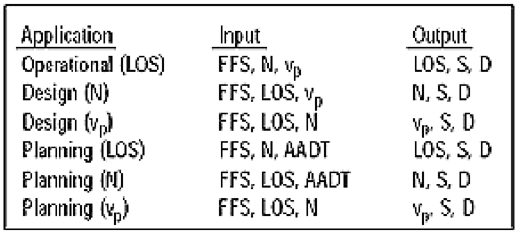
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-710 Northbound*
From/To	*North of SR-91 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT..

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7614*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1692*	pc/h/ln
S	*68.9*	mi/h
D = v_p / S	*24.6*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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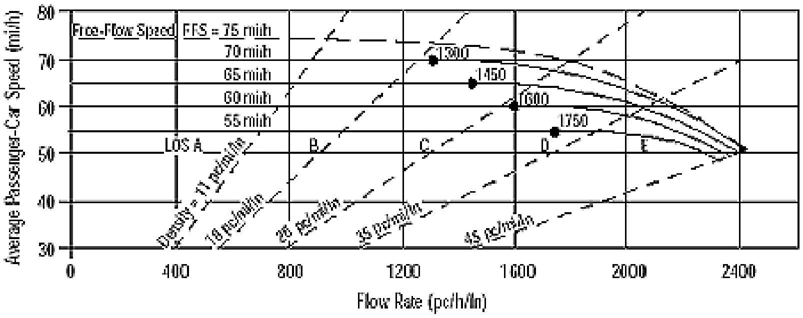
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of SR-91 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Base*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT..

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9473*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2105*	pc/h/ln
S	*62.6*	mi/h
D = v_p / S	*33.6*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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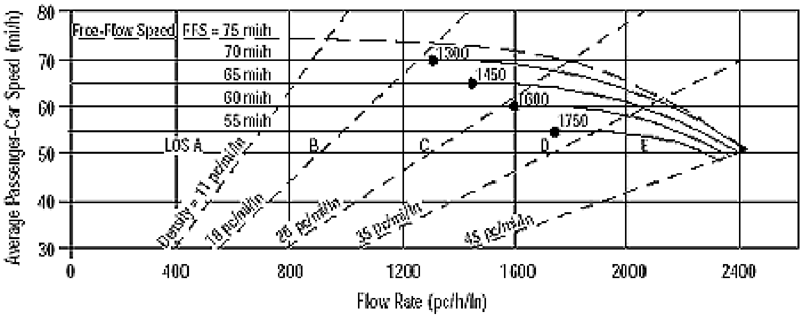
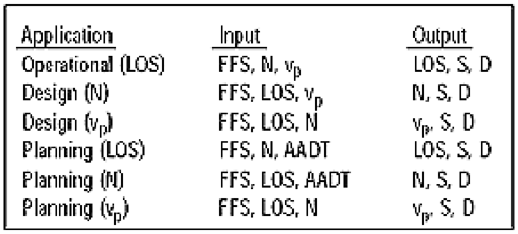
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-710 Southbound*
From/To	*North of SR-91 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10468*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2326*	pc/h/ln
S	*56.1*	mi/h
D = v_p / S	*41.5*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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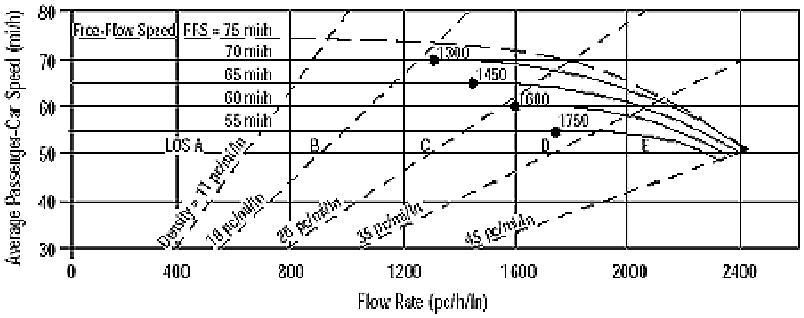
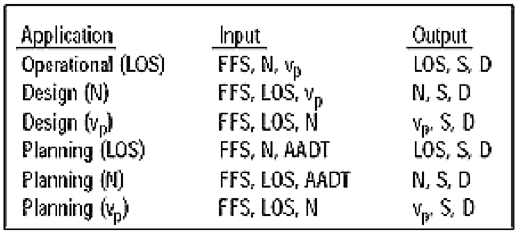
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of SR-91 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Base*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8554*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1901*	pc/h/ln
S	*66.5*	mi/h
D = v_p / S	*28.6*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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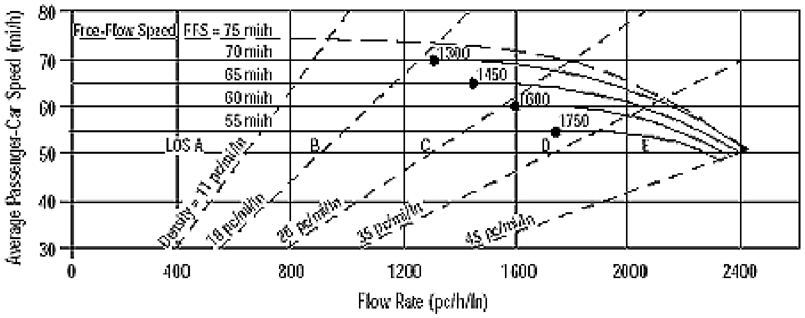
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8551*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1900*	pc/h/ln
S	*66.6*	mi/h
D = v_p / S	*28.5*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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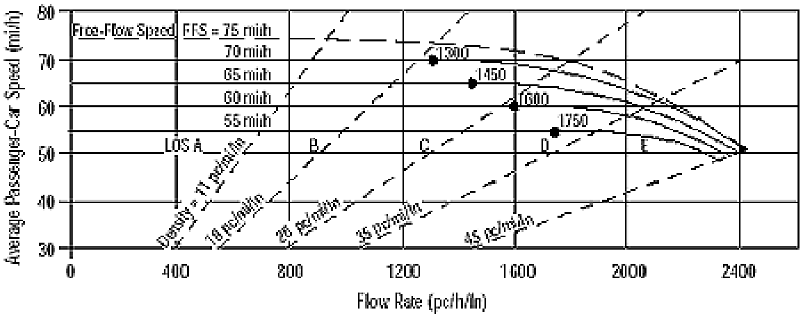
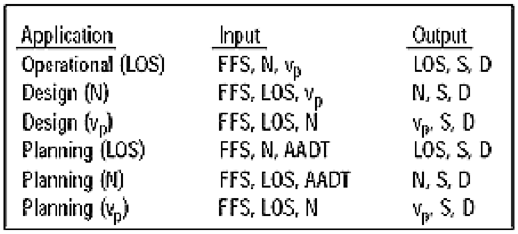
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7079*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1573*	pc/h/ln
S	*69.6*	mi/h
D = v_p / S	*22.6*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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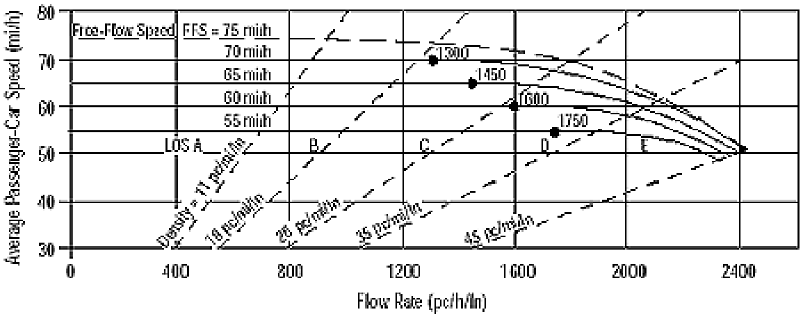
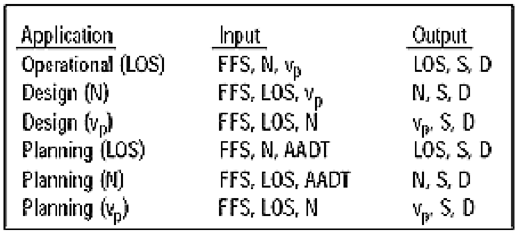
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8866*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1970*	pc/h/ln
S	*65.4*	mi/h
D = v_p / S	*30.1*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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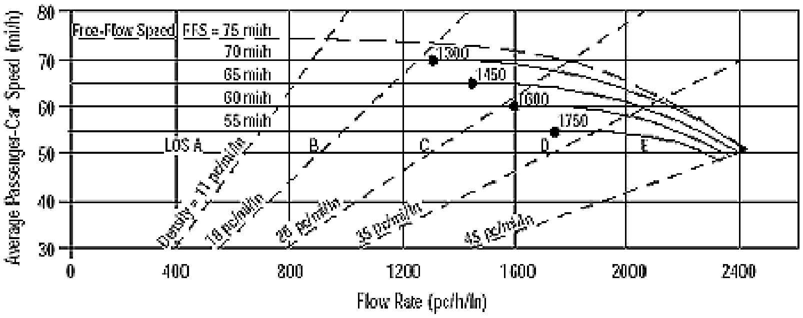
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9372*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2083*	pc/h/ln
S	*63.1*	mi/h
D = v_p / S	*33.0*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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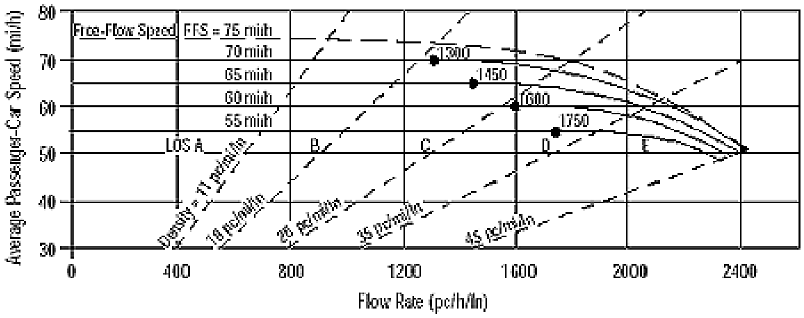
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10896*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3027*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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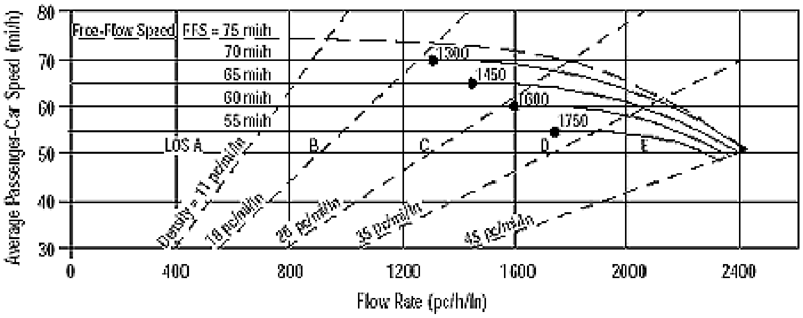
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		**Site Information**	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7771*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2159*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*61.2*	mi/h	S	mi/h
D = v_p / S	*35.3*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*E*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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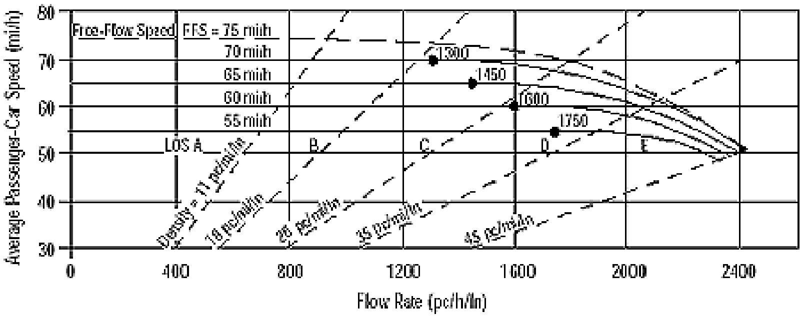
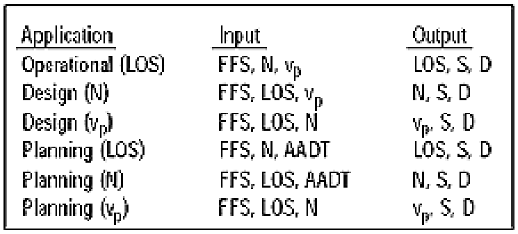
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8094*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2248*	pc/h/ln
S	*58.7*	mi/h
D = v_p / S	*38.3*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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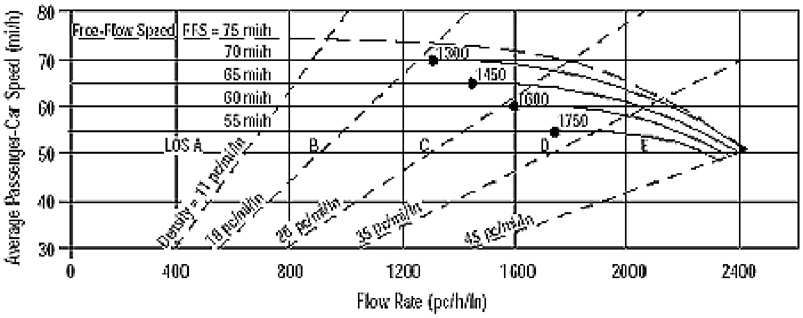
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7433*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2065*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*63.5*	mi/h	S	mi/h
D = v_p / S	*32.5*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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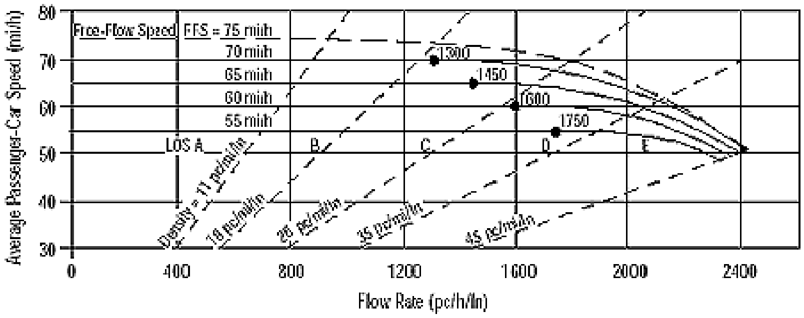
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*		
Agency or Company	*Raju Associates*		
Date Performed	*6/29/2010*		
Analysis Time Period	*AM*		

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10236*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2843*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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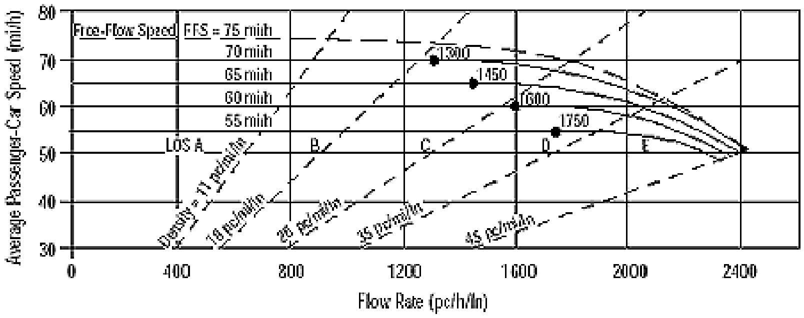
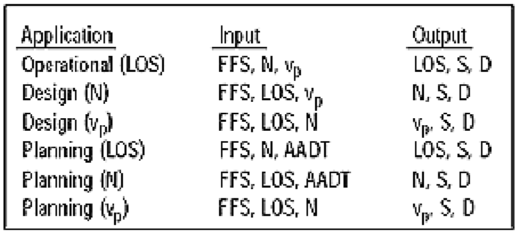
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		**Site Information**	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7523*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2090*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*63.0*	mi/h	S	mi/h
D = v_p / S	*33.2*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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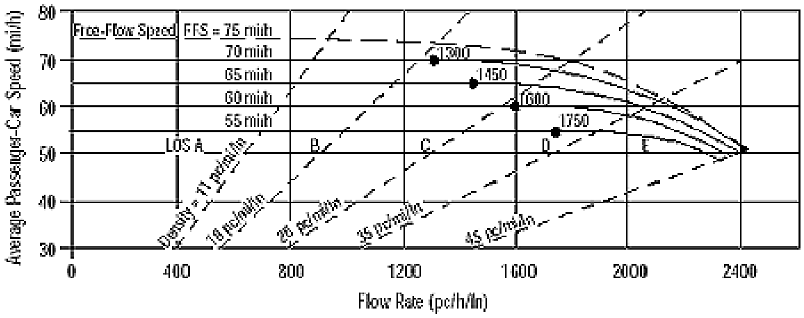
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7494*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2082*	pc/h/ln
S	*63.1*	mi/h
D = v_p / S	*33.0*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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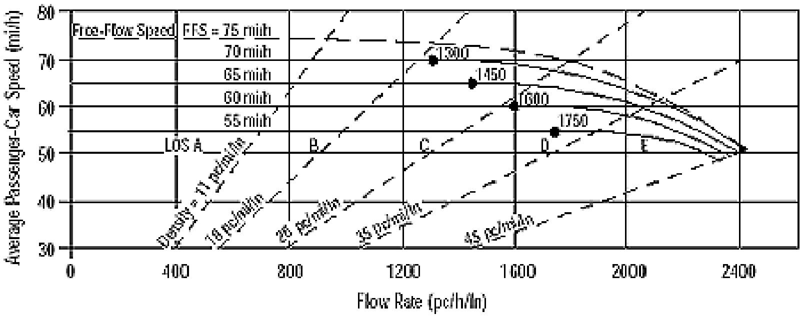
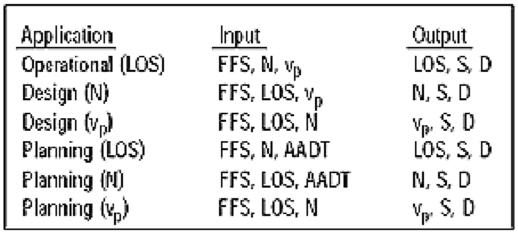
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7382*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2051*	pc/h/ln
S	*63.8*	mi/h
D = v_p / S	*32.1*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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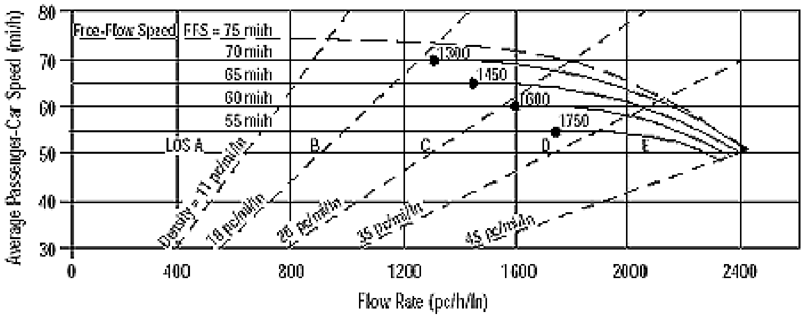
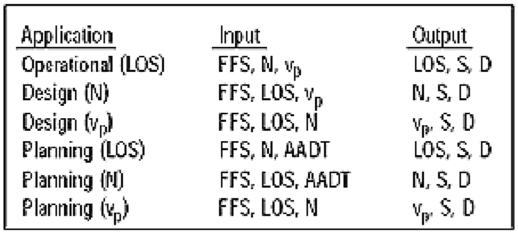
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Long Beach Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9558*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2655*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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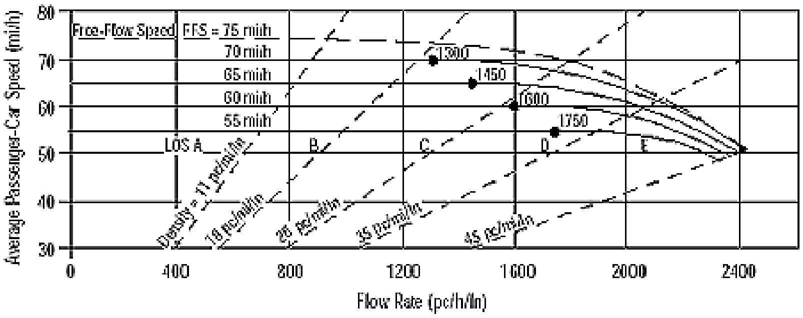
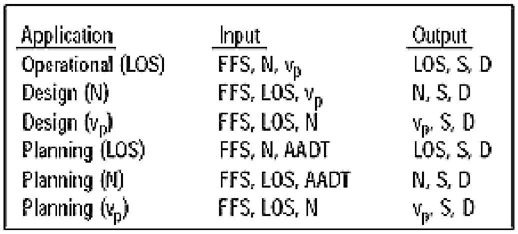
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Long Beach Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7476*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2077*	pc/h/ln
S	*63.2*	mi/h
D = v_p / S	*32.8*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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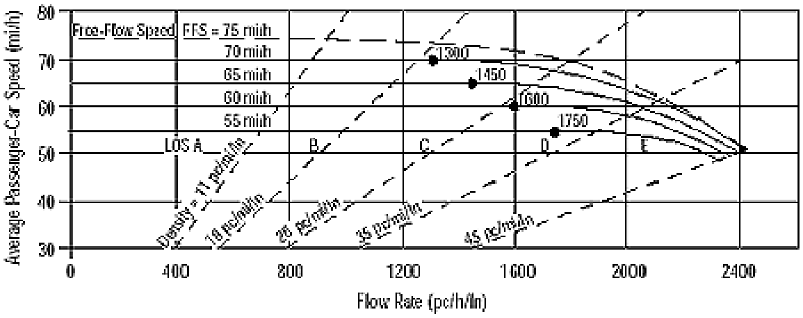
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*		
Agency or Company	*Raju Associates*		
Date Performed	*6/29/2010*		
Analysis Time Period	*AM*		

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Long Beach Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7255*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2015*	pc/h/ln
S	*64.6*	mi/h
D = v_p / S	*31.2*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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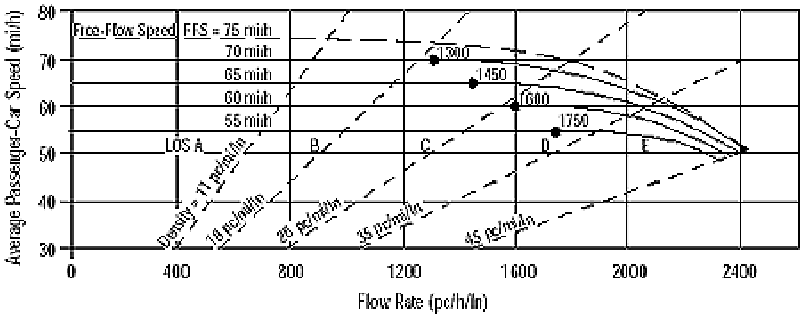
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Long Beach Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7682*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2134*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*61.9*	mi/h	S	mi/h
D = v_p / S	*34.5*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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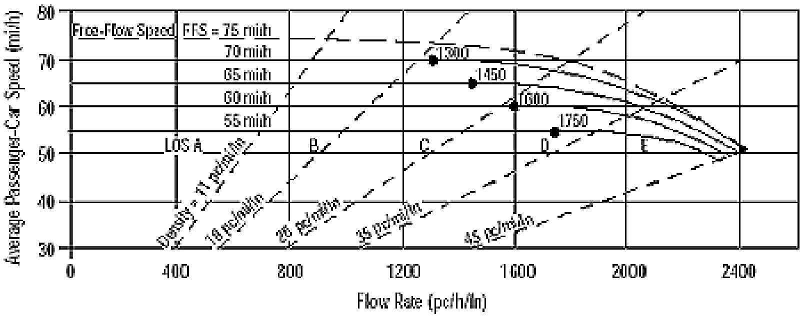
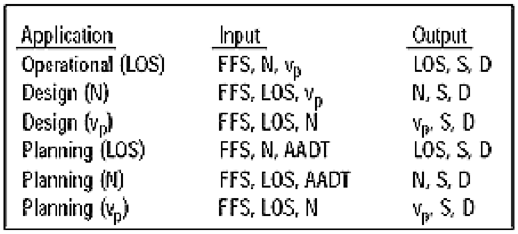
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of I-710 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9244*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)		
			Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2568*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h	S		mi/h
D = v_p / S		pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*F*		Required Number of Lanes, N		

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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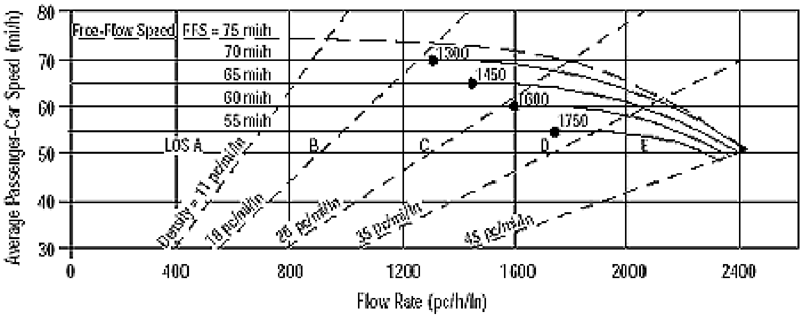
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of I-710 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7951*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2209*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*59.8*	mi/h	S	mi/h
D = v_p / S	*36.9*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*E*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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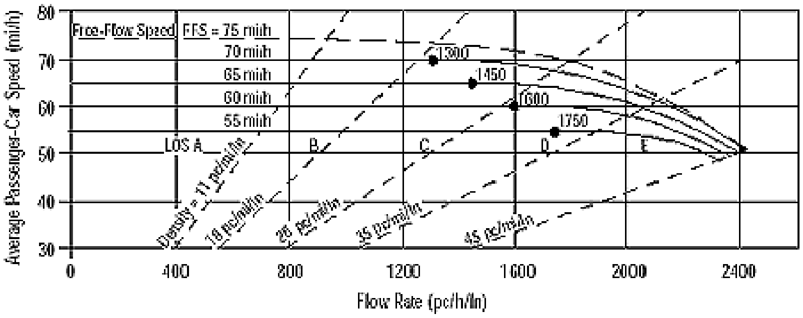
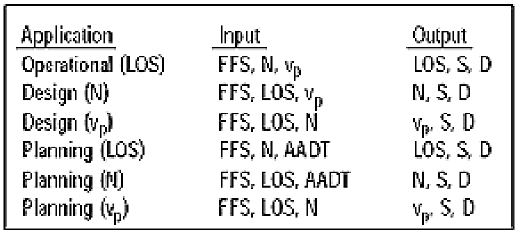
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / *Site Information*

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of I-710 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7654*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2126*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*62.1*	mi/h	S	mi/h
D = v_p / S	*34.2*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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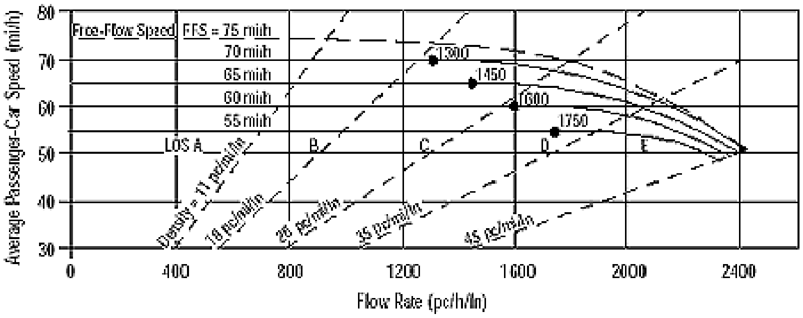
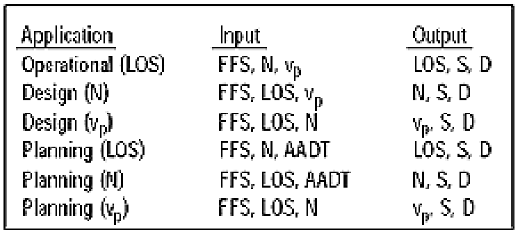
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of I-710 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8133*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2259*	pc/h/ln
S	*58.3*	mi/h
D = v_p / S	*38.7*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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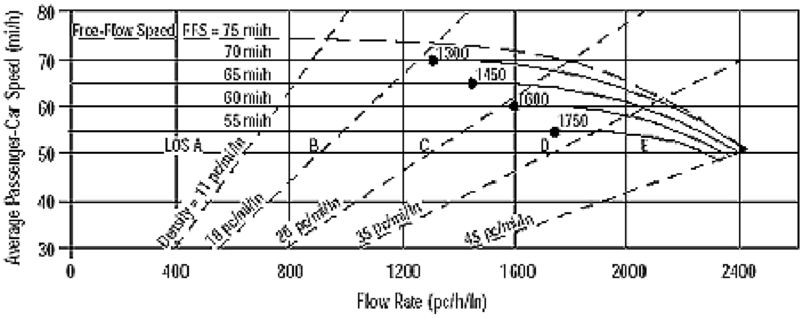
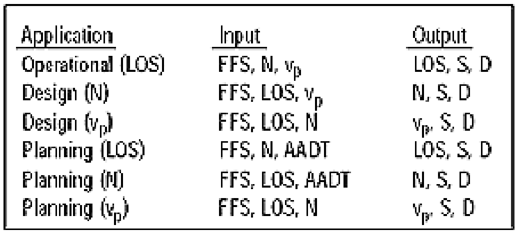
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*East of Bellflower Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7948*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1766*	pc/h/ln
S	*68.2*	mi/h
D = v_p / S	*25.9*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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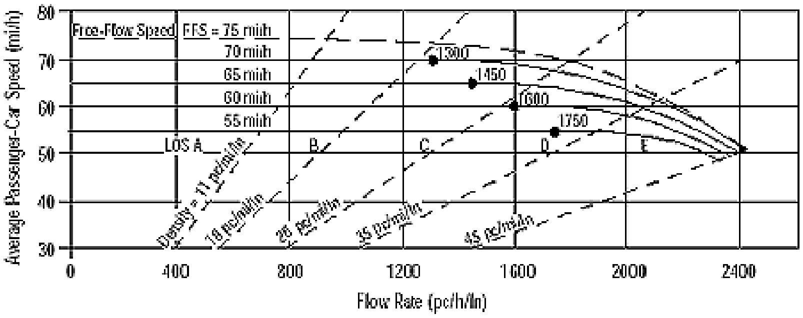
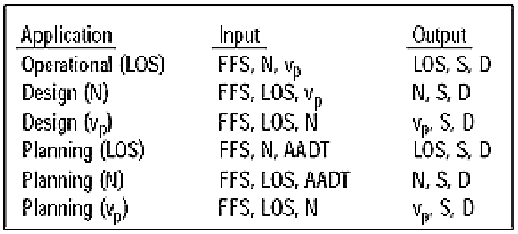
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*East of Bellflower Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7220*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1604*	pc/h/ln
S	*69.4*	mi/h
D = v_p / S	*23.1*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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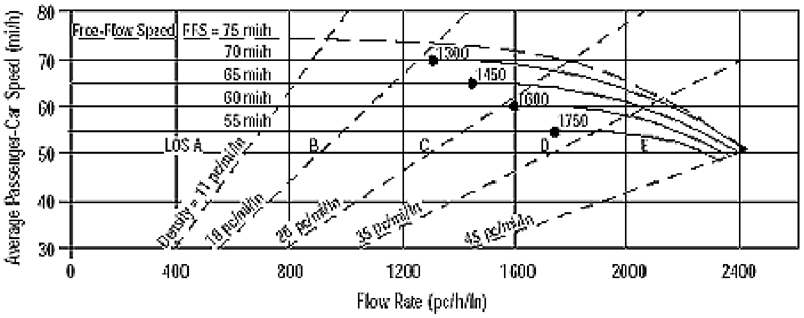
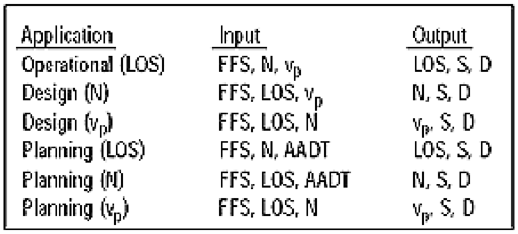
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Bellflower Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6575*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1461*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*69.9*	mi/h	S	mi/h
D = v_p / S	*20.9*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*C*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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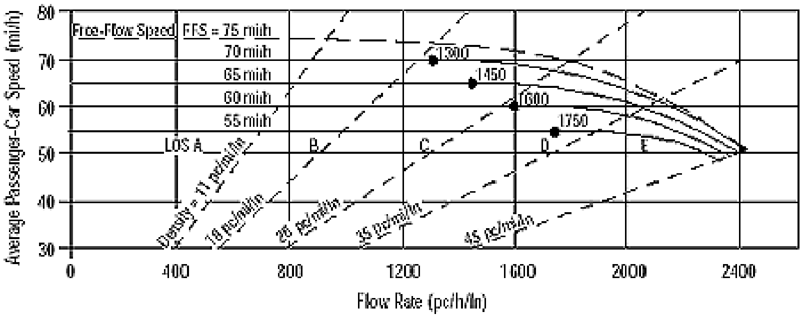
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Bellflower Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6836*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1519*	pc/h/ln
S	*69.7*	mi/h
D = v_p / S	*21.8*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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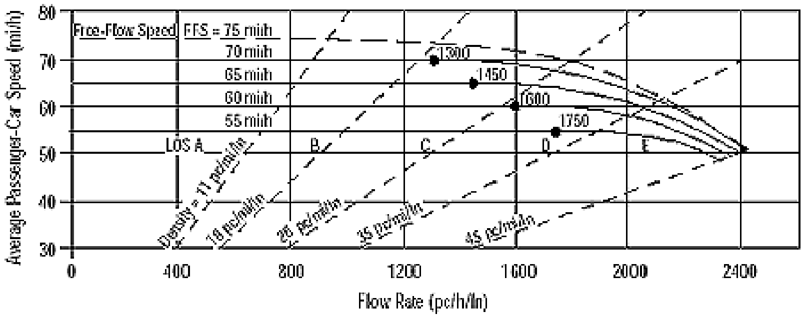
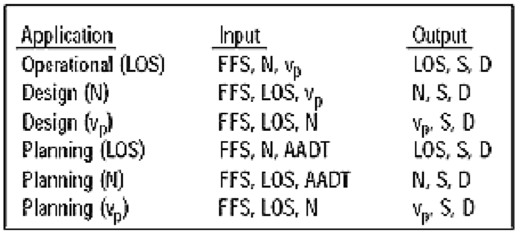
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12053*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2678*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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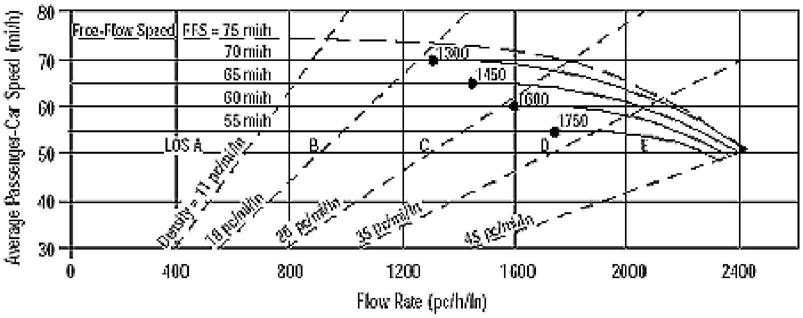
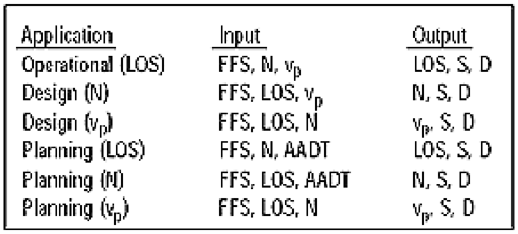
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6888*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1531*	pc/h/ln
S	*69.7*	mi/h
D = v_p / S	*22.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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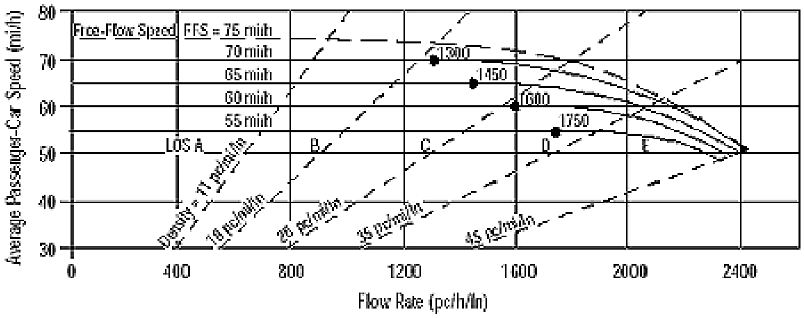
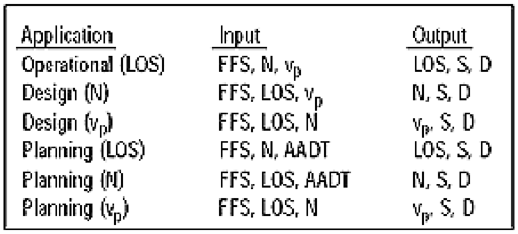
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6749*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1500*	pc/h/ln
S	*69.8*	mi/h
D = v_p / S	*21.5*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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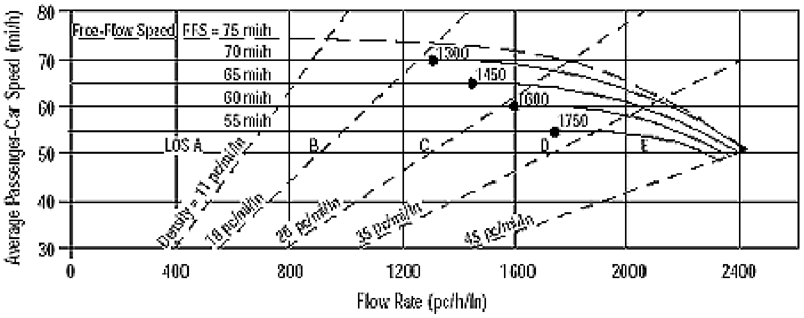
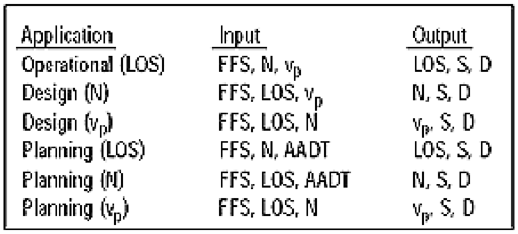
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Eastbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*16301*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3622*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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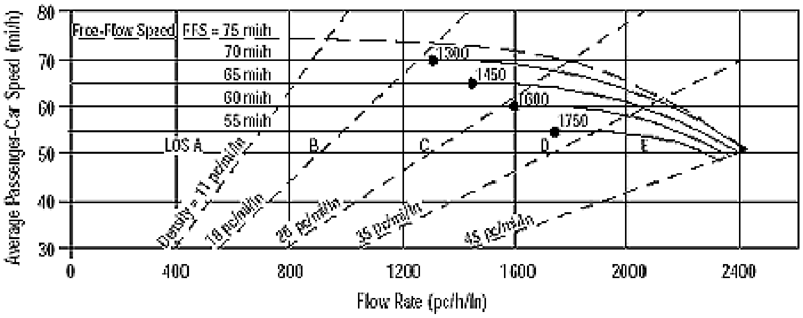
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*SR-91 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Alameda Street*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12869*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2860*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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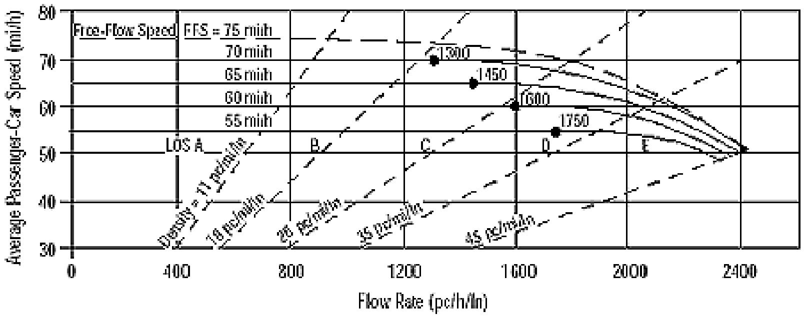
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*East of Alameda Street*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7319*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*6*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1355*	pc/h/ln
S	*70.0*	mi/h
D = v_p / S	*19.4*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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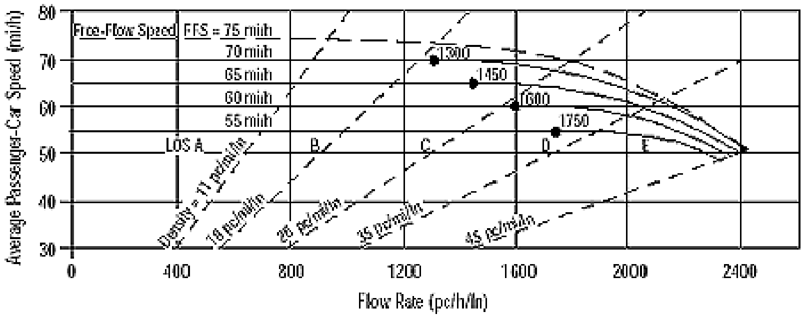
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*SR-91 Eastbound*
From/To	*East of Alameda Street*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7205*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*6*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1334*	pc/h/ln
S	*70.0*	mi/h
D = v_p / S	*19.1*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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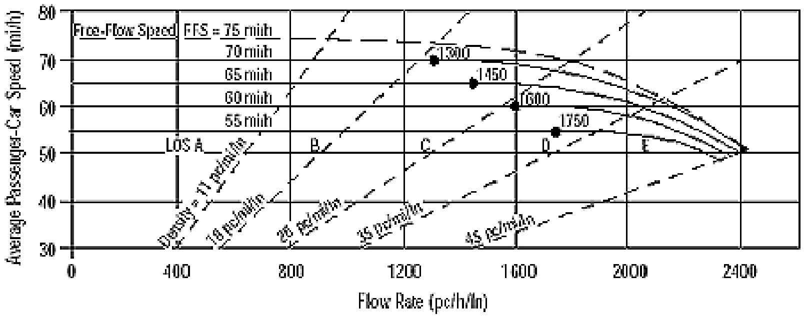
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Eastbound*
Agency or Company	*Raju Associates*	From/To	*East of Alameda Street*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Base*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*17331*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*6*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3209*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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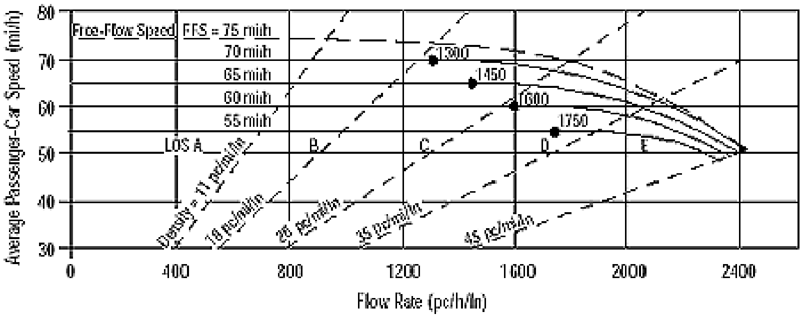
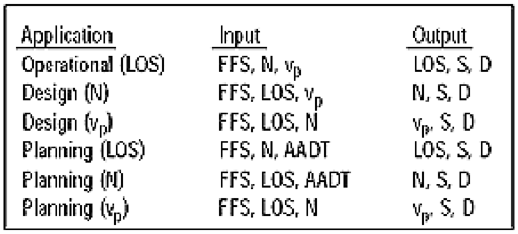
HCS WORKSHEETS

CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS

BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*at Manchester Bl*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11542*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2565*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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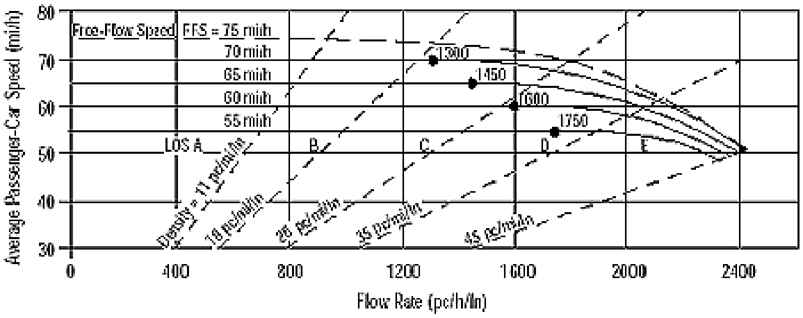
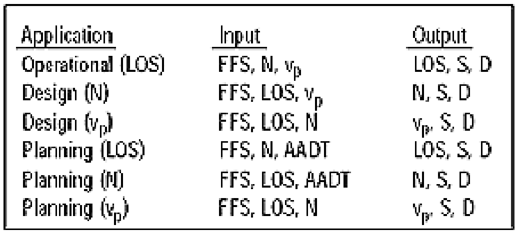
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*at Manchester Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11604*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2579*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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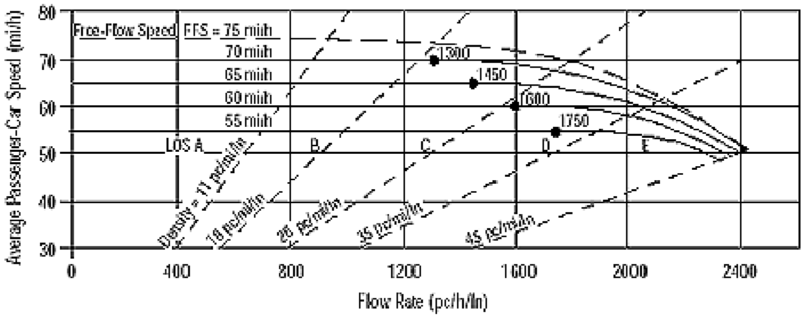
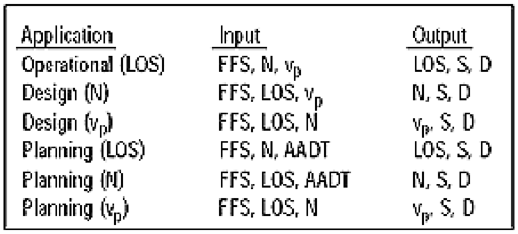
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-110 Southbound*
Agency or Company	*Raju Associates*	From/To	*at Manchester Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12017*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2670*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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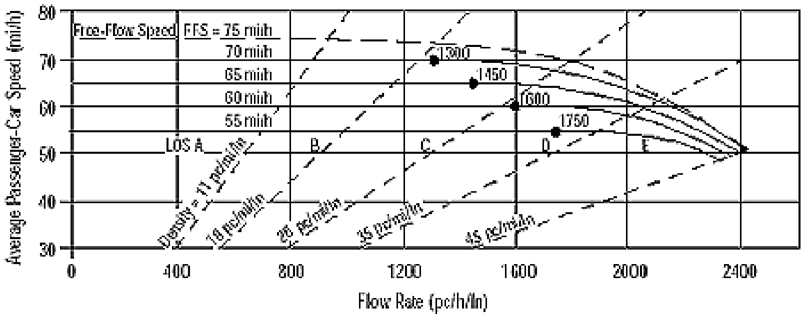
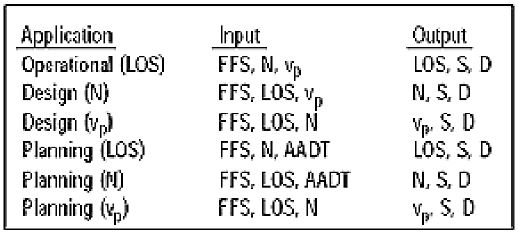
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*at Manchester Bl*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12956*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2879*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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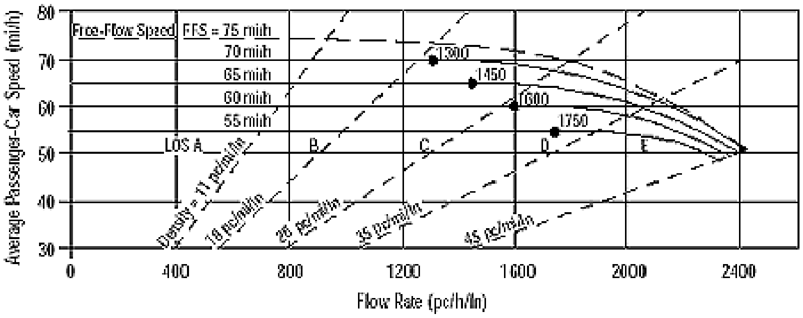
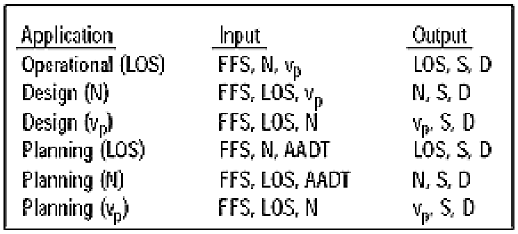
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-110 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of Rosecrans Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10596*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2355*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*55.0*	mi/h	S	mi/h
D = v_p / S	*42.8*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*E*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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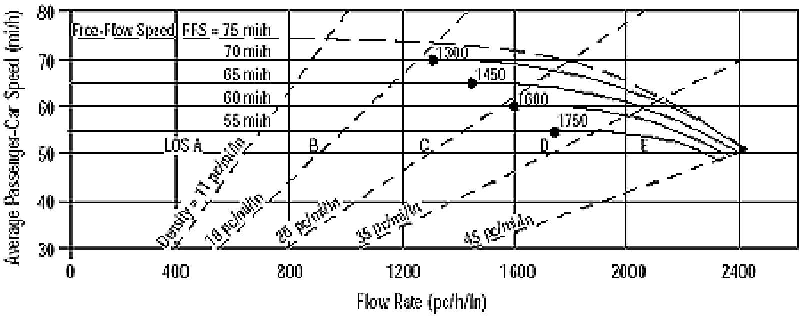
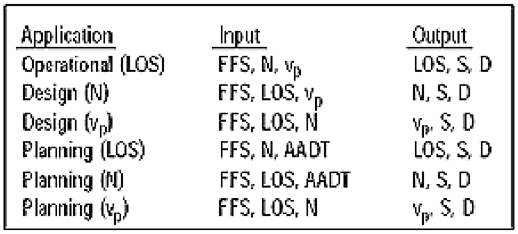
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Northbound*
From/To	*North of Rosecrans Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9245*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2054*	pc/h/ln
S	*63.8*	mi/h
D = v_p / S	*32.2*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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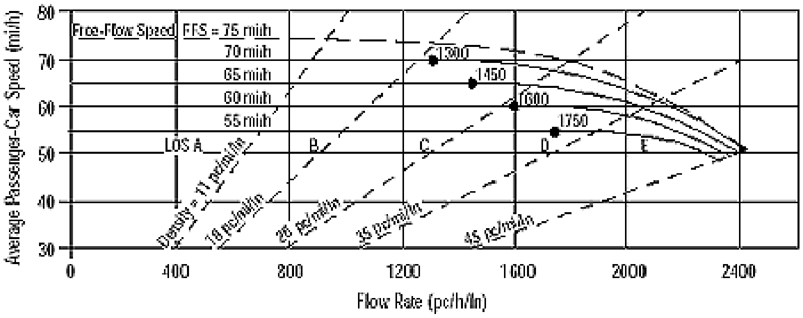
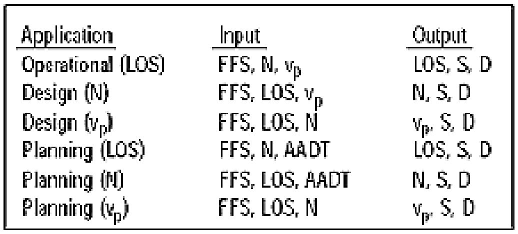
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*North of Rosecrans Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*11391*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2531*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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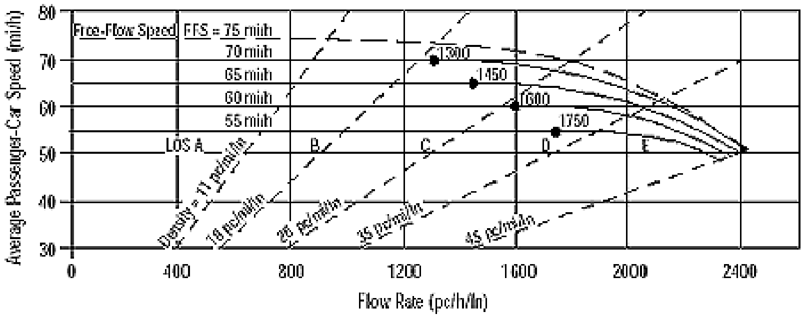
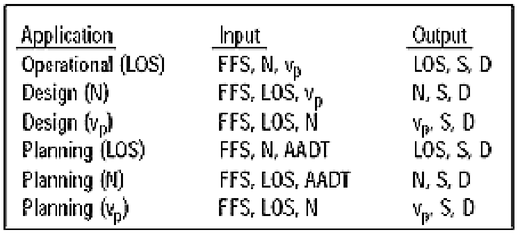
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-110 Southbound*
From/To	*North of Rosecrans Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10896*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2421*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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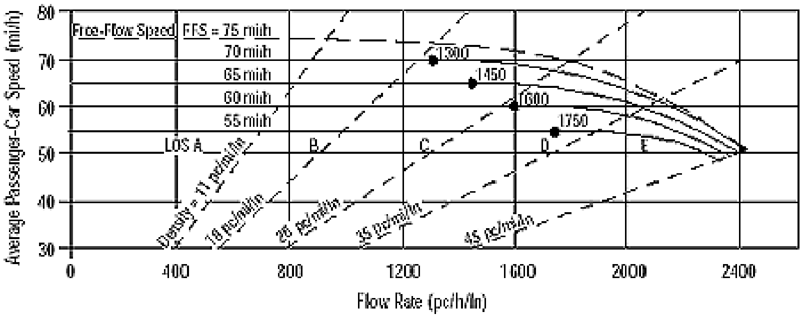
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of Firestone Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8711*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)		
			Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2420*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h	S		mi/h
D = v_p / S		pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*F*		Required Number of Lanes, N		

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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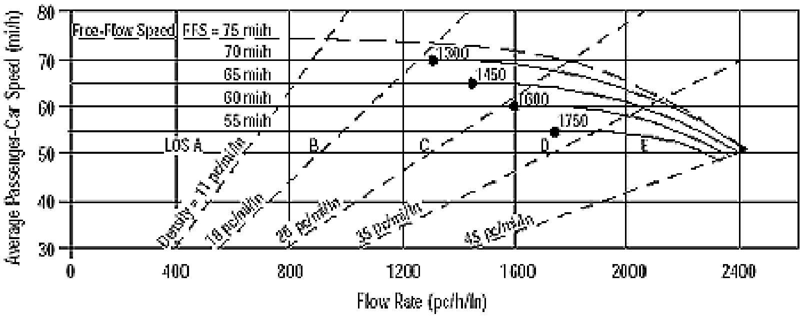
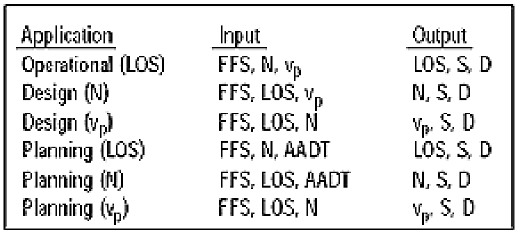
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of Firestone Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8413*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2337*	pc/h/ln
S	*55.7*	mi/h
D = v_p / S	*42.0*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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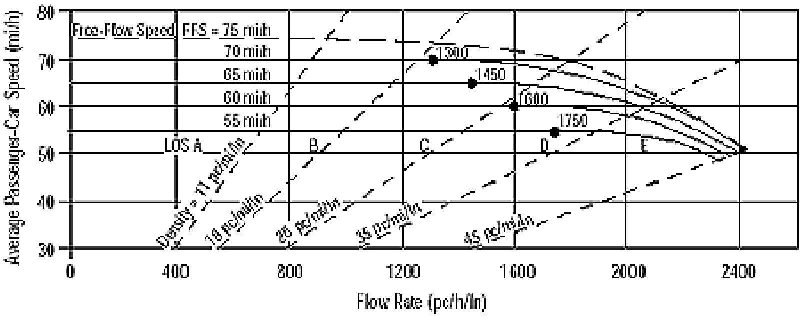
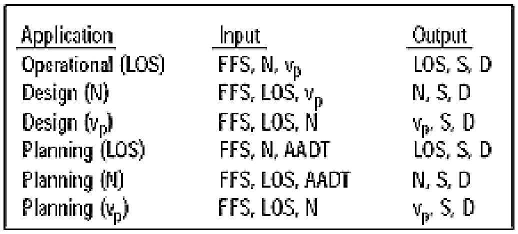
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-710 Southbound*
From/To	*North of Firestone Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7578*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2105*	pc/h/ln
S	*62.6*	mi/h
D = v_p / S	*33.6*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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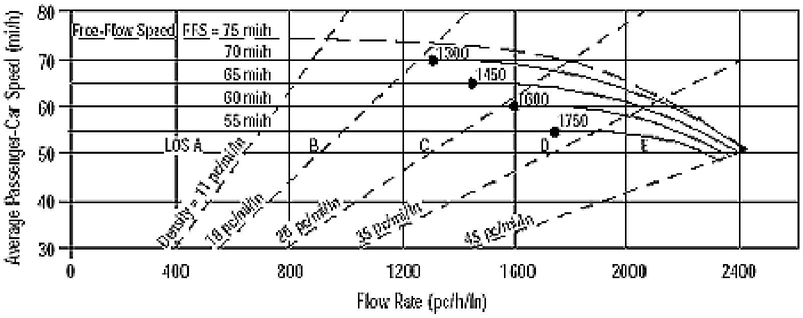
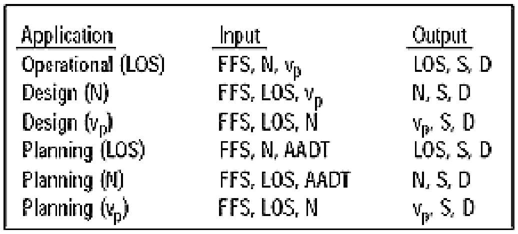
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Southbound*
Agency or Company	*Raju Associates*	From/To	*North of Firestone Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9133*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2537*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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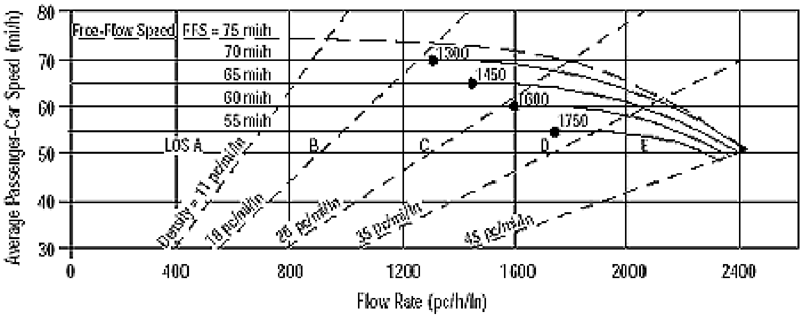
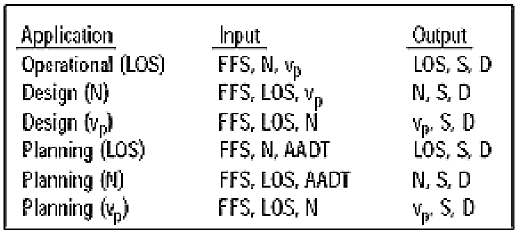
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-710 Northbound*
From/To	*North of SR-91 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT..

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7636*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1697*	pc/h/ln
S	*68.8*	mi/h
D = v_p / S	*24.7*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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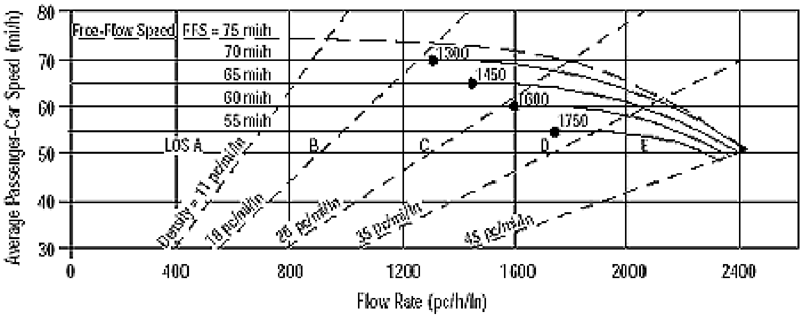
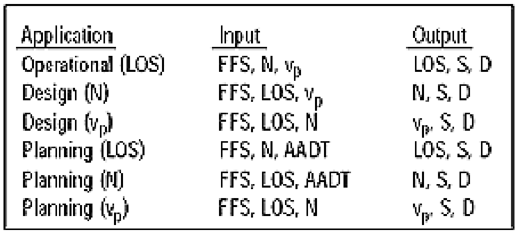
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-710 Northbound*
Agency or Company	*Raju Associates*	From/To	*North of SR-91 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Existing 2010*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT..

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9486*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2108*	pc/h/ln
S	*62.5*	mi/h
D = v_p / S	*33.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes

V - Hourly volume

v_p - Flow rate

LOS - Level of service

DDHV - Directional design hour volume

S - Speed

D - Density

FFS - Free-flow speed

BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10

E_T - Exhibits 23-8, 23-10, 23-11

f_p - Page 23-12

LOS, S, FFS, v_p - Exhibits 23-2, 23-3

f_{LW} - Exhibit 23-4

f_{LC} - Exhibit 23-5

f_N - Exhibit 23-6

f_{ID} - Exhibit 23-7

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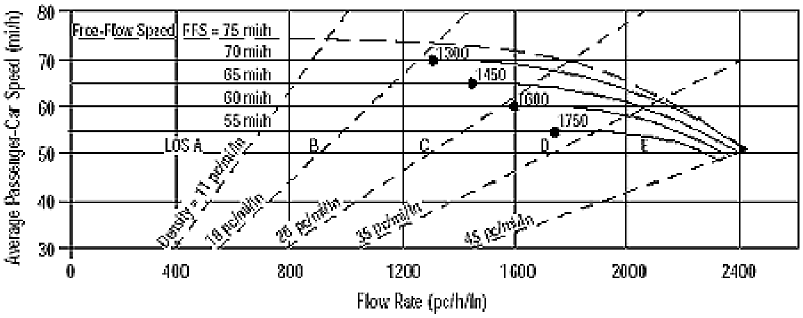
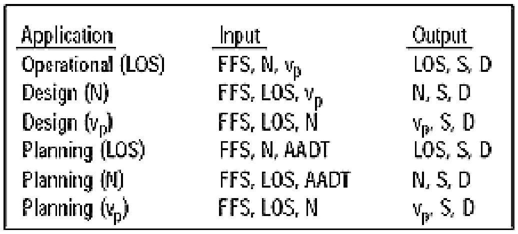
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	SM
Agency or Company	Raju Associates
Date Performed	6/29/2010
Analysis Time Period	AM

Site Information

Highway/Direction of Travel	I-710 Southbound
From/To	North of SR-91 Freeway
Jurisdiction	Caltrans
Analysis Year	Cumulative(2020) Project

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	10475	veh/h	Peak-Hour Factor, PHF	0.90
AADT		veh/day	%Trucks and Buses, P_T	0
Peak-Hr Prop. of AADT, K			%RVs, P_R	0
Peak-Hr Direction Prop, D			General Terrain:	Level
DDHV = AADT x K x D		veh/h	Grade % Length	mi
Driver type adjustment	1.00		Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	1.000

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	5	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2328	pc/h/ln
S	56.0	mi/h
D = v_p / S	41.6	pc/mi/ln
LOS	E	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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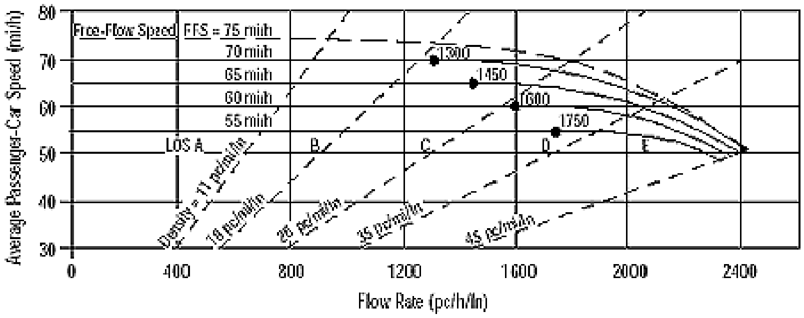
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-710 Southbound*
From/To	*North of SR-91 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8582*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1907*	pc/h/ln
S	*66.4*	mi/h
D = v_p / S	*28.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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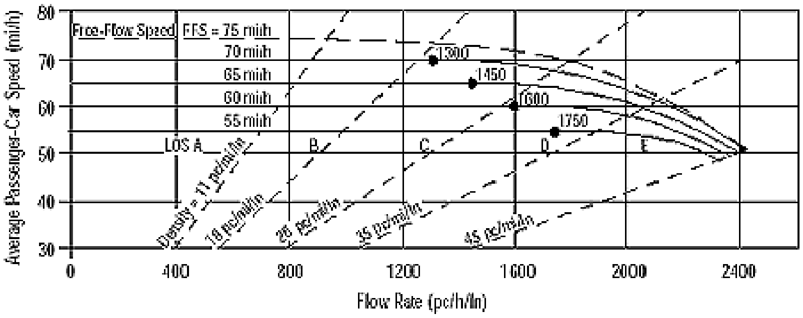
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8576*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1906*	pc/h/ln
S	*66.5*	mi/h
D = v_p / S	*28.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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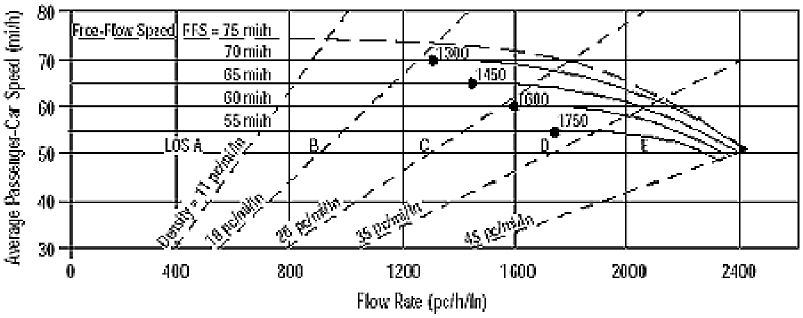
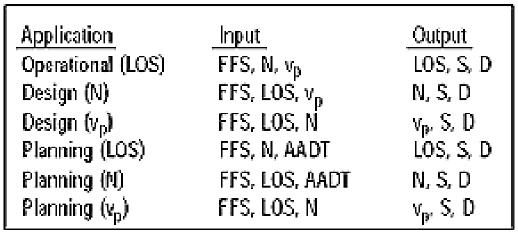
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Crenshaw Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7173*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1594*	pc/h/ln
S	*69.5*	mi/h
D = v_p / S	*22.9*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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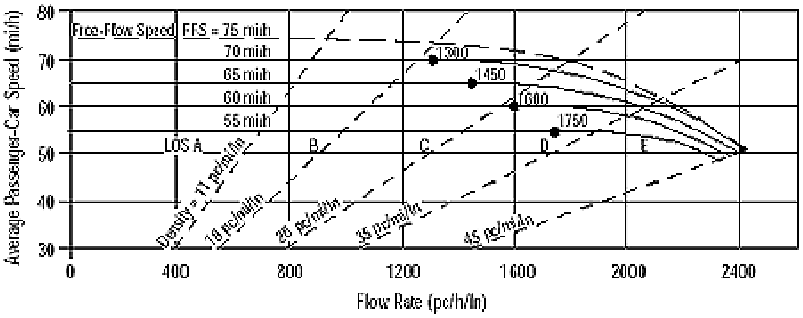
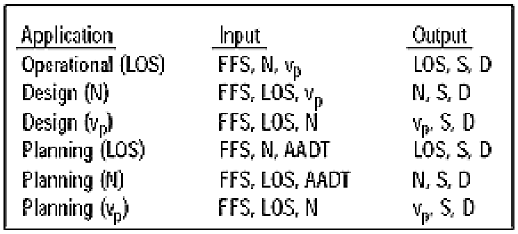
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8940*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1987*	pc/h/ln
S	*65.1*	mi/h
D = v_p / S	*30.5*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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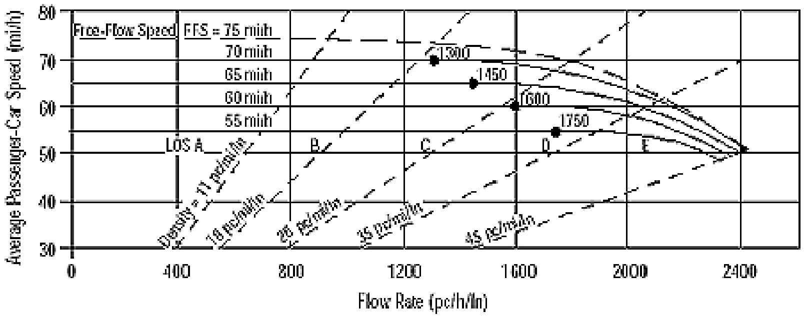
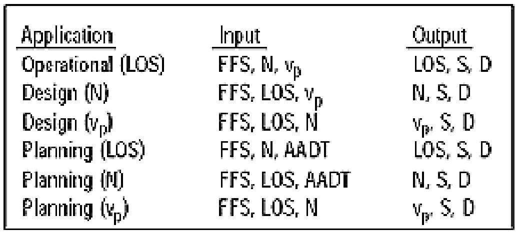
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Crenshaw Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9415*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2092*	pc/h/ln
S	*62.9*	mi/h
D = v_p / S	*33.3*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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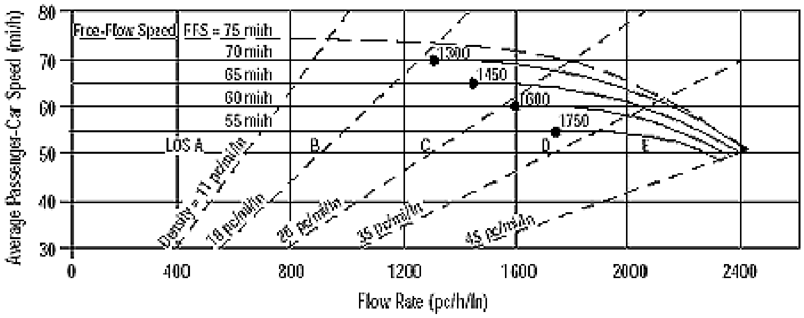
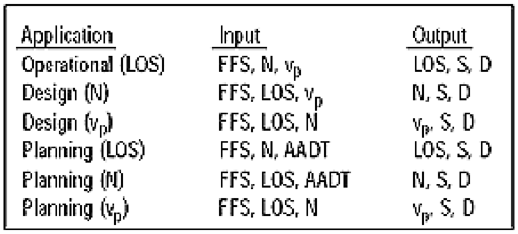
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10947*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3041*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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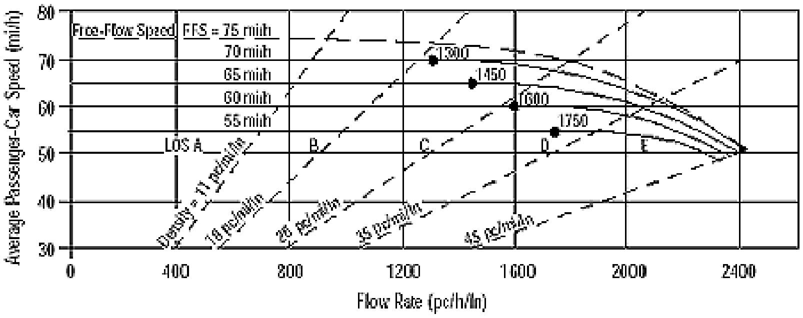
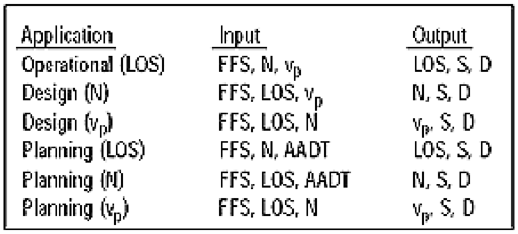
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / *Site Information*

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7961*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)		
			Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2211*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S	*59.8*	mi/h	S		mi/h
D = v_p / S	*37.0*	pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*E*		Required Number of Lanes, N		

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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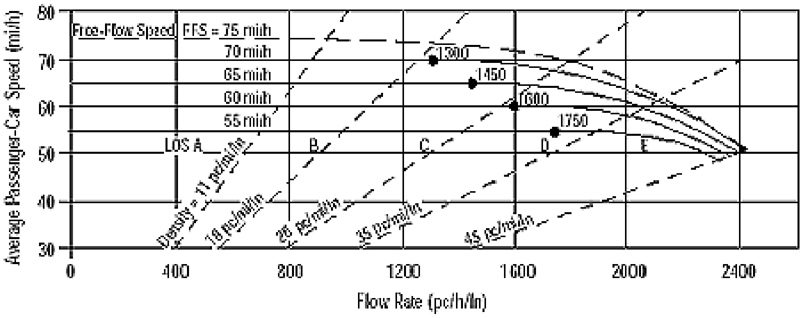
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information | Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Central Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8244*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs | Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures | Design (N)

Operational (LOS)			Design (N)		
			Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2290*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S	*57.3*	mi/h	S		mi/h
D = v_p / S	*39.9*	pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*E*		Required Number of Lanes, N		

Glossary | Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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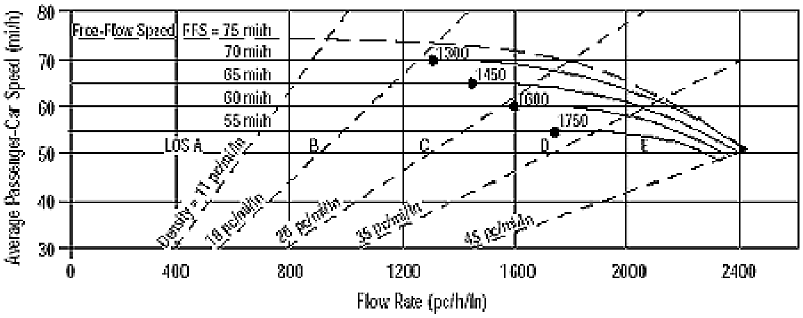
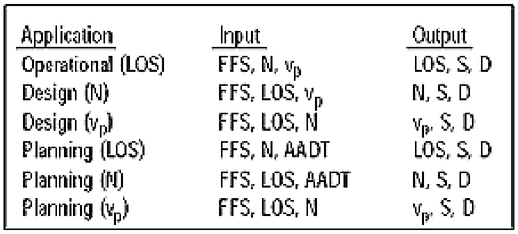
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Central Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7522*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2089*	pc/h/ln
S	*63.0*	mi/h
D = v_p / S	*33.2*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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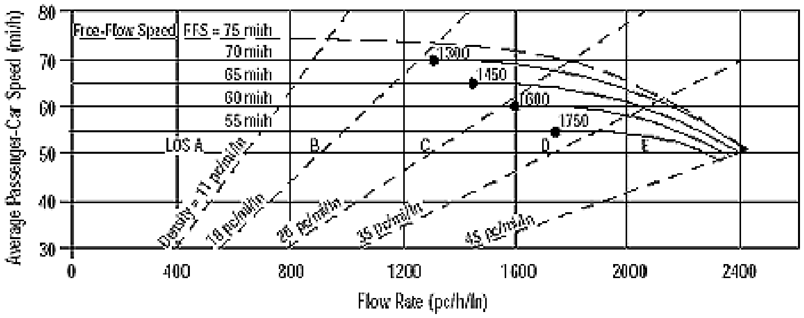
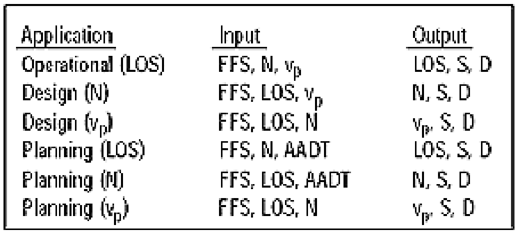
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*10266*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2852*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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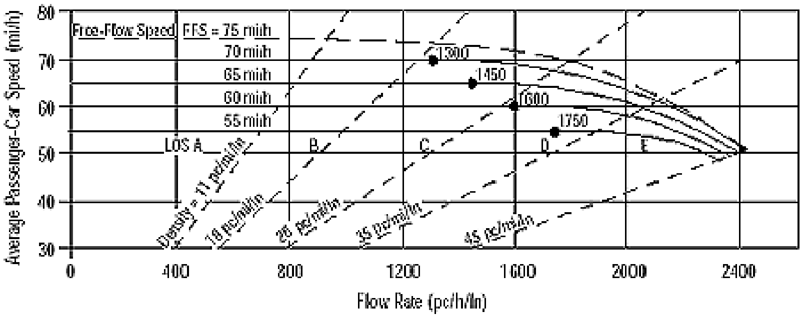
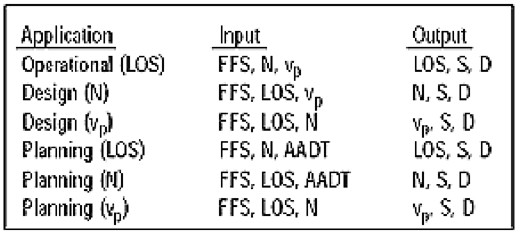
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7631*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2120*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*62.2*	mi/h	S	mi/h
D = v_p / S	*34.1*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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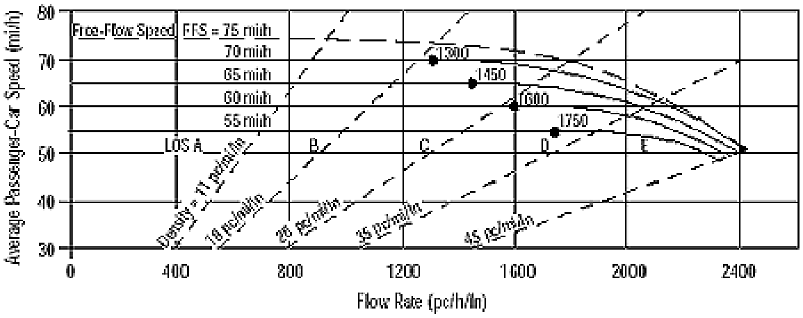
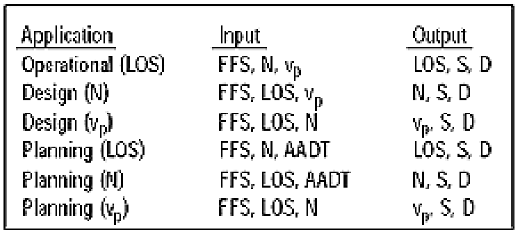
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7580*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2106*	pc/h/ln
S	*62.6*	mi/h
D = v_p / S	*33.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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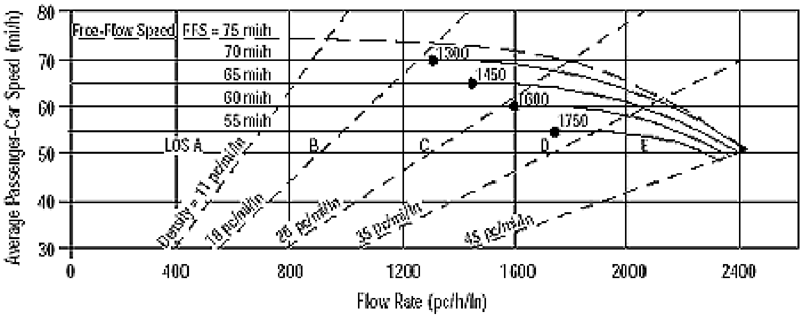
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7433*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1652*	pc/h/ln
S	*69.1*	mi/h
D = v_p / S	*23.9*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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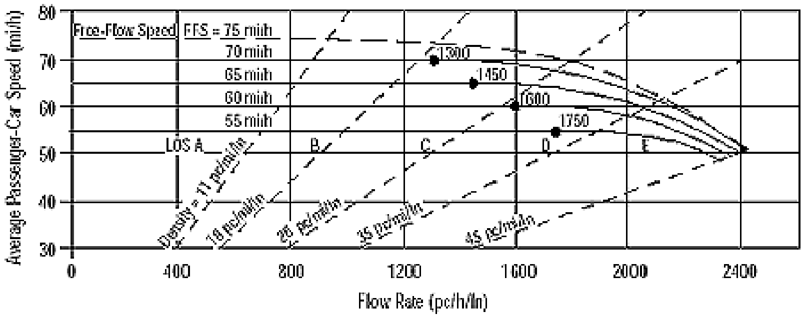
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Long Beach Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9700*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2694*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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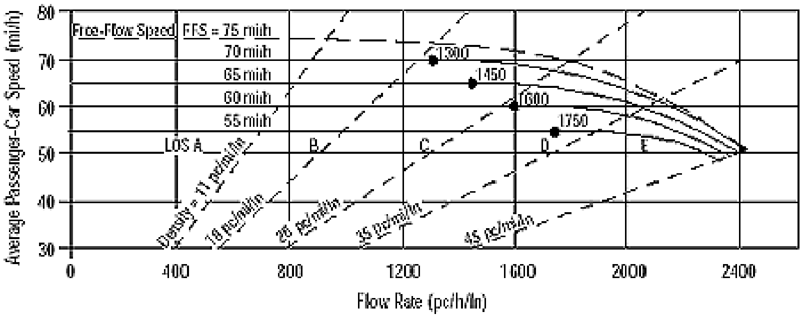
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*		
Agency or Company	*Raju Associates*		
Date Performed	*6/29/2010*		
Analysis Time Period	*PM*		

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of Long Beach Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7559*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1680*	pc/h/ln
S	*68.9*	mi/h
D = v_p / S	*24.4*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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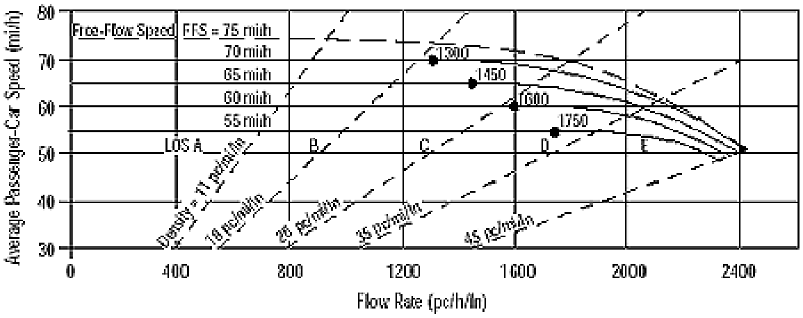
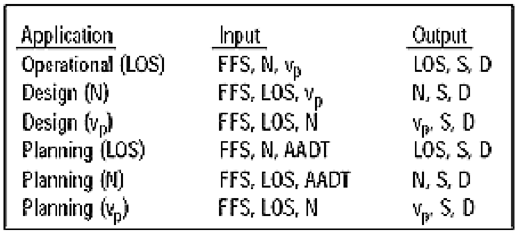
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Long Beach Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7274*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2021*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*64.4*	mi/h	S	mi/h
D = v_p / S	*31.4*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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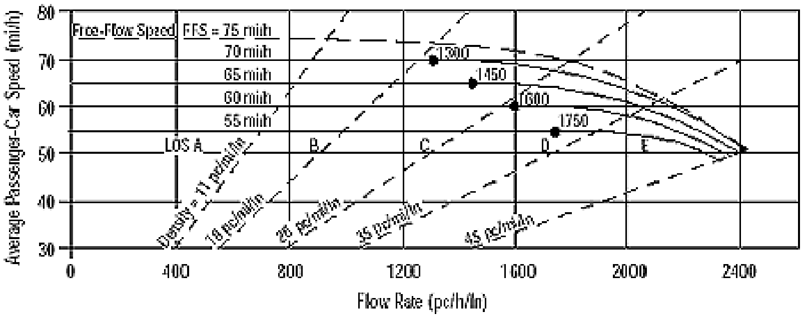

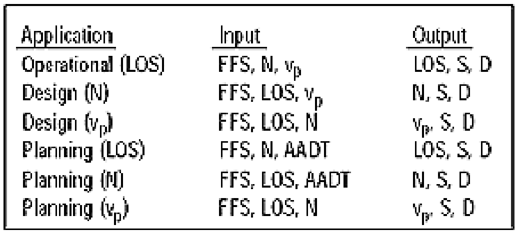

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Long Beach Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7864*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2184*	pc/h/ln
S	*60.6*	mi/h
D = v_p / S	*36.1*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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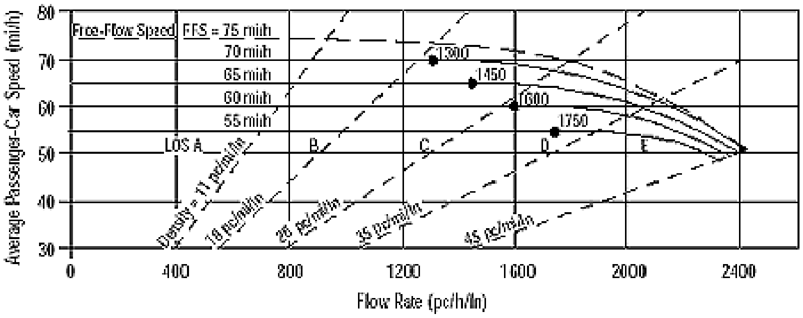
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Westbound*
From/To	*West of I-710 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*9391*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2609*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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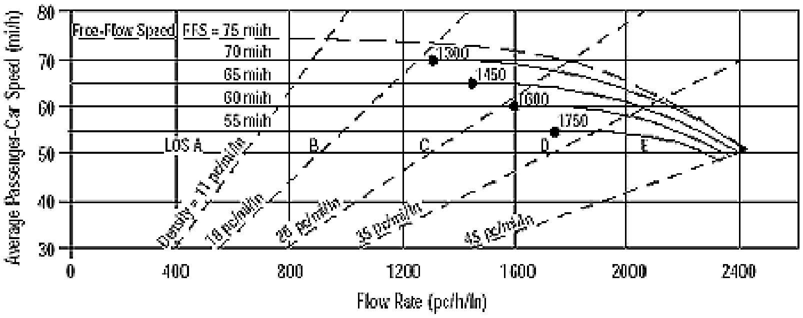
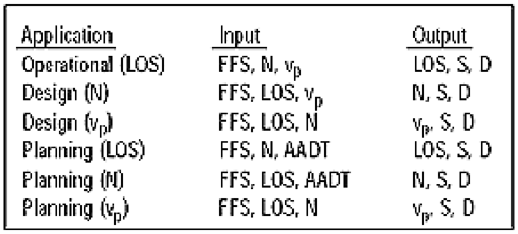
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of I-710 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8037*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2233*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*59.1*	mi/h	S	mi/h
D = v_p / S	*37.8*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*E*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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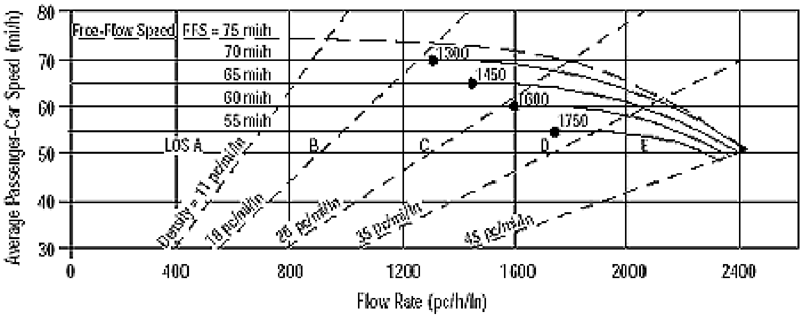
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*I-105 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of I-710 Freeway*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Project*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7703*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2140*	pc/h/ln
S	*61.7*	mi/h
D = v_p / S	*34.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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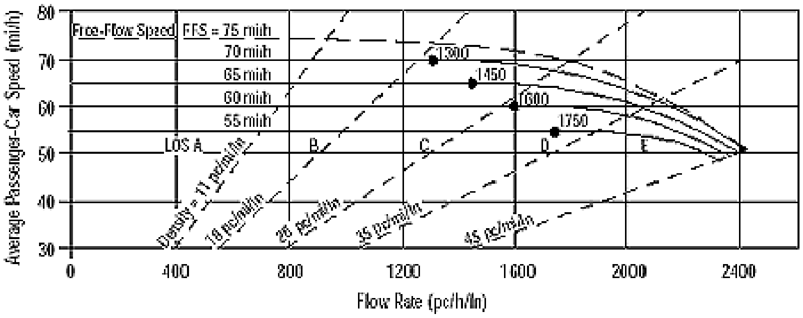
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*West of I-710 Freeway*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*8315*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2310*	pc/h/ln
S	*56.7*	mi/h
D = v_p / S	*40.8*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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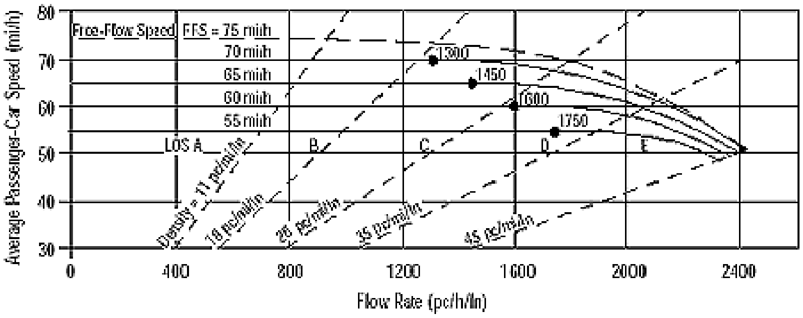
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Bellflower Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7998*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1777*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*68.1*	mi/h	S	mi/h
D = v_p / S	*26.1*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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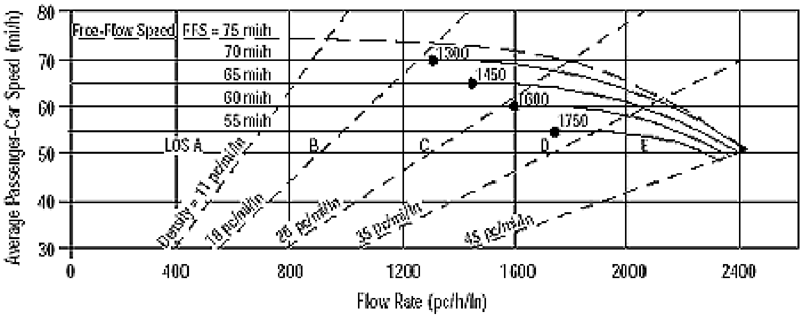
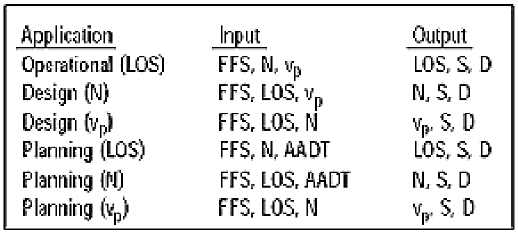
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / *Site Information*

Analyst	*SM*	Highway/Direction of Travel	*I-105 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Bellflower Boulevard*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7250*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)		
			Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1611*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S	*69.4*	mi/h	S		mi/h
D = v_p / S	*23.2*	pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*C*		Required Number of Lanes, N		

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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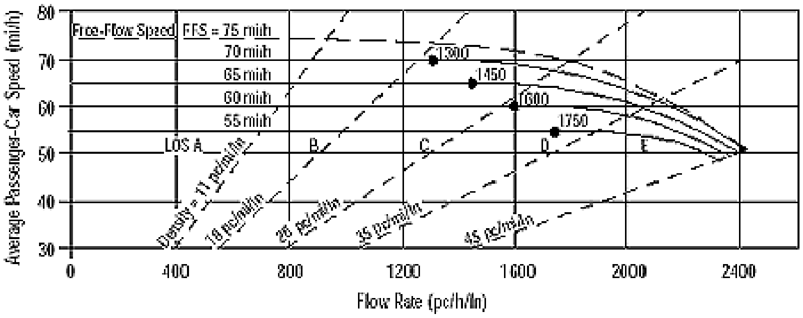
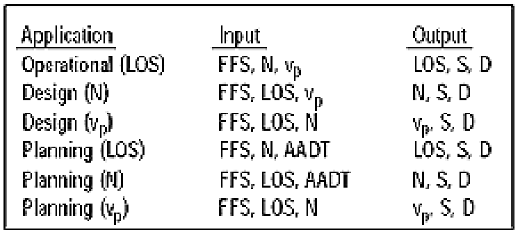
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Bellflower Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6592*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1465*	pc/h/ln
S	*69.9*	mi/h
D = v_p / S	*21.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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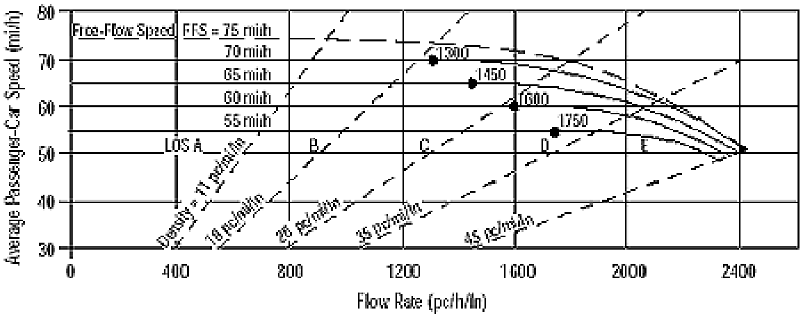
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*I-105 Eastbound*
From/To	*East of Bellflower Boulevard*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6899*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1533*	pc/h/ln
S	*69.7*	mi/h
D = v_p / S	*22.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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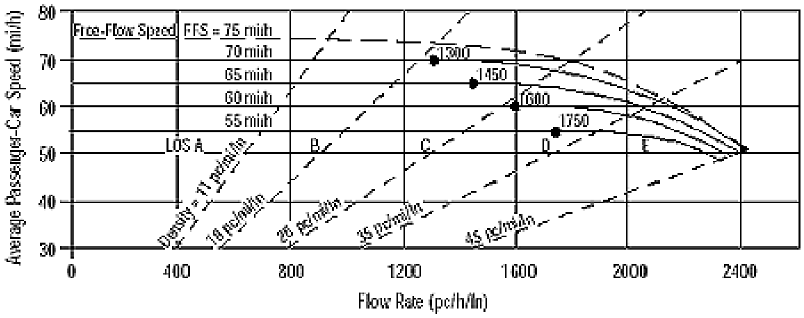
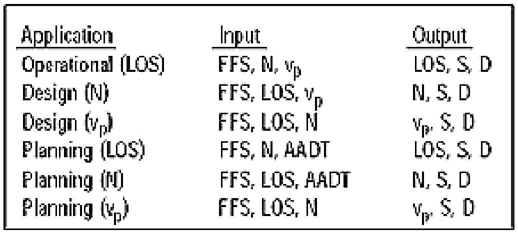
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*SR-91 Westbound*
From/To	*West of Wilmington Avenue*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12056*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2679*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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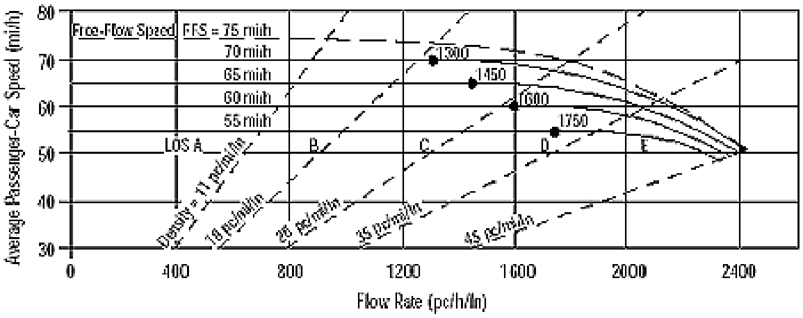
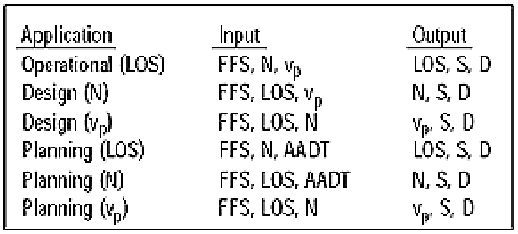
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*SR-91 Westbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6902*	veh/h	Peak-Hour Factor, PHF	*0.90*	
AADT		veh/day	%Trucks and Buses, P_T	*0*	
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*	
Peak-Hr Direction Prop, D			General Terrain:	*Level*	
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*	
Driver type adjustment	*1.00*		Up/Down %		

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h			
Base free-flow Speed, BFFS		mi/h	FFS	*70.0*	mi/h

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1534*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*69.7*	mi/h	S	mi/h
D = v_p / S	*22.0*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*C*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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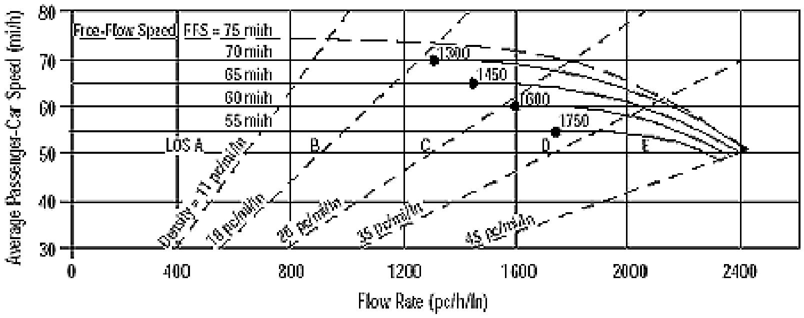
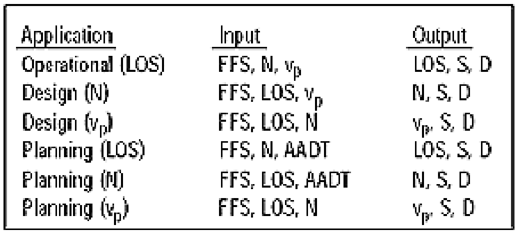
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Project*

Site Information

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6760*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*5*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1502*	pc/h/ln
S	*69.8*	mi/h
D = v_p / S	*21.5*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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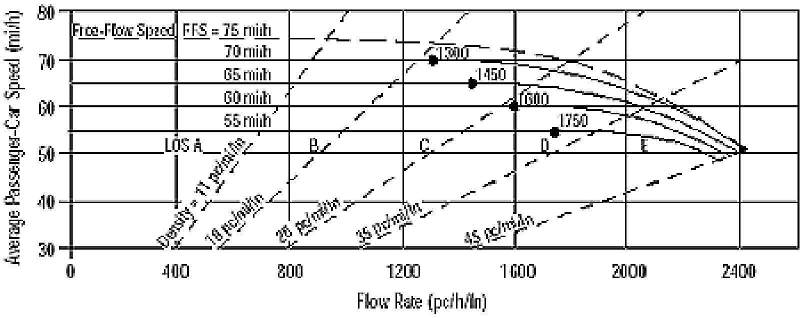
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*SM*	Highway/Direction of Travel	*SR-91 Eastbound*
Agency or Company	*Raju Associates*	From/To	*West of Wilmington Avenue*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*16307*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3624*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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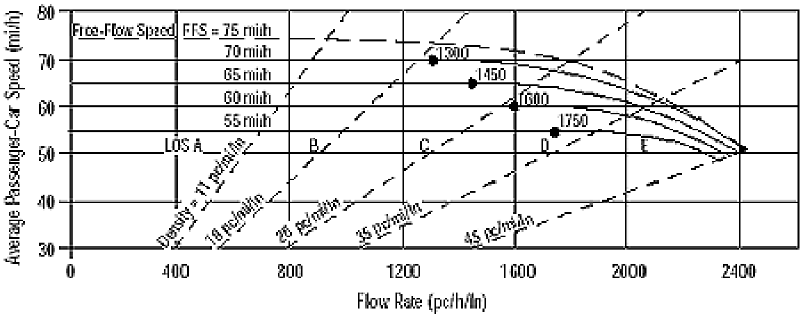
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Alameda Street*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*AM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*12886*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2864*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary / Factor Location

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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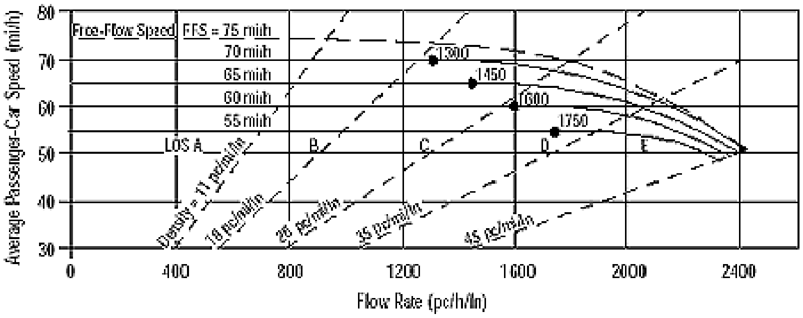
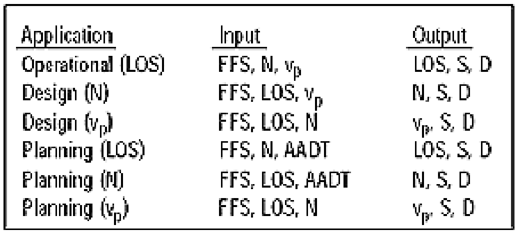
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*SM*	Highway/Direction of Travel	*SR-91 Westbound*
Agency or Company	*Raju Associates*	From/To	*East of Alameda Street*
Date Performed	*6/29/2010*	Jurisdiction	*Caltrans*
Analysis Time Period	*PM*	Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7329*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

Operational (LOS)			Design (N)		
			Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1629*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S	*69.3*	mi/h	S		mi/h
D = v_p / S	*23.5*	pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*C*		Required Number of Lanes, N		

Glossary / Factor Location

N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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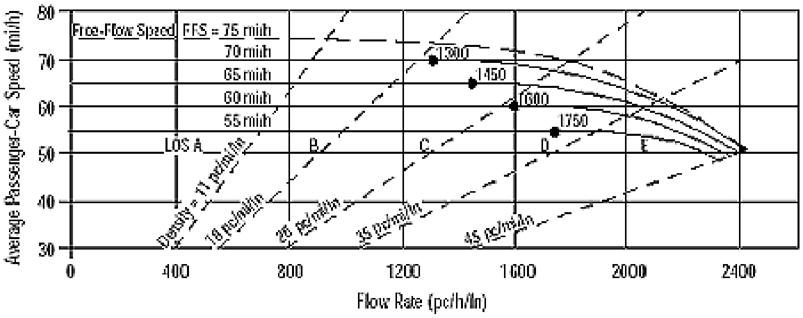
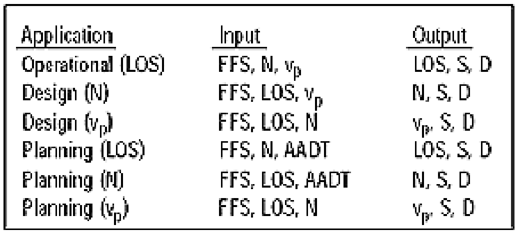
BASIC FREEWAY SEGMENTS WORKSHEET





Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*AM*

Site Information

Highway/Direction of Travel	*SR-91 Eastbound*
From/To	*East of Alameda Street*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*7209*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*6*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1335*	pc/h/ln
S	*70.0*	mi/h
D = v_p / S	*19.1*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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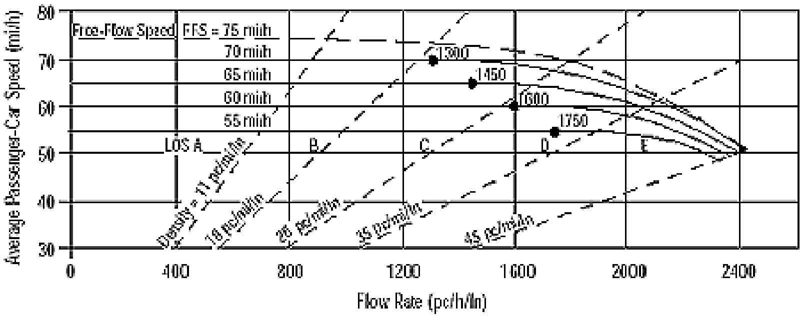
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*SM*
Agency or Company	*Raju Associates*
Date Performed	*6/29/2010*
Analysis Time Period	*PM*

Site Information

Highway/Direction of Travel	*SR-91 Eastbound*
From/To	*East of Alameda Street*
Jurisdiction	*Caltrans*
Analysis Year	*Cumulative(2020) Project*

Project Description MARTIN LUTHER KING JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*17352*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*0*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*1.000*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*6*	
FFS (measured)	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	*70.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3213*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
LOS, S, FFS, v_p - Exhibits 23-2, 23-3
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6
f_{ID} - Exhibit 23-7

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FREEWAY RAMP ANALYSIS

TRAFFIX WORKSHEETS

EXISTING CONDITIONS

```
--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.784
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        23.0
Optimal Cycle:       86                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:       0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0    0     0   519    0   702     0  585   447   350 1591     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0    0     0   519    0   702     0  585   447   350 1591     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    0    0     0   519    0   702     0  585   447   350 1591     0
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   0    0     0   519    0   702     0  585   447   350 1591     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    0    0     0   519    0   702     0  585   447   350 1591     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.85  0.85  0.95 0.91  1.00
Lanes:       0.00 0.00  0.00  1.43 0.00  1.57  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:    0    0     0  2027    0  2240     0 3233  1617  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.26 0.00  0.31  0.00 0.18  0.28  0.19 0.31  0.00
Crit Moves:                              ****              ****  ****
Green/Cycle: 0.00 0.00  0.00  0.40 0.00  0.40  0.00 0.35  0.35  0.25 0.60  0.00
Volume/Cap:  0.00 0.00  0.00  0.64 0.00  0.78  0.00 0.51  0.78  0.78 0.51  0.00
Delay/Veh:    0.0  0.0   0.0  25.0  0.0  29.0   0.0 25.8  32.1  43.9 11.6   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  25.0  0.0  29.0   0.0 25.8  32.1  43.9 11.6   0.0
HCM2kAvg:      0    0     0    12    0    16     0    7    14    12   10     0
********************************************************************************
```

```
--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
Lane Group:  xxxx xxxx  xxxx   LTR  LTR   LTR  xxxx  RT     RT    L    T   xxxx
#LnsInGrps:     0    0     0     2    1     2     0    3     3     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     5 xxxx     5  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Area Adj:    xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      xxxx xxxx xxxxx  0.91 xxxx  0.91  xxxx 0.94  0.94  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.82 xxxx  0.82  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.94  0.94  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  1.00 0.91  1.00
Fnl Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.85  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
```

```
--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx     100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx   35.93   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx   39.93   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx    0.00   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx       0   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx       2   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx     519   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx    0.43   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx    1.00   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx   14.42   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx       0   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx    0.00   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx    1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx    0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx    0.09   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx    1.00   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx    0.00   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx   39.84   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx    0.00   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx    0.00   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx  xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx    0.94   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx    1.40   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx    1.00   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx    0.10   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx    0.73   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx    0.82   xxxxxx   xxxxxx
********************************************************************************
```

```
--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.00  0.00  0.40 0.00  0.40  0.00 0.35  0.35  0.25 0.60  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  0.0   0.0  10.0  0.0  13.2   0.0  6.4  11.1   9.6  8.5   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           0.0  0.0   0.0   1.7  0.0   3.1   0.0  1.0   3.0   2.9  1.0   0.0
HCM2KQueue:   0.0  0.0   0.0  11.7  0.0  16.4   0.0  7.4  14.1  12.5  9.5   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.20  1.20  1.17 1.20  1.17  1.20 1.18  1.17  1.17 1.18  1.20
70th%HCM2kQ:  0.0  0.0   0.0  13.7  0.0  19.1   0.0  8.8  16.5  14.7 11.2   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.60  1.60  1.50 1.60  1.47  1.60 1.53  1.49  1.50 1.52  1.60
85th%HCM2kQ:  0.0  0.0   0.0  17.5  0.0  24.1   0.0 11.4  21.0  18.7 14.4   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.80  1.80  1.62 1.80  1.58  1.80 1.68  1.60  1.61 1.65  1.80
90th%HCM2kQ:  0.0  0.0   0.0  18.9  0.0  25.8   0.0 12.5  22.6  20.2 15.7   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 2.10  2.10  1.81 2.10  1.74  2.10 1.90  1.77  1.80 1.85  2.10
95th%HCM2kQ:  0.0  0.0   0.0  21.2  0.0  28.5   0.0 14.1  25.1  22.5 17.6   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.70  2.70  2.11 2.70  1.98  2.70 2.26  2.04  2.08 2.18  2.70
98th%HCM2kQ:  0.0  0.0   0.0  24.6  0.0  32.4   0.0 16.8  28.8  26.0 20.7   0.0
```

```
-------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
*******************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.799
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        25.9
Optimal Cycle:       92                Level Of Service:                  C
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     804    0   261     0    0     0     0  886   215   135 1141     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  804    0   261     0    0     0     0  886   215   135 1141     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   804    0   261     0    0     0     0  886   215   135 1141     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  804    0   261     0    0     0     0  886   215   135 1141     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   804    0   261     0    0     0     0  886   215   135 1141     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.72 1.00  0.74  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
Lanes:       1.61 0.00  0.39  0.00 0.00  0.00  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:  2214    0   545     0    0     0     0 3610  1615  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.36 0.00  0.48  0.00 0.00  0.00  0.00 0.25  0.13  0.07 0.22  0.00
Crit Moves:             ****                       ****        ****
Green/Cycle: 0.60 0.00  0.60  0.00 0.00  0.00  0.00 0.31  0.31  0.09 0.40  0.00
Volume/Cap:  0.61 0.00  0.80  0.00 0.00  0.00  0.00 0.80  0.43  0.80 0.55  0.00
Delay/Veh:   13.2  0.0  18.9   0.0  0.0   0.0   0.0 35.9  28.3  67.2 23.3   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  13.2  0.0  18.9   0.0  0.0   0.0   0.0 35.9  28.3  67.2 23.3   0.0
HCM2kAvg:      13    0    22     0    0     0     0   15     6     6    9     0
*******************************************************************************
```

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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
Lane Group:   LTR  LTR   LTR  xxxx xxxx  xxxx  xxxx   T     R     L    T  xxxx
#LnsInGrps:     2    1     1     0    0     0     0    2     1     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     5 xxxx     5  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Area Adj:    1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      0.96 xxxx  0.96  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.75 xxxx  0.77  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.72 1.00  0.74  1.00 1.00  1.00  1.00 1.00  0.85  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.95  1.00  1.00 0.91  1.00
Fnl Sat Adj: 0.72 1.00  0.74  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            55.89   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         59.89   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:               0.00   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       0   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   2   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                804   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     0.76   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:      1.00   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                      22.33   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                    0   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:          0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.02   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       1.00   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:           0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       59.87   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:      0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:     0.00   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.72   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    1.40   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:        1.00   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.09   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.59   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.75   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.60 0.00  0.60  0.00 0.00  0.00  0.00 0.31  0.31  0.09 0.40  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          11.6  0.0  18.7   0.0  0.0   0.0   0.0 11.3   4.8   3.9  8.1   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           1.5  0.0   3.5   0.0  0.0   0.0   0.0  3.2   0.7   2.5  1.2   0.0
HCM2KQueue:  13.1  0.0  22.2   0.0  0.0   0.0   0.0 14.5   5.5   6.4  9.3   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.20  1.16  1.20 1.20  1.20  1.20 1.17  1.19  1.19 1.18  1.20
70th%HCM2kQ: 15.4  0.0  25.7   0.0  0.0   0.0   0.0 17.0   6.6   7.6 11.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.49 1.60  1.44  1.60 1.60  1.60  1.60 1.48  1.55  1.54 1.52  1.60
85th%HCM2kQ: 19.6  0.0  32.1   0.0  0.0   0.0   0.0 21.6   8.6   9.9 14.1   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.61 1.80  1.53  1.80 1.80  1.80  1.80 1.59  1.70  1.69 1.65  1.80
90th%HCM2kQ: 21.1  0.0  34.1   0.0  0.0   0.0   0.0 23.1   9.4  10.8 15.3   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.79 2.10  1.67  2.10 2.10  2.10  2.10 1.77  1.94  1.92 1.86  2.10
95th%HCM2kQ: 23.5  0.0  37.2   0.0  0.0   0.0   0.0 25.7  10.7  12.3 17.3   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.06 2.70  1.88  2.70 2.70  2.70  2.70 2.03  2.35  2.31 2.19  2.70
98th%HCM2kQ: 27.1  0.0  41.8   0.0  0.0   0.0   0.0 29.4  13.0  14.8 20.3   0.0
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.718
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        17.2
Optimal Cycle:       66                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include           Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     415 1070     0     0  860   692     0    0     0   135    1   378
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  415 1070     0     0  860   692     0    0     0   135    1   378
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   415 1070     0     0  860   692     0    0     0   135    1   378
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  415 1070     0     0  860   692     0    0     0   135    1   378
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   415 1070     0     0  860   692     0    0     0   135    1   378
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.79 0.79  0.79
Lanes:       2.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.26 0.01  1.73
Final Sat.:  3502 3610     0     0 3610  1615     0    0     0  1900    6  2610
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.30  0.00  0.00 0.24  0.43  0.00 0.00  0.00  0.07 0.17  0.14
Crit Moves:  ****                        ****                        ****
Green/Cycle: 0.17 0.76  0.00  0.00 0.60  0.60  0.00 0.00  0.00  0.24 0.24  0.24
Volume/Cap:  0.72 0.39  0.00  0.00 0.40  0.72  0.00 0.00  0.00  0.30 0.72  0.61
Delay/Veh:   43.9  4.1   0.0   0.0 10.8  16.9   0.0  0.0   0.0  31.3 38.5  35.2
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  43.9  4.1   0.0   0.0 10.8  16.9   0.0  0.0   0.0  31.3 38.5  35.2
HCM2kAvg:      8    6     0     0    7    16     0    0     0     3   10     8
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
Lane Group:    L    T   xxxx  xxxx   T     R   xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     2    2     0     0    2     1     0    0     0     2    1     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx  0.89 0.89  0.89
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.89 0.89  0.89
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  1.00 1.00  1.00  0.79 0.79  0.79
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 0.97 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.79 0.79  0.79
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.17 0.76  0.00  0.00 0.60  0.60  0.00 0.00  0.00  0.24 0.24  0.24
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           5.7  5.0   0.0   0.0  6.3  13.6   0.0  0.0   0.0   2.7  7.4   6.1
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           2.1  0.6   0.0   0.0  0.7   2.4   0.0  0.0   0.0   0.4  2.2   1.4
HCM2KQueue:   7.9  5.7   0.0   0.0  7.0  15.9   0.0  0.0   0.0   3.2  9.6   7.5
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.17  1.20 1.20  1.20  1.19 1.18  1.18
70th%HCM2kQ:  9.3  6.7   0.0   0.0  8.3  18.6   0.0  0.0   0.0   3.8 11.3   8.9
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.53 1.55  1.60  1.60 1.54  1.48  1.60 1.60  1.60  1.57 1.52  1.53
85th%HCM2kQ: 12.1  8.8   0.0   0.0 10.7  23.5   0.0  0.0   0.0   5.0 14.6  11.5
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.67 1.70  1.80  1.80 1.68  1.58  1.80 1.80  1.80  1.74 1.65  1.67
90th%HCM2kQ: 13.1  9.6   0.0   0.0 11.7  25.2   0.0  0.0   0.0   5.5 15.8  12.6
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.89 1.94  2.10  2.10 1.91  1.75  2.10 2.10  2.10  2.00 1.85  1.90
95th%HCM2kQ: 14.9 11.0   0.0   0.0 13.3  27.9   0.0  0.0   0.0   6.3 17.8  14.2
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.25 2.35  2.70  2.70 2.28  1.99  2.70 2.70  2.70  2.48 2.18  2.26
98th%HCM2kQ: 17.7 13.3   0.0   0.0 16.0  31.8   0.0  0.0   0.0   7.8 20.9  17.0
```

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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.712
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        25.3
Optimal Cycle:       65                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Protected         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  739   302   493  509     0   737   19   598     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  739   302   493  509     0   737   19   598     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  739   302   493  509     0   737   19   598     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  739   302   493  509     0   737   19   598     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  739   302   493  509     0   737   19   598     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.87 0.87  0.87  1.00 1.00  1.00
Lanes:       0.00 2.84  1.16  2.00 2.00  0.00  1.54 0.03  1.43  0.00 0.00  0.00
Final Sat.:     0 4699  1920  3502 3610     0  2547   46  2379     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.16  0.16  0.14 0.14  0.00  0.29 0.41  0.25  0.00 0.00  0.00
Crit Moves:       ****        ****                  ****
Green/Cycle: 0.00 0.22  0.22  0.20 0.42  0.00  0.58 0.58  0.58  0.00 0.00  0.00
Volume/Cap:  0.00 0.71  0.71  0.71 0.34  0.00  0.50 0.71  0.43  0.00 0.00  0.00
Delay/Veh:    0.0 37.7  37.7  40.9 19.8   0.0  12.5 16.2  11.8   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 37.7  37.7  40.9 19.8   0.0  12.5 16.2  11.8   0.0  0.0   0.0
HCM2kAvg:       0    9     9     9    5     0     9   17     8     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
Lane Group:  xxxx  RT     RT    L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    4     4     2    2     0     2    1     2     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx 0.96  0.96  xxxx xxxx xxxxx  0.93 0.93  0.93  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.93 0.93  0.93  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.96  0.96  0.95 1.00  1.00  0.87 0.87  0.87  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  0.97 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.92 0.95  1.00  0.87 0.87  0.87  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.22  0.22  0.20 0.42  0.00  0.58 0.58  0.58  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  6.7   6.7   6.7  4.8   0.0   8.4 14.6   6.9   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.1   2.1   2.1  0.5   0.0   1.0  2.3   0.8   0.0  0.0   0.0
HCM2KQueue:   0.0  8.8   8.8   8.9  5.3   0.0   9.4 16.9   7.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.18 1.19  1.20  1.18 1.17  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 10.4  10.4  10.5  6.3   0.0  11.1 19.7   9.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.52  1.52  1.52 1.55  1.60  1.52 1.47  1.53  1.60 1.60  1.60
85th%HCM2kQ:  0.0 13.4  13.4  13.5  8.2   0.0  14.2 24.9  11.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.66  1.66  1.66 1.71  1.80  1.65 1.57  1.67  1.80 1.80  1.80
90th%HCM2kQ:  0.0 14.6  14.6  14.7  9.0   0.0  15.5 26.6  12.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.87  1.87  1.87 1.95  2.10  1.86 1.73  1.89  2.10 2.10  2.10
95th%HCM2kQ:  0.0 16.5  16.5  16.5 10.3   0.0  17.4 29.3  14.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.21  2.21  2.21 2.37  2.70  2.19 1.97  2.25  2.70 2.70  2.70
98th%HCM2kQ:  0.0 19.5  19.5  19.5 12.5   0.0  20.5 33.4  17.3   0.0  0.0   0.0
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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.719
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        26.8
Optimal Cycle:       66                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     305  723     0     0  614   432   387    0   614     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  305  723     0     0  614   432   387    0   614     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   305  723     0     0  614   432   387    0   614     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  305  723     0     0  614   432   387    0   614     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   305  723     0     0  614   432   387    0   614     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
Lanes:       1.00 3.00  0.00  0.00 2.00  2.00  1.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:  1805 5187     0     0 3610  2842  1465    0  1615     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.17 0.14  0.00  0.00 0.17  0.15  0.26 0.00  0.38  0.00 0.00  0.00
Crit Moves:  ****                  ****                   ****
Green/Cycle: 0.23 0.47  0.00  0.00 0.24  0.24  0.53 0.00  0.53  0.00 0.00  0.00
Volume/Cap:  0.72 0.30  0.00  0.00 0.72  0.64  0.50 0.00  0.72  0.00 0.00  0.00
Delay/Veh:   41.1 16.3   0.0   0.0 38.1  36.5  15.6  0.0  20.9   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  41.1 16.3   0.0   0.0 38.1  36.5  15.6  0.0  20.9   0.0  0.0   0.0
HCM2kAvg:      10    5     0     0   10     7    10    0    15     0    0     0
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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
Lane Group:     L    T   xxxx  xxxx   T     R     L  xxxx    R   xxxx xxxx  xxxx
#LnsInGrps:      1    3     0     0    2     2     1    0     1     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:      1 xxxx  xxxx  xxxx xxxx  xxxx     2 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  0.77 xxxx xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  0.77 1.00  0.85  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.95  0.88  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx      100   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx    48.86   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx    52.86   xxxxxx
Opposing Effective Green Time, go:             xxxxxx   xxxxxx     0.00   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx        0   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx        1   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx      387   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx     1.00   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx     1.00   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx    10.75   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx        0   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx     0.00   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx     1.00   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx     0.39   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx     1.00   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx    52.47   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx     0.00   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx     0.00   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx     1.00   xxxxxx
Through-car Equivalents, el1:                  xxxxxx   xxxxxx     1.30   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx     1.00   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx     0.08   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx     0.77   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx     0.77   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                           EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.23 0.47  0.00  0.00 0.24  0.24  0.53 0.00  0.53  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           8.2  4.1   0.0   0.0  7.8   5.4   8.9  0.0  13.0   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Q2:           2.2  0.4   0.0   0.0  2.2   1.6   1.0  0.0   2.4   0.0  0.0   0.0
HCM2KQueue:  10.5  4.5   0.0   0.0 10.1   7.0   9.9  0.0  15.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.18  1.18 1.20  1.17  1.20 1.20  1.20
70th%HCM2kQ: 12.3  5.4   0.0   0.0 11.9   8.3  11.7  0.0  17.9   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.51 1.56  1.60  1.60 1.51  1.54  1.52 1.60  1.48  1.60 1.60  1.60
85th%HCM2kQ: 15.8  7.1   0.0   0.0 15.3  10.8  15.0  0.0  22.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.64 1.72  1.80  1.80 1.64  1.68  1.64 1.80  1.59  1.80 1.80  1.80
90th%HCM2kQ: 17.1  7.8   0.0   0.0 16.5  11.8  16.3  0.0  24.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.84 1.97  2.10  2.10 1.84  1.91  1.85 2.10  1.76  2.10 2.10  2.10
95th%HCM2kQ: 19.2  8.9   0.0   0.0 18.6  13.4  18.3  0.0  26.9   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.15 2.41  2.70  2.70 2.16  2.28  2.17 2.70  2.01  2.70 2.70  2.70
98th%HCM2kQ: 22.4 10.9   0.0   0.0 21.8  16.0  21.5  0.0  30.8   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.609
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        23.7
Optimal Cycle:       48                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include           Include           Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     244  447     0     0  796   258     0    0     0   672  333   317
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  244  447     0     0  796   258     0    0     0   672  333   317
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   244  447     0     0  796   258     0    0     0   672  333   317
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  244  447     0     0  796   258     0    0     0   672  333   317
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   244  447     0     0  796   258     0    0     0   672  333   317
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.88  0.88  1.00 1.00  1.00  0.88 0.88  0.88
Lanes:       1.00 2.00  0.00  0.00 2.27  0.73  0.00 0.00  0.00  1.52 0.76  0.72
Final Sat.:  1805 3610     0     0 3772  1223     0    0     0  2558 1268  1207
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.14 0.12  0.00  0.00 0.21  0.21  0.00 0.00  0.00  0.26 0.26  0.26
Crit Moves:  ****                  ****                              ****
Green/Cycle: 0.22 0.57  0.00  0.00 0.35  0.35  0.00 0.00  0.00  0.43 0.43  0.43
Volume/Cap:  0.61 0.22  0.00  0.00 0.61  0.61  0.00 0.00  0.00  0.61 0.61  0.61
Delay/Veh:   37.7 10.7   0.0   0.0 27.7  27.7   0.0  0.0   0.0  22.4 22.4  22.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  37.7 10.7   0.0   0.0 27.7  27.7   0.0  0.0   0.0  22.4 22.4  22.4
HCM2kAvg:      8    3     0     0   10    10     0    0     0    11   11    11
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     1    2     0     0    3     3    0    0     0     3    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 0.96  0.96  xxxx xxxx xxxxx  0.96 0.96  0.96
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.96 0.96  0.96
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 0.96  0.96  1.00 1.00  1.00  0.93 0.93  0.93
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.95 0.95  0.95
Fnl Sat Adj: 0.95 0.95  1.00  1.00 0.88  0.88  1.00 1.00  1.00  0.88 0.88  0.88
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                           EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.22 0.57  0.00  0.00 0.35  0.35  0.00 0.00  0.00  0.43 0.43  0.43
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           6.4  3.1   0.0   0.0  8.1   8.1   0.0  0.0   0.0   9.8  9.8   9.8
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           1.5  0.3   0.0   0.0  1.5   1.5   0.0  0.0   0.0   1.5  1.5   1.5
HCM2KQueue:   7.9  3.3   0.0   0.0  9.6   9.6   0.0  0.0   0.0  11.3 11.3  11.3
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.18 1.18  1.18
70th%HCM2kQ:  9.3  4.0   0.0   0.0 11.3  11.3   0.0  0.0   0.0  13.3 13.3  13.3
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.53 1.57  1.60  1.60 1.52  1.52  1.60 1.60  1.60  1.51 1.51  1.51
85th%HCM2kQ: 12.1  5.2   0.0   0.0 14.5  14.5   0.0  0.0   0.0  17.0 17.0  17.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.67 1.74  1.80  1.80 1.65  1.65  1.80 1.80  1.80  1.63 1.63  1.63
90th%HCM2kQ: 13.1  5.8   0.0   0.0 15.8  15.8   0.0  0.0   0.0  18.4 18.4  18.4
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.89 2.00  2.10  2.10 1.85  1.85  2.10 2.10  2.10  1.82 1.82  1.82
95th%HCM2kQ: 14.9  6.7   0.0   0.0 17.7  17.7   0.0  0.0   0.0  20.5 20.5  20.5
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.25 2.47  2.70  2.70 2.18  2.18  2.70 2.70  2.70  2.12 2.12  2.12
98th%HCM2kQ: 17.7  8.3   0.0   0.0 20.8  20.8   0.0  0.0   0.0  23.9 23.9  23.9
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.579
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        24.9
Optimal Cycle:       60                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted       Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  397   356   481  983     0   292   83   466     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  397   356   481  983     0   292   83   466     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  397   356   481  983     0   292   83   466     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  397   356   481  983     0   292   83   466     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  397   356   481  983     0   292   83   466     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.75  0.92 0.95  1.00  0.80 0.80  0.80  1.00 1.00  1.00
Lanes:       0.00 2.00  2.00  2.00 2.00  0.00  1.56 0.44  1.00  0.00 0.00  0.00
Final Sat.:     0 3610  2842  3502 3610     0  2364  672  1518     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.11  0.13  0.14 0.27  0.00  0.12 0.12  0.31  0.00 0.00  0.00
Crit Moves:                        ****                   ****
Green/Cycle: 0.00 0.16  0.16  0.40 0.55  0.00  0.45 0.45  0.45  0.00 0.00  0.00
Volume/Cap:  0.00 0.69  0.79  0.35 0.49  0.00  0.28 0.28  0.69  0.00 0.00  0.00
Delay/Veh:    0.0 43.2  49.2  21.4 13.8   0.0  17.6 17.6  23.9   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 43.2  49.2  21.4 13.8   0.0  17.6 17.6  23.9   0.0  0.0   0.0
HCM2kAvg:      0    7     7     5    9     0     4    4    13     0    0     0
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
Lane Group:  xxxx   T     R     L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    2     2     2    2     0     3    3     3     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx  0.85  xxxx xxxx xxxxx  0.92 0.92  0.92  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.92 0.92  0.92  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  0.85  0.95 1.00  1.00  0.84 0.84  0.84  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  0.88  0.97 0.95  1.00  0.95 0.95  0.95  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.95  0.75  0.92 0.95  1.00  0.80 0.80  0.80  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.16  0.16  0.40 0.55  0.00  0.45 0.45  0.45  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  5.2   4.8   4.9  8.4   0.0   3.6  3.6  11.3   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  1.9   2.6   0.5  1.0   0.0   0.4  0.4   2.1   0.0  0.0   0.0
HCM2KQueue:   0.0  7.1   7.3   5.5  9.3   0.0   4.0  4.0  13.4   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.18  1.20  1.19 1.19  1.17  1.20 1.20  1.20
70th%HCM2kQ:  0.0  8.4   8.7   6.5 11.0   0.0   4.7  4.7  15.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.54  1.54  1.55 1.52  1.60  1.56 1.56  1.49  1.60 1.60  1.60
85th%HCM2kQ:  0.0 10.9  11.2   8.5 14.1   0.0   6.2  6.2  19.9   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.68  1.68  1.70 1.65  1.80  1.73 1.73  1.61  1.80 1.80  1.80
90th%HCM2kQ:  0.0 11.9  12.3   9.3 15.4   0.0   6.9  6.9  21.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.90  1.90  1.94 1.86  2.10  1.98 1.98  1.79  2.10 2.10  2.10
95th%HCM2kQ:  0.0 13.5  13.9  10.6 17.3   0.0   7.9  7.9  23.9   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.28  2.27  2.36 2.19  2.70  2.44 2.44  2.06  2.70 2.70  2.70
98th%HCM2kQ:  0.0 16.2  16.6  12.9 20.4   0.0   9.7  9.7  27.5   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.610
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        26.7
Optimal Cycle:       58                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected         Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     556    3   148    12   66    42    45  753   423   858 1028    24
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  556    3   148    12   66    42    45  753   423   858 1028    24
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   556    3   148    12   66    42    45  753   423   858 1028    24
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  556    3   148    12   66    42    45  753   423   858 1028    24
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   556    3   148    12   66    42    45  753   423   858 1028    24
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.86  0.86  0.92 0.91  0.91
Lanes:       1.99 0.01  1.00  0.10 0.55  0.35  1.00 3.20  1.80  2.00 2.93  0.07
Final Sat.:  3602   19  1615   180  991   631  1805 5237  2942  3502 5053   118
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.15 0.15  0.09  0.07 0.07  0.07  0.02 0.14  0.14  0.25 0.20  0.20
Crit Moves:       ****             ****             ****        ****
Green/Cycle: 0.25 0.25  0.25  0.11 0.11  0.11  0.07 0.24  0.24  0.40 0.57  0.57
Volume/Cap:  0.61 0.61  0.36  0.61 0.61  0.61  0.36 0.61  0.61  0.61 0.36  0.36
Delay/Veh:   34.2 34.2  31.3  48.0 48.0  48.0  46.1 34.7  34.7  24.5 11.8  11.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  34.2 34.2  31.3  48.0 48.0  48.0  46.1 34.7  34.7  24.5 11.8  11.8
HCM2kAvg:       9    9     4     5    5     5     2    7     7    11    6     6
********************************************************************************
```

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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
Lane Group:   LT   LT     R    LTR  LTR   LTR    L   RT     RT    L   RT     RT
#LnsInGrps:     2    2     1     1    1     1     1    5     5     2    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     4    4  xxxx     4    4     4     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  0.95 0.95  0.95  xxxx 0.95  0.95  xxxx 1.00  1.00
LT Adj:      0.95 0.95 xxxxx  1.00 1.00  1.00  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.95  0.95  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  0.97 0.91  0.91
Fnl Sat Adj: 0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.86  0.86  0.92 0.91  0.91
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.25 0.25  0.25  0.11 0.11  0.11  0.07 0.24  0.24  0.40 0.57  0.57
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           7.2  7.2   3.4   3.2  3.2   3.2   1.3  5.8   5.8   9.9  5.3   5.3
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q2:           1.5  1.5   0.6   1.4  1.4   1.4   0.5  1.5   1.5   1.5  0.6   0.6
HCM2KQueue:   8.7  8.7   3.9   4.6  4.6   4.6   1.8  7.3   7.3  11.4  5.8   5.8
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.19  1.19 1.19  1.19  1.20 1.18  1.18  1.18 1.19  1.19
70th%HCM2kQ: 10.2 10.2   4.7   5.4  5.4   5.4   2.1  8.6   8.6  13.4  6.9   6.9
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.52  1.56  1.56 1.56  1.56  1.58 1.54  1.54  1.50 1.55  1.55
85th%HCM2kQ: 13.2 13.2   6.2   7.1  7.1   7.1   2.8 11.2  11.2  17.2  9.0   9.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.66 1.66  1.73  1.72 1.72  1.72  1.77 1.68  1.68  1.63 1.70  1.70
90th%HCM2kQ: 14.4 14.4   6.8   7.8  7.8   7.8   3.2 12.2  12.2  18.6  9.9   9.9
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.87 1.87  1.98  1.97 1.97  1.97  2.04 1.90  1.90  1.82 1.93  1.93
95th%HCM2kQ: 16.2 16.2   7.8   9.0  9.0   9.0   3.7 13.8  13.8  20.8 11.3  11.3
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.21 2.21  2.44  2.40 2.40  2.40  2.57 2.27  2.27  2.11 2.34  2.34
98th%HCM2kQ: 19.2 19.2   9.6  11.0 11.0  11.0   4.6 16.5  16.5  24.2 13.6  13.6
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.443
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        15.4
Optimal Cycle:       33                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       7 1180     0     0 1215     9     0    0     5   185   12   648
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    7 1180     0     0 1215     9     0    0     5   185   12   648
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     7 1180     0     0 1215     9     0    0     5   185   12   648
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    7 1180     0     0 1215     9     0    0     5   185   12   648
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     7 1180     0     0 1215     9     0    0     5   185   12   648
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.15 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
Lanes:       1.00 3.00  0.00  0.00 2.98  0.02  0.00 0.00  1.00  1.00 0.04  1.96
Final Sat.:   293 5187     0     0 5144    38     0    0  1644  1805   59  3182
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.23  0.00  0.00 0.24  0.24  0.00 0.00  0.00  0.10 0.20  0.20
Crit Moves:                        ****                   ****             ****
Green/Cycle: 0.53 0.53  0.00  0.00 0.53  0.53  0.00 0.00  0.01  0.46 0.46  0.46
Volume/Cap:  0.04 0.43  0.00  0.00 0.44  0.44  0.00 0.00  0.44  0.22 0.44  0.44
Delay/Veh:   11.3 14.2   0.0   0.0 14.4  14.4   0.0  0.0  74.8  16.4 18.5  18.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  11.3 14.2   0.0   0.0 14.4  14.4   0.0  0.0  74.8  16.4 18.5  18.5
HCM2kAvg:      1    7     0     0    8     8     0    0     1     4    7     7
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx    R     L   RT     RT
#LnsInGrps:     1    3     0     0    3     3     0    0     1     1    2     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     2 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 1.00  1.00  xxxx xxxx  0.87  xxxx 0.85  0.85
LT Adj:      0.15 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.15 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.87  0.95 0.85  0.85
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.91  0.91  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.15 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            49.34   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         53.34   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:              53.34   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       3   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   1   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                  7   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     1.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                       0.19   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                 1224   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:         12.45   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       0.47   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:          15.48   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       37.86   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                 0.11   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.00   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    4.61   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.07   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.15   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.15   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.53 0.53  0.00  0.00 0.53  0.53  0.00 0.00  0.01  0.46 0.46  0.46
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.6  6.6   0.0   0.0  6.9   6.9   0.0  0.0   0.1   3.3  6.2   6.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
Q2:           0.0  0.7   0.0   0.0  0.8   0.8   0.0  0.0   0.5   0.3  0.8   0.8
HCM2KQueue:   0.7  7.3   0.0   0.0  7.7   7.7   0.0  0.0   0.6   3.5  7.0   7.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.19 1.18  1.18
70th%HCM2kQ:  0.8  8.7   0.0   0.0  9.1   9.1   0.0  0.0   0.8   4.2  8.3   8.3
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.59 1.53  1.60  1.60 1.53  1.53  1.60 1.60  1.59  1.57 1.54  1.54
85th%HCM2kQ:  1.0 11.3   0.0   0.0 11.8  11.8   0.0  0.0   1.0   5.5 10.8  10.8
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.79 1.68  1.80  1.80 1.67  1.67  1.80 1.80  1.79  1.74 1.68  1.68
90th%HCM2kQ:  1.2 12.3   0.0   0.0 12.9  12.9   0.0  0.0   1.1   6.1 11.8  11.8
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.08 1.90  2.10  2.10 1.89  1.89  2.10 2.10  2.08  1.99 1.91  1.91
95th%HCM2kQ:  1.4 13.9   0.0   0.0 14.6  14.6   0.0  0.0   1.3   7.1 13.3  13.3
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.65 2.27  2.70  2.70 2.25  2.25  2.70 2.70  2.65  2.46 2.28  2.28
98th%HCM2kQ:  1.7 16.6   0.0   0.0 17.4  17.4   0.0  0.0   1.7   8.7 16.0  16.0
```

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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.539
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        15.9
Optimal Cycle:       40                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1007   510    24  489     0   645    2   369     0    0     7
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1007   510    24  489     0   645    2   369     0    0     7
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1007   510    24  489     0   645    2   369     0    0     7
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1007   510    24  489     0   645    2   369     0    0     7
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0 1007   510    24  489     0   645    2   369     0    0     7
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.86  0.86  0.12 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Lanes:       0.00 2.00  1.00  1.00 2.00  0.00  1.99 0.01  1.00  0.00 0.00  1.00
Final Sat.:     0 3285  1643   220 3610     0  3610   11  1615     0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.31  0.31  0.11 0.14  0.00  0.18 0.18  0.23  0.00 0.00  0.00
Crit Moves:       ****                                    ****              ****
Green/Cycle: 0.00 0.57  0.57  0.57 0.57  0.00  0.42 0.42  0.42  0.00 0.00  0.01
Volume/Cap:  0.00 0.54  0.55  0.19 0.24  0.00  0.42 0.42  0.54  0.00 0.00  0.54
Delay/Veh:    0.0 13.6  13.7  11.2 10.8   0.0  20.4 20.4  22.4   0.0  0.0  88.1
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 13.6  13.7  11.2 10.8   0.0  20.4 20.4  22.4   0.0  0.0  88.1
HCM2kAvg:       0   10    10     3    4     0     7    7     9     0    0     1
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
Lane Group:  xxxx  RT     RT    L     T   xxxx   LT   LT     R   xxxx xxxx    R
#LnsInGrps:     0    3     3     1    2     0     2    2     1     0    0     1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     2 xxxx  xxxx     4    4  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
RT Adj:      xxxx 0.95  0.95  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.87
LT Adj:      xxxx xxxx xxxxx  0.12 xxxx xxxxx  0.95 0.95 xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.95  0.95  0.12 1.00  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.86  0.86  0.12 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
********************************************************************************
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-------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
-------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
*******************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
*******************************************************************************
Approach:                                      North    South    East     West
Cycle Length, C:                              xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:          xxxxxx    52.84   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:       xxxxxx    56.84   xxxxxx   xxxxxx
Opposing Effective Green Time, go:            xxxxxx    56.84   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                 xxxxxx        3   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:             xxxxxx        1   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:            xxxxxx       24   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:  xxxxxx     1.00   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                    xxxxxx     0.67   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:              xxxxxx     1517   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:       xxxxxx    14.79   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                  xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                      xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:   xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                    xxxxxx     0.43   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:        xxxxxx    18.12   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:     xxxxxx    38.72   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:  xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:              xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:  xxxxxx     1.00   xxxxxx   xxxxxx
Through-car Equivalents, el1:                 xxxxxx     5.87   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:     xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:    xxxxxx     0.07   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:  xxxxxx     0.12   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:             xxxxxx     0.12   xxxxxx   xxxxxx
*******************************************************************************
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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.57  0.57  0.57 0.57  0.00  0.42 0.42  0.42  0.00 0.00  0.01
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  8.7   8.9   2.8  3.4   0.0   6.6  6.6   7.7   0.0  0.0   0.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Q2:           0.0  1.1   1.2   0.2  0.3   0.0   0.7  0.7   1.1   0.0  0.0   0.6
HCM2KQueue:   0.0  9.9  10.0   3.0  3.7   0.0   7.3  7.3   8.8   0.0  0.0   0.8
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.19  1.20  1.18 1.18  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 11.6  11.8   3.6  4.4   0.0   8.7  8.7  10.4   0.0  0.0   1.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.52  1.51  1.57 1.57  1.60  1.53 1.53  1.52  1.60 1.60  1.59
85th%HCM2kQ:  0.0 14.9  15.2   4.7  5.8   0.0  11.3 11.3  13.4   0.0  0.0   1.3
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.64  1.64  1.74 1.73  1.80  1.68 1.68  1.66  1.80 1.80  1.78
90th%HCM2kQ:  0.0 16.2  16.5   5.3  6.4   0.0  12.3 12.3  14.6   0.0  0.0   1.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.85  1.84  2.01 1.99  2.10  1.90 1.90  1.87  2.10 2.10  2.07
95th%HCM2kQ:  0.0 18.2  18.5   6.1  7.4   0.0  13.9 13.9  16.4   0.0  0.0   1.7
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.17  2.16  2.49 2.45  2.70  2.27 2.27  2.21  2.70 2.70  2.64
98th%HCM2kQ:  0.0 21.4  21.7   7.5  9.1   0.0  16.6 16.6  19.4   0.0  0.0   2.2
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.637
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        17.6
Optimal Cycle:       51                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted       Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   353    0   364     0 1218   562   199  954     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   353    0   364     0 1218   562   199  954     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   353    0   364     0 1218   562   199  954     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   353    0   364     0 1218   562   199  954     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0    0     0   353    0   364     0 1218   562   199  954     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.87  0.87  0.95 0.91  1.00
Lanes:       0.00 0.00  0.00  1.49 0.00  1.51  0.00 2.05  0.95  1.00 3.00  0.00
Final Sat.:     0    0     0  2117    0  2139     0 3382  1561  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.17 0.00  0.17  0.00 0.36  0.36  0.11 0.18  0.00
Crit Moves:                   ****                  ****        ****
Green/Cycle: 0.00 0.00  0.00  0.26 0.00  0.26  0.00 0.57  0.57  0.17 0.74  0.00
Volume/Cap:  0.00 0.00  0.00  0.64 0.00  0.65  0.00 0.64  0.64  0.64 0.25  0.00
Delay/Veh:    0.0  0.0   0.0  34.1  0.0  34.4   0.0 15.2  15.2  42.7  4.2   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  34.1  0.0  34.4   0.0 15.2  15.2  42.7  4.2   0.0
HCM2kAvg:      0    0     0     9    0     9     0   13    13     7    3     0
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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
Lane Group:  xxxx xxxx  xxxx   LTR  LTR   LTR  xxxx  RT     RT    L    T   xxxx
#LnsInGrps:     0    0     0     2    1     2     0    3     3     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     5 xxxx     5  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Area Adj:    xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      xxxx xxxx xxxxx  0.92 xxxx  0.92  xxxx 0.95  0.95  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.81 xxxx  0.81  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.95  0.95  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  1.00 0.91  1.00
Fnl Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.87  0.87  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
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-------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
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  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
*******************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
*******************************************************************************
Approach:                                     North    South    East     West
Cycle Length, C:                             xxxxxx     100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:         xxxxxx   22.01   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:      xxxxxx   26.01   xxxxxx   xxxxxx
Opposing Effective Green Time, go:           xxxxxx    0.00   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                xxxxxx       0   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:            xxxxxx       2   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:           xxxxxx     353   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt: xxxxxx    0.49   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:  xxxxxx    1.00   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                   xxxxxx    9.81   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:             xxxxxx       0   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:      xxxxxx    0.00   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                 xxxxxx    1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                     xxxxxx    0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:  xxxxxx    0.24   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                   xxxxxx    1.00   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:       xxxxxx    0.00   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:    xxxxxx   25.77   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:  xxxxxx    0.00   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho: xxxxxx    0.00   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:             xxxxxx  xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl: xxxxxx    1.05   xxxxxx   xxxxxx
Through-car Equivalents, el1:                xxxxxx    1.40   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:    xxxxxx    1.00   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:   xxxxxx    0.16   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm: xxxxxx    0.71   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:            xxxxxx    0.81   xxxxxx   xxxxxx
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.00  0.00  0.26 0.00  0.26  0.00 0.57  0.57  0.17 0.74  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  0.0   0.0   7.2  0.0   7.4   0.0 11.2  11.2   5.4  2.8   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           0.0  0.0   0.0   1.7  0.0   1.7   0.0  1.7   1.7   1.6  0.3   0.0
HCM2KQueue:   0.0  0.0   0.0   8.9  0.0   9.1   0.0 12.8  12.8   7.0  3.1   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.20  1.20  1.18 1.20  1.18  1.20 1.17  1.17  1.18 1.19  1.20
70th%HCM2kQ:  0.0  0.0   0.0  10.5  0.0  10.8   0.0 15.1  15.1   8.3  3.8   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.60  1.60  1.52 1.60  1.52  1.60 1.50  1.50  1.54 1.57  1.60
85th%HCM2kQ:  0.0  0.0   0.0  13.5  0.0  13.9   0.0 19.2  19.2  10.7  4.9   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.80  1.80  1.66 1.80  1.65  1.80 1.61  1.61  1.68 1.74  1.80
90th%HCM2kQ:  0.0  0.0   0.0  14.7  0.0  15.1   0.0 20.7  20.7  11.7  5.5   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 2.10  2.10  1.87 2.10  1.86  2.10 1.79  1.79  1.91 2.00  2.10
95th%HCM2kQ:  0.0  0.0   0.0  16.6  0.0  17.0   0.0 23.0  23.0  13.3  6.3   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.70  2.70  2.21 2.70  2.20  2.70 2.07  2.07  2.28 2.49  2.70
98th%HCM2kQ:  0.0  0.0   0.0  19.6  0.0  20.1   0.0 26.6  26.6  16.0  7.8   0.0
```

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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.873
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        29.7
Optimal Cycle:      146                 Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     453    0   281     0    0     0     0 1186   384   336  699     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  453    0   281     0    0     0     0 1186   384   336  699     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   453    0   281     0    0     0     0 1186   384   336  699     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  453    0   281     0    0     0     0 1186   384   336  699     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   453    0   281     0    0     0     0 1186   384   336  699     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.73 1.00  0.76  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
Lanes:       1.45 0.00  0.55  0.00 0.00  0.00  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:  2029    0   785     0    0     0     0 3610  1615  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.22 0.00  0.36  0.00 0.00  0.00  0.00 0.33  0.24  0.19 0.13  0.00
Crit Moves:             ****                       ****        ****
Green/Cycle: 0.41 0.00  0.41  0.00 0.00  0.00  0.00 0.38  0.38  0.21 0.59  0.00
Volume/Cap:  0.55 0.00  0.87  0.00 0.00  0.00  0.00 0.87  0.63  0.87 0.23  0.00
Delay/Veh:   22.9  0.0  37.2   0.0  0.0   0.0   0.0 35.3  27.6  56.9  9.7   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  22.9  0.0  37.2   0.0  0.0   0.0   0.0 35.3  27.6  56.9  9.7   0.0
HCM2kAvg:      10    0    21     0    0     0     0   20    10    14    3     0
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
Lane Group:   LTR  LTR   LTR  xxxx xxxx  xxxx  xxxx   T     R     L    T   xxxx
#LnsInGrps:     2    1     1     0    0     0     0    2     1     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     5 xxxx     5  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Area Adj:    1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      0.94 xxxx  0.94  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.78 xxxx  0.80  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.73 1.00  0.76  1.00 1.00  1.00  1.00 1.00  0.85  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.95  1.00  1.00 0.91  1.00
Fnl Sat Adj: 0.73 1.00  0.76  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
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-------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
-------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
*******************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
*******************************************************************************
Approach:                                      North    South    East     West
Cycle Length, C:                                 100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           36.96   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        40.96   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:              0.00   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                      0   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                  2   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:               453   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:    0.62   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:     1.00   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     12.58   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                   0   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:         0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                    1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                        0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:     0.16   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                      1.00   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:          0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      40.80   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:     0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:    0.00   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:              xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:    1.37   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                   1.40   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:       1.00   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:      0.12   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:    0.65   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:               0.78   xxxxxx   xxxxxx   xxxxxx
*******************************************************************************
```

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--------------------------------------------------------------------------------
                             EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                             2000 HCM Operations Method
                               Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.41 0.00  0.41  0.00 0.00  0.00  0.00 0.38  0.38  0.21 0.59  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           8.4  0.0  16.4   0.0  0.0   0.0   0.0 15.3   8.7   9.5  3.1   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           1.2  0.0   4.9   0.0  0.0   0.0   0.0  4.7   1.6   4.1  0.3   0.0
HCM2KQueue:   9.6  0.0  21.2   0.0  0.0   0.0   0.0 20.0  10.3  13.6  3.4   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.20  1.16  1.20 1.20  1.20  1.20 1.16  1.18  1.17 1.19  1.20
70th%HCM2kQ: 11.3  0.0  24.6   0.0  0.0   0.0   0.0 23.2  12.2  16.0  4.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.60  1.45  1.60 1.60  1.60  1.60 1.45  1.51  1.49 1.57  1.60
85th%HCM2kQ: 14.6  0.0  30.8   0.0  0.0   0.0   0.0 29.1  15.6  20.3  5.3   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.65 1.80  1.54  1.80 1.80  1.80  1.80 1.55  1.64  1.60 1.74  1.80
90th%HCM2kQ: 15.8  0.0  32.7   0.0  0.0   0.0   0.0 31.0  16.9  21.9  5.8   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.85 2.10  1.68  2.10 2.10  2.10  2.10 1.70  1.84  1.78 2.00  2.10
95th%HCM2kQ: 17.8  0.0  35.8   0.0  0.0   0.0   0.0 34.0  19.0  24.3  6.7   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.18 2.70  1.90  2.70 2.70  2.70  2.70 1.91  2.15  2.05 2.47  2.70
98th%HCM2kQ: 20.9  0.0  40.3   0.0  0.0   0.0   0.0 38.3  22.2  28.0  8.3   0.0
```

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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.655
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        20.0
Optimal Cycle:       54                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:    0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     418  922     0     0  966   547     0     0     0   302     0   452
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  418  922     0     0  966   547     0     0     0   302     0   452
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   418  922     0     0  966   547     0     0     0   302     0   452
Reduct Vol:     0    0     0     0    0     0     0     0     0     0     0     0
Reduced Vol:  418  922     0     0  966   547     0     0     0   302     0   452
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   418  922     0     0  966   547     0     0     0   302     0   452
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.75 1.00  0.75
Lanes:       2.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.40 0.00  1.60
Final Sat.:  3502 3610     0     0 3610  1615     0     0     0  2005     0  2290
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.26  0.00  0.00 0.27  0.34  0.00 0.00  0.00  0.15 0.00  0.20
Crit Moves:  ****                        ****                               ****
Green/Cycle: 0.18 0.70  0.00  0.00 0.52  0.52  0.00 0.00  0.00  0.30 0.00  0.30
Volume/Cap:  0.65 0.36  0.00  0.00 0.52  0.65  0.00 0.00  0.00  0.50 0.00  0.66
Delay/Veh:   40.4  6.1   0.0   0.0 16.1  19.5   0.0  0.0   0.0  29.1  0.0  32.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  40.4  6.1   0.0   0.0 16.1  19.5   0.0  0.0   0.0  29.1  0.0  32.0
HCM2kAvg:       7    6     0     0   10    13     0    0     0     7    0    10
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
Lane Group:    L    T   xxxx  xxxx   T     R   xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     2    2     0     0    2     1     0    0     0     2    1     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     5 xxxx     5
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx  0.91 xxxx  0.91
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.83 xxxx  0.83
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  1.00 1.00  1.00  0.75 1.00  0.75
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 0.97 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.75 1.00  0.75
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx   xxxxxx      100
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx   xxxxxx    25.99
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx   xxxxxx    29.99
Opposing Effective Green Time, go:             xxxxxx   xxxxxx   xxxxxx     0.00
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx   xxxxxx        0
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx   xxxxxx        2
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx   xxxxxx      302
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx   xxxxxx     0.40
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx     1.00
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx   xxxxxx     8.39
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx   xxxxxx        0
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx   xxxxxx     0.00
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx   xxxxxx     1.00
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx   xxxxxx     0.00
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx   xxxxxx     0.45
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx   xxxxxx     1.00
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx   xxxxxx     0.00
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx   xxxxxx    29.54
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx     0.00
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx     0.00
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx   xxxxxx     0.87
Through-car Equivalents, el1:                  xxxxxx   xxxxxx   xxxxxx     1.40
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx     1.00
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx   xxxxxx     0.12
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx   xxxxxx     0.75
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx   xxxxxx     0.83
********************************************************************************
```

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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.18 0.70  0.00  0.00 0.52  0.52  0.00 0.00  0.00  0.30 0.00  0.30
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           5.7  5.2   0.0   0.0  8.8  11.1   0.0  0.0   0.0   6.0  0.0   8.3
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
Q2:           1.7  0.6   0.0   0.0  1.1   1.8   0.0  0.0   0.0   1.0  0.0   1.8
HCM2KQueue:   7.4  5.7   0.0   0.0  9.9  12.9   0.0  0.0   0.0   6.9  0.0  10.1
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.17  1.20 1.20  1.20  1.18 1.20  1.18
70th%HCM2kQ:  8.7  6.8   0.0   0.0 11.6  15.1   0.0  0.0   0.0   8.2  0.0  11.8
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.53 1.55  1.60  1.60 1.52  1.50  1.60 1.60  1.60  1.54 1.60  1.51
85th%HCM2kQ: 11.3  8.9   0.0   0.0 15.0  19.3   0.0  0.0   0.0  10.7  0.0  15.2
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.68 1.70  1.80  1.80 1.64  1.61  1.80 1.80  1.80  1.68 1.80  1.64
90th%HCM2kQ: 12.4  9.7   0.0   0.0 16.3  20.7   0.0  0.0   0.0  11.7  0.0  16.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.90 1.94  2.10  2.10 1.85  1.79  2.10 2.10  2.10  1.91 2.10  1.84
95th%HCM2kQ: 14.0 11.1   0.0   0.0 18.3  23.1   0.0  0.0   0.0  13.2  0.0  18.5
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.27 2.34  2.70  2.70 2.17  2.07  2.70 2.70  2.70  2.29 2.70  2.16
98th%HCM2kQ: 16.7 13.4   0.0   0.0 21.4  26.7   0.0  0.0   0.0  15.9  0.0  21.7
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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.667
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        25.1
Optimal Cycle:       56                 Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted       Protected         Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  2  1  1   2  0  2  0  0   1  0  1! 0  1   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0  838   369   483  783     0   495  154   373     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0  838   369   483  783     0   495  154   373     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    0  838   369   483  783     0   495  154   373     0    0     0
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   0  838   369   483  783     0   495  154   373     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    0  838   369   483  783     0   495  154   373     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.89 0.89  0.89  1.00 1.00  1.00
Lanes:       0.00 2.78  1.22  2.00 2.00  0.00  1.42 0.26  1.32  0.00 0.00  0.00
Final Sat.:    0 4581  2017  3502 3610     0  2411  444  2235     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.18  0.18  0.14 0.22  0.00  0.21 0.35  0.17  0.00 0.00  0.00
Crit Moves:       ****        ****                   ****
Green/Cycle: 0.00 0.27  0.27  0.21 0.48  0.00  0.52 0.52  0.52  0.00 0.00  0.00
Volume/Cap:  0.00 0.67  0.67  0.67 0.45  0.00  0.40 0.67  0.32  0.00 0.00  0.00
Delay/Veh:    0.0 33.2  33.2  38.9 17.4   0.0  14.6 18.8  13.9   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 33.2  33.2  38.9 17.4   0.0  14.6 18.8  13.9   0.0  0.0   0.0
HCM2kAvg:       0    9     9     8    8     0     7   15     5     0    0     0
********************************************************************************
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-------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
-------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
Lane Group:  xxxx  RT     RT    L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    4     4     2    2     0     2    1     2     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                 8                8
% Hev Veh:           0                0                 0                0
Grade:              0%               0%                0%               0%
Parking/Hr:         No               No                No               No
Bus Stp/Hr:          0                0                 0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                 0                0
ExclusiveRT:      Include          Include           Include          Include
% RT Prtct:          0                0                 0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx 0.95  0.95  xxxx xxxx xxxxx  0.95 0.95  0.95  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.95 0.95  0.95  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.95  0.95  0.95 1.00  1.00  0.89 0.89  0.89  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  0.97 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.92 0.95  1.00  0.89 0.89  0.89  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.27  0.27  0.21 0.48  0.00  0.52 0.52  0.52  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  7.4   7.4   6.5  7.2   0.0   6.2 12.7   4.8   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  1.8   1.8   1.8  0.8   0.0   0.6  1.9   0.5   0.0  0.0   0.0
HCM2KQueue:   0.0  9.3   9.3   8.3  8.0   0.0   6.8 14.6   5.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.18 1.18  1.20  1.18 1.17  1.19  1.20 1.20  1.20
70th%HCM2kQ:  0.0 10.9  10.9   9.8  9.5   0.0   8.1 17.1   6.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.52  1.52  1.53 1.53  1.60  1.54 1.48  1.55  1.60 1.60  1.60
85th%HCM2kQ:  0.0 14.1  14.1  12.7 12.3   0.0  10.5 21.7   8.2   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.65  1.65  1.66 1.67  1.80  1.68 1.59  1.71  1.80 1.80  1.80
90th%HCM2kQ:  0.0 15.3  15.3  13.8 13.4   0.0  11.5 23.3   9.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.86  1.86  1.88 1.88  2.10  1.91 1.77  1.95  2.10 2.10  2.10
95th%HCM2kQ:  0.0 17.2  17.2  15.6 15.1   0.0  13.1 25.8  10.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.19  2.19  2.23 2.24  2.70  2.29 2.02  2.37  2.70 2.70  2.70
98th%HCM2kQ:  0.0 20.3  20.3  18.5 18.0   0.0  15.7 29.6  12.5   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.598
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        21.8
Optimal Cycle:       46                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     349 1013     0     0  637   343   334    0   240     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  349 1013     0     0  637   343   334    0   240     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   349 1013     0     0  637   343   334    0   240     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  349 1013     0     0  637   343   334    0   240     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   349 1013     0     0  637   343   334    0   240     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
Lanes:       1.00 3.00  0.00  0.00 2.00  2.00  1.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:  1805 5187     0     0 3610  2842  1467    0  1615     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.19 0.20  0.00  0.00 0.18  0.12  0.23 0.00  0.15  0.00 0.00  0.00
Crit Moves:  ****                  ****        ****
Green/Cycle: 0.32 0.62  0.00  0.00 0.30  0.30  0.38 0.00  0.38  0.00 0.00  0.00
Volume/Cap:  0.60 0.32  0.00  0.00 0.60  0.41  0.60 0.00  0.39  0.00 0.00  0.00
Delay/Veh:   30.1  9.1   0.0   0.0 31.1  28.6  26.6  0.0  22.9   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  30.1  9.1   0.0   0.0 31.1  28.6  26.6  0.0  22.9   0.0  0.0   0.0
HCM2kAvg:     10    5     0     0    9     4    11    0     5     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
Lane Group:    L    T   xxxx  xxxx   T     R     L  xxxx    R   xxxx xxxx  xxxx
#LnsInGrps:     1    3     0     0    2     2     1    0     1     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx     2 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  0.77 xxxx xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  0.77 1.00  0.85  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.95  0.88  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:                                        North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx      100   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx    34.11   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx    38.11   xxxxxx
Opposing Effective Green Time, go:             xxxxxx   xxxxxx     0.00   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx        0   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx        1   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx      334   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx     1.00   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx     1.00   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx     9.28   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx        0   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx     0.00   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx     1.00   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx     0.44   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx     1.00   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx    37.67   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx     0.00   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx     0.00   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx     1.00   xxxxxx
Through-car Equivalents, el1:                  xxxxxx   xxxxxx     1.30   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx     1.00   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx     0.10   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx     0.77   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx     0.77   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.32 0.62  0.00  0.00 0.30  0.30  0.38 0.00  0.38  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           8.6  4.4   0.0   0.0  7.6   3.8   9.6  0.0   4.8   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Q2:           1.4  0.5   0.0   0.0  1.4   0.7   1.4  0.0   0.6   0.0  0.0   0.0
HCM2KQueue:  10.0  4.9   0.0   0.0  9.0   4.5  11.1  0.0   5.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.19  1.18 1.20  1.19  1.20 1.20  1.20
70th%HCM2kQ: 11.8  5.8   0.0   0.0 10.6   5.3  13.0  0.0   6.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.55  1.60  1.60 1.52  1.56  1.51 1.60  1.55  1.60 1.60  1.60
85th%HCM2kQ: 15.1  7.6   0.0   0.0 13.7   7.0  16.7  0.0   8.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.64 1.71  1.80  1.80 1.66  1.72  1.63 1.80  1.70  1.80 1.80  1.80
90th%HCM2kQ: 16.4  8.4   0.0   0.0 14.9   7.7  18.0  0.0   9.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.84 1.96  2.10  2.10 1.86  1.97  1.82 2.10  1.94  2.10 2.10  2.10
95th%HCM2kQ: 18.4  9.6   0.0   0.0 16.7   8.8  20.2  0.0  10.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.16 2.39  2.70  2.70 2.20  2.41  2.13 2.70  2.36  2.70 2.70  2.70
98th%HCM2kQ: 21.6 11.7   0.0   0.0 19.8  10.8  23.5  0.0  12.9   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.631
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       24.3
Optimal Cycle:       50               Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     472  680     0     0  542   246     0     0     0   431  168   340
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  472  680     0     0  542   246     0     0     0   431  168   340
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   472  680     0     0  542   246     0     0     0   431  168   340
Reduct Vol:     0    0     0     0    0     0     0     0     0     0    0     0
Reduced Vol:  472  680     0     0  542   246     0     0     0   431  168   340
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   472  680     0     0  542   246     0     0     0   431  168   340
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.87  0.87  1.00 1.00  1.00  0.85 0.85  0.85
Lanes:       1.00 2.00  0.00  0.00 2.06  0.94  0.00 0.00  0.00  1.44 0.56  1.00
Final Sat.:  1805 3610     0     0 3400  1543     0     0     0  2325  906  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.26 0.19  0.00  0.00 0.16  0.16  0.00 0.00  0.00  0.19 0.19  0.21
Crit Moves:  ****                  ****                                     ****
Green/Cycle: 0.41 0.67  0.00  0.00 0.25  0.25  0.00 0.00  0.00  0.33 0.33  0.33
Volume/Cap:  0.63 0.28  0.00  0.00 0.63  0.63  0.00 0.00  0.00  0.56 0.56  0.63
Delay/Veh:   25.0  6.9   0.0   0.0 34.3  34.3   0.0  0.0   0.0  27.7 27.7  29.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  25.0  6.9   0.0   0.0 34.3  34.3   0.0  0.0   0.0  27.7 27.7  29.0
HCM2kAvg:      13    4     0     0    8     8     0    0     0     8    8    10
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
Lane Group:     L    T   xxxx  xxxx  RT     RT  xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     1    2     0     0    3     3     0    0     0     3    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 0.95  0.95  xxxx xxxx xxxxx  0.95 0.95  0.95
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 0.95  0.95
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 0.95  0.95  1.00 1.00  1.00  0.89 0.89  0.89
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.95 0.95  0.95
Fnl Sat Adj: 0.95 0.95  1.00  1.00 0.87  0.87  1.00 1.00  1.00  0.85 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.41 0.67  0.00  0.00 0.25  0.25  0.00 0.00  0.00  0.33 0.33  0.33
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          10.9  3.9   0.0   0.0  6.5   6.5   0.0  0.0   0.0   7.2  7.2   8.4
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           1.6  0.4   0.0   0.0  1.6   1.6   0.0  0.0   0.0   1.2  1.2   1.6
HCM2KQueue:  12.6  4.3   0.0   0.0  8.1   8.1   0.0  0.0   0.0   8.4  8.4  10.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.19  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.18 1.18  1.18
70th%HCM2kQ: 14.8  5.1   0.0   0.0  9.5   9.5   0.0  0.0   0.0   9.9  9.9  11.8
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.50 1.56  1.60  1.60 1.53  1.53  1.60 1.60  1.60  1.53 1.53  1.51
85th%HCM2kQ: 18.8  6.7   0.0   0.0 12.3  12.3   0.0  0.0   0.0  12.8 12.8  15.2
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.61 1.72  1.80  1.80 1.67  1.67  1.80 1.80  1.80  1.66 1.66  1.64
90th%HCM2kQ: 20.3  7.4   0.0   0.0 13.5  13.5   0.0  0.0   0.0  14.0 14.0  16.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.80 1.97  2.10  2.10 1.88  1.88  2.10 2.10  2.10  1.88 1.88  1.84
95th%HCM2kQ: 22.6  8.4   0.0   0.0 15.2  15.2   0.0  0.0   0.0  15.8 15.8  18.5
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.08 2.42  2.70  2.70 2.24  2.24  2.70 2.70  2.70  2.22 2.22  2.16
98th%HCM2kQ: 26.2 10.3   0.0   0.0 18.1  18.1   0.0  0.0   0.0  18.7 18.7  21.7
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.591
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        21.6
Optimal Cycle:       45                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted       Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0  865   748   326  640     0   281  523   263     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0  865   748   326  640     0   281  523   263     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    0  865   748   326  640     0   281  523   263     0    0     0
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   0  865   748   326  640     0   281  523   263     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    0  865   748   326  640     0   281  523   263     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.75  0.92 0.95  1.00  0.88 0.88  0.88  1.00 1.00  1.00
Lanes:       0.00 2.00  2.00  2.00 2.00  0.00  1.00 1.33  0.67  0.00 0.00  0.00
Final Sat.:    0 3610  2842  3502 3610     0  1674 2228  1120     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.24  0.26  0.09 0.18  0.00  0.17 0.23  0.23  0.00 0.00  0.00
Crit Moves:             ****  ****                    ****
Green/Cycle: 0.00 0.45  0.45  0.16 0.60  0.00  0.40 0.40  0.40  0.00 0.00  0.00
Volume/Cap:  0.00 0.54  0.59  0.59 0.29  0.00  0.42 0.59  0.59  0.00 0.00  0.00
Delay/Veh:    0.0 20.6  21.6  40.8  9.7   0.0  21.9 24.3  24.3   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 20.6  21.6  40.8  9.7   0.0  21.9 24.3  24.3   0.0  0.0   0.0
HCM2kAvg:      0   10     9     6    5     0     7   10    10     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
Lane Group:  xxxx   T     R     L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    2     2     2    2     0     3    3     3     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx  0.85  xxxx xxxx xxxxx  0.96 0.96  0.96  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.96 0.96  0.96  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  0.85  0.95 1.00  1.00  0.93 0.93  0.93  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  0.88  0.97 0.95  1.00  0.95 0.95  0.95  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.95  0.75  0.92 0.95  1.00  0.88 0.88  0.88  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
********************************************************************************
```

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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
*******************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.45  0.45  0.16 0.60  0.00  0.40 0.40  0.40  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  8.8   7.8   4.4  4.3   0.0   5.9  8.9   8.9   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  1.1   1.4   1.3  0.4   0.0   0.7  1.4   1.4   0.0  0.0   0.0
HCM2KQueue:   0.0  9.9   9.2   5.8  4.7   0.0   6.6 10.3  10.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.19  1.20  1.18 1.18  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 11.7  10.9   6.8  5.6   0.0   7.8 12.2  12.2   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.52  1.52  1.55 1.56  1.60  1.54 1.51  1.51  1.60 1.60  1.60
85th%HCM2kQ:  0.0 15.0  14.0   8.9  7.3   0.0  10.2 15.6  15.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.64  1.65  1.70 1.72  1.80  1.69 1.64  1.64  1.80 1.80  1.80
90th%HCM2kQ:  0.0 16.3  15.2   9.8  8.1   0.0  11.1 16.9  16.9   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.85  1.86  1.94 1.96  2.10  1.92 1.84  1.84  2.10 2.10  2.10
95th%HCM2kQ:  0.0 18.3  17.1  11.1  9.2   0.0  12.6 19.0  19.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.17  2.19  2.34 2.40  2.70  2.30 2.15  2.15  2.70 2.70  2.70
98th%HCM2kQ:  0.0 21.5  20.2  13.5 11.3   0.0  15.2 22.2  22.2   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Cycle (sec):         100                 Critical Vol./Cap. (X):        0.594
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):        24.8
Optimal Cycle:        56                 Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     566   18   223    17   27    26    27 1578   252   564  746    13
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  566   18   223    17   27    26    27 1578   252   564  746    13
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   566   18   223    17   27    26    27 1578   252   564  746    13
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  566   18   223    17   27    26    27 1578   252   564  746    13
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   566   18   223    17   27    26    27 1578   252   564  746    13
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.89  0.89  0.92 0.91  0.91
Lanes:       1.94 0.06  1.00  0.24 0.39  0.37  1.00 4.00  1.00  2.00 2.95  0.05
Final Sat.:  3513  112  1615   433  688   662  1805 6771  1693  3502 5083    89
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.16 0.16  0.14  0.04 0.04  0.04  0.01 0.23  0.15  0.16 0.15  0.15
Crit Moves:  ****                   ****             ****        ****
Green/Cycle: 0.27 0.27  0.27  0.07 0.07  0.07  0.06 0.39  0.39  0.27 0.60  0.60
Volume/Cap:  0.59 0.59  0.51  0.59 0.59  0.59  0.24 0.59  0.38  0.59 0.24  0.24
Delay/Veh:   32.7 32.7  31.8  53.4 53.4  53.4  45.9 24.4  21.8  32.7  9.3   9.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  32.7 32.7  31.8  53.4 53.4  53.4  45.9 24.4  21.8  32.7  9.3   9.3
HCM2kAvg:       9    9     6     3    3     3     1   10     6     9    4     4
********************************************************************************
```

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--------------------------------------------------------------------------------
                         EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
Lane Group:    LT   LT     R    LTR  LTR   LTR     L   RT     RT    L   RT     RT
#LnsInGrps:      2    2     1     1    1     1     1    5     5     2    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid        8                8                8                8
% Hev Veh:          0                0                0                0
Grade:             0%               0%               0%               0%
Parking/Hr:        No               No               No               No
Bus Stp/Hr:         0                0                0                0
Area Type:     < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:        0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:         0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:      4    4  xxxx     4    4     4     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  0.95 0.95  0.95  xxxx 0.98  0.98  xxxx 1.00  1.00
LT Adj:      0.95 0.95 xxxxx  0.99 0.99  0.99  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.98  0.98  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  0.97 0.91  0.91
Fnl Sat Adj: 0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.89  0.89  0.92 0.91  0.91
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.27 0.27  0.27  0.07 0.07  0.07  0.06 0.39  0.39  0.27 0.60  0.60
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           7.4  7.4   5.2   1.9  1.9   1.9   0.8  8.7   5.0   7.2  3.3   3.3
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q2:           1.4  1.4   1.0   1.2  1.2   1.2   0.3  1.4   0.6   1.4  0.3   0.3
HCM2KQueue:   8.8  8.8   6.2   3.1  3.1   3.1   1.1 10.1   5.6   8.6  3.6   3.6
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.19  1.19 1.19  1.19  1.20 1.18  1.19  1.18 1.19  1.19
70th%HCM2kQ: 10.4 10.4   7.4   3.7  3.7   3.7   1.3 11.9   6.7  10.1  4.3   4.3
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.52  1.54  1.57 1.57  1.57  1.59 1.51  1.55  1.53 1.57  1.57
85th%HCM2kQ: 13.4 13.4   9.6   4.9  4.9   4.9   1.7 15.3   8.7  13.1  5.6   5.6
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.66 1.66  1.69  1.74 1.74  1.74  1.78 1.64  1.70  1.66 1.73  1.73
90th%HCM2kQ: 14.6 14.6  10.6   5.5  5.5   5.5   1.9 16.6   9.5  14.2  6.2   6.2
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.87 1.87  1.92  2.00 2.00  2.00  2.07 1.84  1.94  1.87 1.99  1.99
95th%HCM2kQ: 16.4 16.4  12.0   6.3  6.3   6.3   2.2 18.6  10.9  16.0  7.2   7.2
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.21 2.21  2.32  2.49 2.49  2.49  2.62 2.16  2.35  2.22 2.46  2.46
98th%HCM2kQ: 19.4 19.4  14.5   7.8  7.8   7.8   2.8 21.8  13.2  19.0  8.9   8.9
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.564
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        18.4
Optimal Cycle:       43                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3 1113     0     0 1330     7     0    0    12   436   11   957
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3 1113     0     0 1330     7     0    0    12   436   11   957
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     3 1113     0     0 1330     7     0    0    12   436   11   957
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    3 1113     0     0 1330     7     0    0    12   436   11   957
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     3 1113     0     0 1330     7     0    0    12   436   11   957
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.11 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
Lanes:       1.00 3.00  0.00  0.00 2.98  0.02  0.00 0.00  1.00  1.00 0.02  1.98
Final Sat.:   203 5187     0     0 5155    27     0    0  1644  1805   37  3201
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.21  0.00  0.00 0.26  0.26  0.00 0.00  0.01  0.24 0.30  0.30
Crit Moves:                        ****                   ****             ****
Green/Cycle: 0.46 0.46  0.00  0.00 0.46  0.46  0.00 0.00  0.01  0.53 0.53  0.53
Volume/Cap:  0.03 0.47  0.00  0.00 0.56  0.56  0.00 0.00  0.56  0.46 0.56  0.56
Delay/Veh:   15.1 18.9   0.0   0.0 20.2  20.2   0.0  0.0  79.7  14.9 16.2  16.2
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  15.1 18.9   0.0   0.0 20.2  20.2   0.0  0.0  79.7  14.9 16.2  16.2
HCM2kAvg:      0    8     0     0   10    10     0    0     1     9   10    10
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L - T - R        L - T - R        L - T - R        L - T - R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx    R     L   RT     RT
#LnsInGrps:     1    3     0     0    3     3     0    0     1     1    2     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     2 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 1.00  1.00  xxxx xxxx  0.87  xxxx 0.85  0.85
LT Adj:      0.11 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.11 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.87  0.95 0.85  0.85
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.91  0.91  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.11 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                   100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:             41.72   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:          45.72   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:               45.72   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                        3   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                    1   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                   3   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:      1.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:     xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                        0.08   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                  1337   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:          13.60   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                      1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                          0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:       0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                        0.54   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:           20.29   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:        25.43   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:     xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                  0.04   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:      1.00   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                     5.19   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:       xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:        0.09   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:      0.11   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                 0.11   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
```

```
--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
*******************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.46 0.46  0.00  0.00 0.46  0.46  0.00 0.00  0.01  0.53 0.53  0.53
ArrivalType:         3                3                 3                 3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.4  7.1   0.0   0.0  9.1   9.1   0.0  0.0   0.3   7.9  9.0   9.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
Q2:           0.0  0.9   0.0   0.0  1.3   1.3   0.0  0.0   0.8   0.8  1.3   1.3
HCM2KQueue:   0.5  8.0   0.0   0.0 10.3  10.3   0.0  0.0   1.1   8.7 10.3  10.3
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.18 1.18  1.18
70th%HCM2kQ:  0.6  9.4   0.0   0.0 12.1  12.1   0.0  0.0   1.3  10.3 12.1  12.1
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.53  1.60  1.60 1.51  1.51  1.60 1.60  1.59  1.52 1.51  1.51
85th%HCM2kQ:  0.7 12.2   0.0   0.0 15.6  15.6   0.0  0.0   1.8  13.3 15.6  15.6
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.79 1.67  1.80  1.80 1.64  1.64  1.80 1.80  1.78  1.66 1.64  1.64
90th%HCM2kQ:  0.8 13.3   0.0   0.0 16.9  16.9   0.0  0.0   2.0  14.5 16.8  16.8
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.08 1.88  2.10  2.10 1.84  1.84  2.10 2.10  2.06  1.87 1.84  1.84
95th%HCM2kQ:  1.0 15.1   0.0   0.0 19.0  19.0   0.0  0.0   2.3  16.3 18.9  18.9
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.67 2.24  2.70  2.70 2.15  2.15  2.70 2.70  2.62  2.21 2.15  2.15
98th%HCM2kQ:  1.2 17.9   0.0   0.0 22.2  22.2   0.0  0.0   2.9  19.3 22.1  22.1
```

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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap. (X):        0.466
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):      13.3
Optimal Cycle:       35              Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  997   449    15 1028     0   455    7   271     0    0     9
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  997   449    15 1028     0   455    7   271     0    0     9
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  997   449    15 1028     0   455    7   271     0    0     9
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  997   449    15 1028     0   455    7   271     0    0     9
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  997   449    15 1028     0   455    7   271     0    0     9
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.14 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Lanes:       0.00 2.07  0.93  1.00 2.00  0.00  1.97 0.03  1.00  0.00 0.00  1.00
Final Sat.:     0 3408  1535   268 3610     0  3567   55  1615     0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.29  0.29  0.06 0.28  0.00  0.13 0.13  0.17  0.00 0.00  0.01
Crit Moves:       ****                                    ****             ****
Green/Cycle: 0.00 0.63  0.63  0.63 0.63  0.00  0.36 0.36  0.36  0.00 0.00  0.01
Volume/Cap:  0.00 0.47  0.47  0.09 0.45  0.00  0.35 0.35  0.47  0.00 0.00  0.47
Delay/Veh:    0.0  9.9   9.9   7.6  9.8   0.0  23.6 23.6  25.2   0.0  0.0  65.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  9.9   9.9   7.6  9.8   0.0  23.6 23.6  25.2   0.0  0.0  65.8
HCM2kAvg:      0    8     8     1    8     0     5    5     7     0    0     1
********************************************************************************
```

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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
Lane Group:  xxxx  RT     RT    L    T   xxxx   LT   LT     R   xxxx xxxx    R
#LnsInGrps:     0    3     3     1    2     0     2    2     1     0    0     1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:     Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     2 xxxx  xxxx     4    4  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
RT Adj:      xxxx 0.95  0.95  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.87
LT Adj:      xxxx xxxx xxxxx  0.14 xxxx xxxxx  0.95 0.95 xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.95  0.95  0.14 1.00  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.14 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
********************************************************************************
```

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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    58.80   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    62.80   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx    62.80   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        3   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        1   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx       15   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     1.00   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx     0.42   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx     1446   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx    14.09   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     0.37   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx    14.60   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    48.20   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     1.00   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     5.46   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.06   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.14   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.14   xxxxxx   xxxxxx
********************************************************************************
```

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--------------------------------------------------------------------------------
                          EXISTING (2010) CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.63  0.63  0.63 0.63  0.00  0.36 0.36  0.36  0.00 0.00  0.01
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  7.0   7.0   1.2  7.4   0.0   4.9  4.9   5.8   0.0  0.0   0.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Q2:           0.0  0.9   0.9   0.1  0.8   0.0   0.5  0.5   0.9   0.0  0.0   0.6
HCM2KQueue:   0.0  7.9   7.9   1.3  8.2   0.0   5.5  5.5   6.6   0.0  0.0   0.8
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.20 1.18  1.20  1.19 1.19  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0  9.3   9.3   1.5  9.7   0.0   6.5  6.5   7.9   0.0  0.0   1.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.53  1.53  1.59 1.53  1.60  1.55 1.55  1.54  1.60 1.60  1.59
85th%HCM2kQ:  0.0 12.1  12.1   2.0 12.6   0.0   8.5  8.5  10.2   0.0  0.0   1.3
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.67  1.67  1.78 1.66  1.80  1.70 1.70  1.69  1.80 1.80  1.78
90th%HCM2kQ:  0.0 13.2  13.2   2.2 13.7   0.0   9.3  9.3  11.2   0.0  0.0   1.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.89  1.89  2.06 1.88  2.10  1.94 1.94  1.91  2.10 2.10  2.07
95th%HCM2kQ:  0.0 14.9  14.9   2.6 15.5   0.0  10.6 10.6  12.7   0.0  0.0   1.8
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.24  2.24  2.61 2.23  2.70  2.36 2.36  2.30  2.70 2.70  2.64
98th%HCM2kQ:  0.0 17.7  17.7   3.3 18.4   0.0  12.9 12.9  15.3   0.0  0.0   2.2
```

TRAFFIX WORKSHEETS

CUMULATIVE (2014) BASE CONDITIONS

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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
Lane Group:  xxxx xxxx  xxxx   LTR  LTR   LTR  xxxx  RT     RT    L    T   xxxx
#LnsInGrps:     0    0     0     2    1     2     0    3     3     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     5 xxxx     5  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Area Adj:    xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      xxxx xxxx xxxxx  0.92 xxxx  0.92  xxxx 0.94  0.94  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.82 xxxx  0.82  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.94  0.94  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  1.00 0.91  1.00
Fnl Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.85  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.813
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        23.8
Optimal Cycle:      100                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   544    0   722     0  624   460   371 1659     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   544    0   722     0  624   460   371 1659     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   544    0   722     0  624   460   371 1659     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   544    0   722     0  624   460   371 1659     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0    0     0   544    0   722     0  624   460   371 1659     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.85  0.85  0.95 0.91  1.00
Lanes:       0.00 0.00  0.00  1.43 0.00  1.57  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:     0    0     0  2033    0  2233     0 3237  1618  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.27 0.00  0.32  0.00 0.19  0.28  0.21 0.32  0.00
Crit Moves:                             ****             ****  ****
Green/Cycle: 0.00 0.00  0.00  0.40 0.00  0.40  0.00 0.35  0.35  0.25 0.60  0.00
Volume/Cap:  0.00 0.00  0.00  0.67 0.00  0.81  0.00 0.55  0.81  0.81 0.53  0.00
Delay/Veh:    0.0  0.0   0.0  25.8  0.0  30.3   0.0 26.5  33.4  45.7 11.7   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  25.8  0.0  30.3   0.0 26.5  33.4  45.7 11.7   0.0
HCM2kAvg:      0    0     0    13    0    18     0    8    15    14   10     0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South     East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    35.68   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    39.68   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx     0.00   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        0   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        2   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx      544   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     0.43   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx     1.00   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx    15.11   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx        0   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.07   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     1.00   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    39.61   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx     0.00   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     0.95   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     1.40   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx     1.00   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.10   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.73   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.82   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
Lane Group:    L    T   xxxx  xxxx   T     R   xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     2    2     0     0    2     1     0    0     0     2    1     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx  0.89 0.89  0.89
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.89 0.89  0.89
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  1.00 1.00  1.00  0.79 0.79  0.79
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 0.97 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.79 0.79  0.79
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.00  0.00  0.40 0.00  0.40  0.00 0.35  0.35  0.25 0.60  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  0.0   0.0  10.6  0.0  13.9   0.0  7.0  11.6  10.2  9.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           0.0  0.0   0.0   1.9  0.0   3.6   0.0  1.2   3.4   3.3  1.1   0.0
HCM2KQueue:   0.0  0.0   0.0  12.6  0.0  17.5   0.0  8.2  15.0  13.5 10.1   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.20  1.20  1.17 1.20  1.16  1.20 1.18  1.17  1.17 1.18  1.20
70th%HCM2kQ:  0.0  0.0   0.0  14.8  0.0  20.4   0.0  9.6  17.6  15.8 11.9   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.60  1.60  1.50 1.60  1.47  1.60 1.53  1.48  1.49 1.51  1.60
85th%HCM2kQ:  0.0  0.0   0.0  18.8  0.0  25.7   0.0 12.5  22.3  20.2 15.3   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.80  1.80  1.61 1.80  1.57  1.80 1.67  1.59  1.60 1.64  1.80
90th%HCM2kQ:  0.0  0.0   0.0  20.3  0.0  27.4   0.0 13.6  23.9  21.7 16.5   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 2.10  2.10  1.80 2.10  1.73  2.10 1.88  1.76  1.78 1.84  2.10
95th%HCM2kQ:  0.0  0.0   0.0  22.6  0.0  30.2   0.0 15.4  26.5  24.1 18.6   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.70  2.70  2.08 2.70  1.96  2.70 2.23  2.01  2.05 2.16  2.70
98th%HCM2kQ:  0.0  0.0   0.0  26.2  0.0  34.3   0.0 18.2  30.3  27.8 21.8   0.0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.840
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        27.2
Optimal Cycle:      117                Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted       Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     827    0   279     0    0     0     0  943   221   145 1211     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  827    0   279     0    0     0     0  943   221   145 1211     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   827    0   279     0    0     0     0  943   221   145 1211     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  827    0   279     0    0     0     0  943   221   145 1211     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   827    0   279     0    0     0     0  943   221   145 1211     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.72 1.00  0.74  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
Lanes:       1.60 0.00  0.40  0.00 0.00  0.00  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:  2205    0   559     0    0     0     0 3610  1615  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.38 0.00  0.50  0.00 0.00  0.00  0.00 0.26  0.14  0.08 0.23  0.00
Crit Moves:             ****                        ****        ****
Green/Cycle: 0.59 0.00  0.59  0.00 0.00  0.00  0.00 0.31  0.31  0.10 0.41  0.00
Volume/Cap:  0.63 0.00  0.84  0.00 0.00  0.00  0.00 0.84  0.44  0.84 0.57  0.00
Delay/Veh:   14.0  0.0  21.5   0.0  0.0   0.0   0.0 38.0  28.1  73.6 23.4   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  14.0  0.0  21.5   0.0  0.0   0.0   0.0 38.0  28.1  73.6 23.4   0.0
HCM2kAvg:     14    0    25     0    0     0     0   16     6     7   10     0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
Lane Group:   LTR  LTR   LTR  xxxx xxxx  xxxx  xxxx   T     R     L    T   xxxx
#LnsInGrps:     2    1     1     0    0     0     0    2     1     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     5 xxxx     5  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Area Adj:    1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      0.96 xxxx  0.96  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.75 xxxx  0.77  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.72 1.00  0.74  1.00 1.00  1.00  1.00 1.00  0.85  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.95  1.00  1.00 0.91  1.00
Fnl Sat Adj: 0.72 1.00  0.74  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > > >
DelAdjFctr:  1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                     North    South    East     West
Cycle Length, C:                                100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:          55.36   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:       59.36   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             0.00   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                     0   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                 2   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:              827   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   0.75   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    1.00   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                    22.97   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                  0   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    0.01   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     1.00   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:     59.35   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   0.00   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:             xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   1.70   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  1.40   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      1.00   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     0.09   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   0.60   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              0.75   xxxxxx   xxxxxx   xxxxxx
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.59 0.00  0.59  0.00 0.00  0.00  0.00 0.31  0.31  0.10 0.41  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          12.4  0.0  20.5   0.0  0.0   0.0   0.0 12.2   4.9   4.2  8.7   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           1.7  0.0   4.4   0.0  0.0   0.0   0.0  3.9   0.8   2.9  1.3   0.0
HCM2KQueue:  14.0  0.0  24.9   0.0  0.0   0.0   0.0 16.1   5.7   7.1 10.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.20  1.15  1.20 1.20  1.20  1.20 1.17  1.19  1.18 1.18  1.20
70th%HCM2kQ: 16.4  0.0  28.8   0.0  0.0   0.0   0.0 18.8   6.7   8.4 11.8   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.49 1.60  1.43  1.60 1.60  1.60  1.60 1.48  1.55  1.54 1.52  1.60
85th%HCM2kQ: 20.9  0.0  35.7   0.0  0.0   0.0   0.0 23.8   8.8  10.9 15.1   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.60 1.80  1.52  1.80 1.80  1.80  1.80 1.58  1.70  1.68 1.64  1.80
90th%HCM2kQ: 22.4  0.0  37.8   0.0  0.0   0.0   0.0 25.5   9.6  11.9 16.4   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.77 2.10  1.65  2.10 2.10  2.10  2.10 1.74  1.94  1.90 1.84  2.10
95th%HCM2kQ: 24.9  0.0  41.1   0.0  0.0   0.0   0.0 28.1  11.0  13.5 18.4   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.04 2.70  1.85  2.70 2.70  2.70  2.70 1.99  2.35  2.28 2.16  2.70
98th%HCM2kQ: 28.6  0.0  46.0   0.0  0.0   0.0   0.0 32.1  13.3  16.2 21.6   0.0
```

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--------------------------------------------------------------------------------
                      CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap. (X):        0.749
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):        17.8
Optimal Cycle:        74               Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        2  0  2  0  0   0  0  2  0  1   0  0  0  0  0   1  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     450 1136     0     0  901   717     0    0     0   143    1   389
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  450 1136     0     0  901   717     0    0     0   143    1   389
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   450 1136     0     0  901   717     0    0     0   143    1   389
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  450 1136     0     0  901   717     0    0     0   143    1   389
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   450 1136     0     0  901   717     0    0     0   143    1   389
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.79 0.79  0.79
Lanes:       2.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.26 0.01  1.73
Final Sat.:  3502 3610     0     0 3610  1615     0    0     0  1912    6  2607
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.31  0.00  0.00 0.25  0.44  0.00 0.00  0.00  0.07 0.18  0.15
Crit Moves:  ****                        ****                        ****
Green/Cycle: 0.17 0.76  0.00  0.00 0.59  0.59  0.00 0.00  0.00  0.24 0.24  0.24
Volume/Cap:  0.75 0.41  0.00  0.00 0.42  0.75  0.00 0.00  0.00  0.32 0.75  0.63
Delay/Veh:   44.6  4.2   0.0   0.0 11.2  18.3   0.0  0.0   0.0  31.6 39.9  35.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  44.6  4.2   0.0   0.0 11.2  18.3   0.0  0.0   0.0  31.6 39.9  35.8
HCM2kAvg:       9    6     0     0    8    17     0    0     0     3   10     8
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.17 0.76  0.00  0.00 0.59  0.59  0.00 0.00  0.00  0.24 0.24  0.24
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           6.3  5.4   0.0   0.0  6.8  14.6   0.0  0.0   0.0   2.9  7.7   6.3
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           2.4  0.7   0.0   0.0  0.7   2.7   0.0  0.0   0.0   0.5  2.5   1.6
HCM2KQueue:   8.7  6.1   0.0   0.0  7.5  17.3   0.0  0.0   0.0   3.4 10.2   7.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.16  1.20 1.20  1.20  1.19 1.18  1.18
70th%HCM2kQ: 10.2  7.3   0.0   0.0  8.9  20.2   0.0  0.0   0.0   4.0 12.0   9.3
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.54  1.60  1.60 1.53  1.47  1.60 1.60  1.60  1.57 1.51  1.53
85th%HCM2kQ: 13.2  9.5   0.0   0.0 11.5  25.5   0.0  0.0   0.0   5.3 15.5  12.1
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.66 1.69  1.80  1.80 1.67  1.57  1.80 1.80  1.80  1.74 1.64  1.67
90th%HCM2kQ: 14.4 10.4   0.0   0.0 12.6  27.2   0.0  0.0   0.0   5.8 16.8  13.2
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.87 1.93  2.10  2.10 1.90  1.73  2.10 2.10  2.10  2.00 1.84  1.89
95th%HCM2kQ: 16.2 11.8   0.0   0.0 14.2  30.0   0.0  0.0   0.0   6.7 18.8  14.9
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.21 2.32  2.70  2.70 2.26  1.96  2.70 2.70  2.70  2.47 2.16  2.25
98th%HCM2kQ: 19.2 14.3   0.0   0.0 17.0  34.0   0.0  0.0   0.0   8.3 22.0  17.7
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.747
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        25.9
Optimal Cycle:       74                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted       Protected         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  807   313   507  544     0   769   20   627     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  807   313   507  544     0   769   20   627     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  807   313   507  544     0   769   20   627     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  807   313   507  544     0   769   20   627     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  807   313   507  544     0   769   20   627     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.87 0.87  0.87  1.00 1.00  1.00
Lanes:       0.00 2.88  1.12  2.00 2.00  0.00  1.53 0.03  1.44  0.00 0.00  0.00
Final Sat.:     0 4774  1852  3502 3610     0  2545   46  2381     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.17  0.17  0.14 0.15  0.00  0.30 0.43  0.26  0.00 0.00  0.00
Crit Moves:       ****        ****                    ****
Green/Cycle: 0.00 0.23  0.23  0.19 0.42  0.00  0.58 0.58  0.58  0.00 0.00  0.00
Volume/Cap:  0.00 0.75  0.75  0.75 0.36  0.00  0.52 0.75  0.45  0.00 0.00  0.00
Delay/Veh:    0.0 38.1  38.1  42.6 19.9   0.0  12.8 17.2  12.1   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 38.1  38.1  42.6 19.9   0.0  12.8 17.2  12.1   0.0  0.0   0.0
HCM2kAvg:      0   10    10     9    6     0    10   19     8     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
Lane Group:  xxxx  RT     RT    L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    4     4     2    2     0     2    1     2     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx 0.96  0.96  xxxx xxxx xxxxx  0.93 0.93  0.93  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.93 0.93  0.93  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.96  0.96  0.95 1.00  1.00  0.87 0.87  0.87  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  0.97 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.92 0.95  1.00  0.87 0.87  0.87  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
********************************************************************************
```

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--------------------------------------------------------------------------------
                     CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.23  0.23  0.19 0.42  0.00  0.58 0.58  0.58  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  7.2   7.2   7.0  5.2   0.0   9.0 15.8   7.4   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.4   2.4   2.4  0.6   0.0   1.1  2.7   0.8   0.0  0.0   0.0
HCM2KQueue:   0.0  9.7   9.7   9.4  5.7   0.0  10.0 18.6   8.2   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.18 1.19  1.20  1.18 1.16  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 11.4  11.4  11.1  6.8   0.0  11.8 21.6   9.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.52  1.52  1.52 1.55  1.60  1.51 1.46  1.53  1.60 1.60  1.60
85th%HCM2kQ:  0.0 14.7  14.7  14.3  8.8   0.0  15.2 27.1  12.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.65  1.65  1.65 1.70  1.80  1.64 1.56  1.67  1.80 1.80  1.80
90th%HCM2kQ:  0.0 16.0  16.0  15.5  9.7   0.0  16.5 28.9  13.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.85  1.85  1.86 1.94  2.10  1.84 1.71  1.88  2.10 2.10  2.10
95th%HCM2kQ:  0.0 17.9  17.9  17.5 11.1   0.0  18.5 31.8  15.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.17  2.17  2.18 2.34  2.70  2.16 1.94  2.23  2.70 2.70  2.70
98th%HCM2kQ:  0.0 21.1  21.1  20.6 13.4   0.0  21.7 36.0  18.3   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.826
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        29.9
Optimal Cycle:      107                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include           Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     375  856     0     0  720   456   400    0   676     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  375  856     0     0  720   456   400    0   676     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   375  856     0     0  720   456   400    0   676     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  375  856     0     0  720   456   400    0   676     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   375  856     0     0  720   456   400    0   676     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
Lanes:       1.00 3.00  0.00  0.00 2.00  2.00  1.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:  1805 5187     0     0 3610  2842  1465    0  1615     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.17  0.00  0.00 0.20  0.16  0.27 0.00  0.42  0.00 0.00  0.00
Crit Moves:  ****                  ****                   ****
Green/Cycle: 0.25 0.49  0.00  0.00 0.24  0.24  0.51 0.00  0.51  0.00 0.00  0.00
Volume/Cap:  0.83 0.33  0.00  0.00 0.83  0.66  0.54 0.00  0.83  0.00 0.00  0.00
Delay/Veh:   47.1 15.5   0.0   0.0 42.5  36.7  17.5  0.0  27.8   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  47.1 15.5   0.0   0.0 42.5  36.7  17.5  0.0  27.8   0.0  0.0   0.0
HCM2kAvg:      14    5     0     0   13     7    11    0    20     0    0     0
********************************************************************************
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx      100   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx    46.69   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx    50.69   xxxxxx
Opposing Effective Green Time, go:             xxxxxx   xxxxxx     0.00   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx        0   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx        1   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx      400   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx     1.00   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx     1.00   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx    11.11   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx        0   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx     0.00   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx     1.00   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx     0.33   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx     1.00   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx    50.36   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx     0.00   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx     0.00   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx     1.00   xxxxxx
Through-car Equivalents, el1:                  xxxxxx   xxxxxx     1.30   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx     1.00   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx     0.08   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx     0.77   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx     0.77   xxxxxx
********************************************************************************
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
Lane Group:    L    T   xxxx  xxxx   T     R     L  xxxx    R   xxxx xxxx  xxxx
#LnsInGrps:     1    3     0     0    2     2     1    0     1     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:      Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx     2 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  0.77 xxxx xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  0.77 1.00  0.85  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.95  0.88  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.25 0.49  0.00  0.00 0.24  0.24  0.51 0.00  0.51  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          10.4  4.8   0.0   0.0  9.5   5.7   9.8  0.0  15.9   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Q2:           3.5  0.5   0.0   0.0  3.5   1.8   1.1  0.0   3.9   0.0  0.0   0.0
HCM2KQueue:  13.9  5.3   0.0   0.0 12.9   7.5  10.9  0.0  19.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.19  1.20  1.20 1.17  1.18  1.18 1.20  1.16  1.20 1.20  1.20
70th%HCM2kQ: 16.3  6.3   0.0   0.0 15.2   8.9  12.8  0.0  23.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.49 1.55  1.60  1.60 1.49  1.53  1.51 1.60  1.45  1.60 1.60  1.60
85th%HCM2kQ: 20.7  8.2   0.0   0.0 19.4  11.5  16.5  0.0  28.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.60 1.71  1.80  1.80 1.61  1.68  1.63 1.80  1.55  1.80 1.80  1.80
90th%HCM2kQ: 22.2  9.1   0.0   0.0 20.8  12.5  17.8  0.0  30.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.78 1.95  2.10  2.10 1.79  1.90  1.83 2.10  1.70  2.10 2.10  2.10
95th%HCM2kQ: 24.7 10.3   0.0   0.0 23.2  14.2  20.0  0.0  33.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.04 2.36  2.70  2.70 2.07  2.26  2.13 2.70  1.92  2.70 2.70  2.70
98th%HCM2kQ: 28.4 12.6   0.0   0.0 26.8  16.9  23.3  0.0  38.0   0.0  0.0   0.0
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--------------------------------------------------------------------------------
                      CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.632
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        24.1
Optimal Cycle:       51                 Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  0   0  0  2  1  0   0  0  0  0  0   1  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     251  473     0     0  838   273     0    0     0   691  343   329
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  251  473     0     0  838   273     0    0     0   691  343   329
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   251  473     0     0  838   273     0    0     0   691  343   329
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  251  473     0     0  838   273     0    0     0   691  343   329
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   251  473     0     0  838   273     0    0     0   691  343   329
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.88  0.88  1.00 1.00  1.00  0.88 0.88  0.88
Lanes:       1.00 2.00  0.00  0.00 2.26  0.74  0.00 0.00  0.00  1.53 0.75  0.72
Final Sat.:  1805 3610     0     0 3768  1227     0    0     0  2551 1266  1215
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.14 0.13  0.00  0.00 0.22  0.22  0.00 0.00  0.00  0.27 0.27  0.27
Crit Moves:  ****                  ****                               ****
Green/Cycle: 0.22 0.57  0.00  0.00 0.35  0.35  0.00 0.00  0.00  0.43 0.43  0.43
Volume/Cap:  0.63 0.23  0.00  0.00 0.63  0.63  0.00 0.00  0.00  0.63 0.63  0.63
Delay/Veh:   38.6 10.6   0.0   0.0 27.8  27.8   0.0  0.0   0.0  23.0 23.0  23.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  38.6 10.6   0.0   0.0 27.8  27.8   0.0  0.0   0.0  23.0 23.0  23.0
HCM2kAvg:       8    4     0     0   10    10     0    0     0    12   12    12
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx  xxxx  LTR  LTR   LTR
#LnsInGrps:     1    2     0     0    3     3     0    0     0     3    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 0.96  0.96  xxxx xxxx xxxxx  0.96 0.96  0.96
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.96 0.96  0.96
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 0.96  0.96  1.00 1.00  1.00  0.93 0.93  0.93
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.95 0.95  0.95
Fnl Sat Adj: 0.95 0.95  1.00  1.00 0.88  0.88  1.00 1.00  1.00  0.88 0.88  0.88
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.22 0.57  0.00  0.00 0.35  0.35  0.00 0.00  0.00  0.43 0.43  0.43
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           6.7  3.2   0.0   0.0  8.6   8.6   0.0  0.0   0.0  10.3 10.3  10.3
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           1.6  0.3   0.0   0.0  1.6   1.6   0.0  0.0   0.0   1.6  1.6   1.6
HCM2KQueue:   8.2  3.5   0.0   0.0 10.2  10.2   0.0  0.0   0.0  11.9 11.9  11.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.17 1.17  1.17
70th%HCM2kQ:  9.7  4.2   0.0   0.0 12.0  12.0   0.0  0.0   0.0  14.0 14.0  14.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.53 1.57  1.60  1.60 1.51  1.51  1.60 1.60  1.60  1.50 1.50  1.50
85th%HCM2kQ: 12.6  5.5   0.0   0.0 15.4  15.4   0.0  0.0   0.0  17.9 17.9  17.9
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.66 1.74  1.80  1.80 1.64  1.64  1.80 1.80  1.80  1.62 1.62  1.62
90th%HCM2kQ: 13.7  6.1   0.0   0.0 16.7  16.7   0.0  0.0   0.0  19.3 19.3  19.3
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.88 1.99  2.10  2.10 1.84  1.84  2.10 2.10  2.10  1.81 1.81  1.81
95th%HCM2kQ: 15.5  7.0   0.0   0.0 18.8  18.8   0.0  0.0   0.0  21.5 21.5  21.5
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.23 2.46  2.70  2.70 2.16  2.16  2.70 2.70  2.70  2.10 2.10  2.10
98th%HCM2kQ: 18.4  8.7   0.0   0.0 22.0  22.0   0.0  0.0   0.0  25.0 25.0  25.0
```

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--------------------------------------------------------------------------------
                      CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap. (X):        0.599
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):        25.3
Optimal Cycle:        65               Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Protected        Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  2   2  0  2  0  0   1  1  0  1  0   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  418   366   502 1022     0   303   85   479     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  418   366   502 1022     0   303   85   479     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  418   366   502 1022     0   303   85   479     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  418   366   502 1022     0   303   85   479     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  418   366   502 1022     0   303   85   479     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.75  0.92 0.95  1.00  0.80 0.80  0.80  1.00 1.00  1.00
Lanes:       0.00 2.00  2.00  2.00 2.00  0.00  1.56 0.44  1.00  0.00 0.00  0.00
Final Sat.:     0 3610  2842  3502 3610     0  2371  665  1518     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.12  0.13  0.14 0.28  0.00  0.13 0.13  0.32  0.00 0.00  0.00
Crit Moves:                        ****                    ****
Green/Cycle: 0.00 0.16  0.16  0.40 0.56  0.00  0.44 0.44  0.44  0.00 0.00  0.00
Volume/Cap:  0.00 0.71  0.79  0.36 0.51  0.00  0.29 0.29  0.71  0.00 0.00  0.00
Delay/Veh:    0.0 43.9  49.5  21.4 13.8   0.0  17.9 17.9  24.8   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 43.9  49.5  21.4 13.8   0.0  17.9 17.9  24.8   0.0  0.0   0.0
HCM2kAvg:       0    8     8     6   10     0     4    4    14     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
Lane Group:  xxxx   T     R     L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    2     2     2    2     0     3    3     3     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx  0.85  xxxx xxxx xxxxx  0.92 0.92  0.92  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.92 0.92  0.92  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  0.85  0.95 1.00  1.00  0.84 0.84  0.84  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  0.88  0.97 0.95  1.00  0.95 0.95  0.95  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.95  0.75  0.92 0.95  1.00  0.80 0.80  0.80  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.16  0.16  0.40 0.56  0.00  0.44 0.44  0.44  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  5.5   4.9   5.2  8.7   0.0   3.8  3.8  11.8   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.1   2.7   0.6  1.0   0.0   0.4  0.4   2.3   0.0  0.0   0.0
HCM2KQueue:   0.0  7.6   7.6   5.7  9.8   0.0   4.2  4.2  14.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.18  1.20  1.19 1.19  1.17  1.20 1.20  1.20
70th%HCM2kQ:  0.0  9.0   8.9   6.8 11.5   0.0   5.0  5.0  16.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.53  1.53  1.55 1.52  1.60  1.56 1.56  1.49  1.60 1.60  1.60
85th%HCM2kQ:  0.0 11.6  11.6   8.9 14.8   0.0   6.5  6.5  21.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.67  1.67  1.70 1.65  1.80  1.72 1.72  1.60  1.80 1.80  1.80
90th%HCM2kQ:  0.0 12.7  12.6   9.8 16.1   0.0   7.2  7.2  22.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.89  1.89  1.94 1.85  2.10  1.98 1.98  1.77  2.10 2.10  2.10
95th%HCM2kQ:  0.0 14.4  14.3  11.1 18.0   0.0   8.2  8.2  25.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.26  2.26  2.34 2.17  2.70  2.43 2.43  2.04  2.70 2.70  2.70
98th%HCM2kQ:  0.0 17.1  17.1  13.4 21.2   0.0  10.1 10.1  28.8   0.0  0.0   0.0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.658
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        27.6
Optimal Cycle:       67                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     639    3   156    12   68    43    46  811   483   889 1093    25
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  639    3   156    12   68    43    46  811   483   889 1093    25
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   639    3   156    12   68    43    46  811   483   889 1093    25
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  639    3   156    12   68    43    46  811   483   889 1093    25
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   639    3   156    12   68    43    46  811   483   889 1093    25
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.86  0.86  0.92 0.91  0.91
Lanes:       1.99 0.01  1.00  0.10 0.55  0.35  1.00 3.13  1.87  2.00 2.93  0.07
Final Sat.:  3604   17  1615   176  996   630  1805 5115  3046  3502 5056   116
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.18 0.18  0.10  0.07 0.07  0.07  0.03 0.16  0.16  0.25 0.22  0.22
Crit Moves:  ****                   ****             ****        ****
Green/Cycle: 0.27 0.27  0.27  0.10 0.10  0.10  0.07 0.24  0.24  0.39 0.56  0.56
Volume/Cap:  0.66 0.66  0.36  0.66 0.66  0.66  0.39 0.66  0.66  0.66 0.39  0.39
Delay/Veh:   34.1 34.1  30.0  51.4 51.4  51.4  46.8 35.1  35.1  26.5 12.4  12.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  34.1 34.1  30.0  51.4 51.4  51.4  46.8 35.1  35.1  26.5 12.4  12.4
HCM2kAvg:      10   10     4     5    5     5     2    8     8    13    6     6
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
Lane Group:   LT   LT     R    LTR  LTR   LTR    L   RT     RT    L   RT     RT
#LnsInGrps:     2    2     1     1    1     1     1    5     5     2    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     4    4  xxxx     4    4     4     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  0.95 0.95  0.95  xxxx 0.94  0.94  xxxx 1.00  1.00
LT Adj:      0.95 0.95 xxxxx  1.00 1.00  1.00  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.94  0.94  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  0.97 0.91  0.91
Fnl Sat Adj: 0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.86  0.86  0.92 0.91  0.91
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.27 0.27  0.27  0.10 0.10  0.10  0.07 0.24  0.24  0.39 0.56  0.56
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           8.3  8.3   3.5   3.3  3.3   3.3   1.3  6.5   6.5  10.7  5.8   5.8
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q2:           1.8  1.8   0.6   1.6  1.6   1.6   0.6  1.7   1.7   1.8  0.6   0.6
HCM2KQueue:  10.1 10.1   4.1   4.9  4.9   4.9   1.9  8.2   8.2  12.5  6.4   6.4
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.19  1.19 1.19  1.19  1.20 1.18  1.18  1.17 1.19  1.19
70th%HCM2kQ: 11.9 11.9   4.8   5.8  5.8   5.8   2.2  9.7   9.7  14.7  7.6   7.6
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.51 1.51  1.56  1.55 1.55  1.55  1.58 1.53  1.53  1.50 1.54  1.54
85th%HCM2kQ: 15.3 15.3   6.3   7.6  7.6   7.6   3.0 12.6  12.6  18.7  9.9   9.9
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.64 1.64  1.73  1.71 1.71  1.71  1.76 1.67  1.67  1.61 1.69  1.69
90th%HCM2kQ: 16.6 16.6   7.0   8.4  8.4   8.4   3.3 13.7  13.7  20.2 10.9  10.9
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.84 1.84  1.98  1.96 1.96  1.96  2.04 1.88  1.88  1.80 1.92  1.92
95th%HCM2kQ: 18.6 18.6   8.0   9.6  9.6   9.6   3.8 15.5  15.5  22.5 12.3  12.3
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.16 2.16  2.43  2.39 2.39  2.39  2.57 2.23  2.23  2.08 2.31  2.31
98th%HCM2kQ: 21.8 21.8   9.9  11.7 11.7  11.7   4.8 18.4  18.4  26.1 14.8  14.8
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--------------------------------------------------------------------------------
                      CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.460
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        15.6
Optimal Cycle:       34                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       7 1225     0     0 1260     9     0    0     5   200   12   676
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    7 1225     0     0 1260     9     0    0     5   200   12   676
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     7 1225     0     0 1260     9     0    0     5   200   12   676
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    7 1225     0     0 1260     9     0    0     5   200   12   676
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     7 1225     0     0 1260     9     0    0     5   200   12   676
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.14 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
Lanes:       1.00 3.00  0.00  0.00 2.98  0.02  0.00 0.00  1.00  1.00 0.03  1.97
Final Sat.:   274 5187     0     0 5145    37     0    0  1644  1805   57  3185
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.24  0.00  0.00 0.24  0.24  0.00 0.00  0.00  0.11 0.21  0.21
Crit Moves:                        ****                     ****              ****
Green/Cycle: 0.53 0.53  0.00  0.00 0.53  0.53  0.00 0.00  0.01  0.46 0.46  0.46
Volume/Cap:  0.05 0.44  0.00  0.00 0.46  0.46  0.00 0.00  0.46  0.24 0.46  0.46
Delay/Veh:   11.4 14.4   0.0   0.0 14.6  14.6   0.0  0.0  77.4  16.5 18.6  18.6
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  11.4 14.4   0.0   0.0 14.6  14.6   0.0  0.0  77.4  16.5 18.6  18.6
HCM2kAvg:       1    8     0     0    8     8     0    0     1     4    7     7
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
Lane Group:     L    T   xxxx  xxxx  RT     RT  xxxx xxxx    R     L   RT     RT
#LnsInGrps:      1    3     0     0    3     3     0    0     1     1    2     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:      Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:      2 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 1.00  1.00  xxxx xxxx  0.87  xxxx 0.85  0.85
LT Adj:      0.14 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.14 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.87  0.95 0.85  0.85
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.91  0.91  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.14 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            49.22   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         53.22   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:              53.22   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       3   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   1   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                  7   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     1.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                       0.19   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                 1269   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:         12.91   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       0.47   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:          16.29   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       36.93   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                 0.08   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.00   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    4.83   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.08   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.14   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.14   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.53 0.53  0.00  0.00 0.53  0.53  0.00 0.00  0.01  0.46 0.46  0.46
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.6  6.9   0.0   0.0  7.3   7.3   0.0  0.0   0.1   3.5  6.5   6.5
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
Q2:           0.1  0.8   0.0   0.0  0.8   0.8   0.0  0.0   0.5   0.3  0.8   0.8
HCM2KQueue:   0.7  7.7   0.0   0.0  8.1   8.1   0.0  0.0   0.6   3.9  7.4   7.4
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.19 1.18  1.18
70th%HCM2kQ:  0.8  9.1   0.0   0.0  9.6   9.6   0.0  0.0   0.8   4.6  8.7   8.7
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.59 1.53  1.60  1.60 1.53  1.53  1.60 1.60  1.59  1.56 1.53  1.53
85th%HCM2kQ:  1.1 11.8   0.0   0.0 12.4  12.4   0.0  0.0   1.0   6.0 11.3  11.3
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.79 1.67  1.80  1.80 1.67  1.67  1.80 1.80  1.79  1.73 1.68  1.68
90th%HCM2kQ:  1.2 12.9   0.0   0.0 13.5  13.5   0.0  0.0   1.1   6.7 12.4  12.4
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.08 1.89  2.10  2.10 1.88  1.88  2.10 2.10  2.08  1.98 1.90  1.90
95th%HCM2kQ:  1.5 14.6   0.0   0.0 15.3  15.3   0.0  0.0   1.3   7.7 14.0  14.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.65 2.25  2.70  2.70 2.24  2.24  2.70 2.70  2.65  2.44 2.27  2.27
98th%HCM2kQ:  1.9 17.4   0.0   0.0 18.2  18.2   0.0  0.0   1.7   9.4 16.7  16.7
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.567
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        16.0
Optimal Cycle:       43                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1040   537    25  515     0   671    2   380     0    0     7
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1040   537    25  515     0   671    2   380     0    0     7
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1040   537    25  515     0   671    2   380     0    0     7
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1040   537    25  515     0   671    2   380     0    0     7
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0 1040   537    25  515     0   671    2   380     0    0     7
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.86  0.86  0.11 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Lanes:       0.00 2.00  1.00  1.00 2.00  0.00  1.99 0.01  1.00  0.00 0.00  1.00
Final Sat.:     0 3282  1641   205 3610     0  3611   11  1615     0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.32  0.33  0.12 0.14  0.00  0.19 0.19  0.24  0.00 0.00  0.00
Crit Moves:             ****                                ****              ****
Green/Cycle: 0.00 0.58  0.58  0.58 0.58  0.00  0.42 0.42  0.42  0.00 0.00  0.01
Volume/Cap:  0.00 0.55  0.57  0.21 0.25  0.00  0.45 0.45  0.57  0.00 0.00  0.57
Delay/Veh:    0.0 13.3  13.6  11.1 10.5   0.0  21.2 21.2  23.5   0.0  0.0  99.2
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 13.3  13.6  11.1 10.5   0.0  21.2 21.2  23.5   0.0  0.0  99.2
HCM2kAvg:      0   10    11     3    4     0     8    8     9     0    0     1
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
Lane Group:  xxxx  RT     RT    L    T   xxxx   LT   LT     R   xxxx xxxx    R
#LnsInGrps:     0    3     3     1    2     0     2    2     1     0    0     1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:      Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     2 xxxx  xxxx     4    4  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
RT Adj:      xxxx 0.95  0.95  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.87
LT Adj:      xxxx xxxx xxxxx  0.11 xxxx xxxxx  0.95 0.95 xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.95  0.95  0.11 1.00  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.86  0.86  0.11 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    53.74   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    57.74   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx    57.74   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        3   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        1   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx       25   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     1.00   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx     0.69   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx     1577   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx    15.37   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     0.42   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx    18.76   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    38.98   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     1.00   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     6.24   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.07   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.11   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.11   xxxxxx   xxxxxx
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.58  0.58  0.58 0.58  0.00  0.42 0.42  0.42  0.00 0.00  0.01
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  8.9   9.4   3.1  3.5   0.0   7.0  7.0   8.1   0.0  0.0   0.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Q2:           0.0  1.2   1.3   0.3  0.3   0.0   0.8  0.8   1.3   0.0  0.0   0.7
HCM2KQueue:   0.0 10.1  10.6   3.4  3.9   0.0   7.8  7.8   9.3   0.0  0.0   0.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.19  1.20  1.18 1.18  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 11.9  12.5   4.0  4.6   0.0   9.3  9.3  11.0   0.0  0.0   1.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.51  1.57 1.56  1.60  1.53 1.53  1.52  1.60 1.60  1.59
85th%HCM2kQ:  0.0 15.3  16.1   5.3  6.0   0.0  12.0 12.0  14.2   0.0  0.0   1.4
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.64  1.63  1.74 1.73  1.80  1.67 1.67  1.65  1.80 1.80  1.78
90th%HCM2kQ:  0.0 16.6  17.4   5.8  6.7   0.0  13.1 13.1  15.4   0.0  0.0   1.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.84  1.83  2.00 1.98  2.10  1.89 1.89  1.86  2.10 2.10  2.07
95th%HCM2kQ:  0.0 18.7  19.5   6.7  7.6   0.0  14.8 14.8  17.3   0.0  0.0   1.8
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.16  2.14  2.47 2.44  2.70  2.25 2.25  2.19  2.70 2.70  2.64
98th%HCM2kQ:  0.0 21.9  22.8   8.3  9.4   0.0  17.6 17.6  20.4   0.0  0.0   2.2
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap. (X):        0.670
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       18.1
Optimal Cycle:       56              Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   373    0   374     0 1278   578   214 1003     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   373    0   374     0 1278   578   214 1003     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   373    0   374     0 1278   578   214 1003     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   373    0   374     0 1278   578   214 1003     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0    0     0   373    0   374     0 1278   578   214 1003     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.87  0.87  0.95 0.91  1.00
Lanes:       0.00 0.00  0.00  1.50 0.00  1.50  0.00 2.07  0.93  1.00 3.00  0.00
Final Sat.:     0    0     0  2124    0  2126     0 3404  1539  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.18 0.00  0.18  0.00 0.38  0.38  0.12 0.19  0.00
Crit Moves:                   ****                  ****        ****
Green/Cycle: 0.00 0.00  0.00  0.26 0.00  0.26  0.00 0.56  0.56  0.18 0.74  0.00
Volume/Cap:  0.00 0.00  0.00  0.68 0.00  0.68  0.00 0.67  0.67  0.67 0.26  0.00
Delay/Veh:    0.0  0.0   0.0  34.9  0.0  34.9   0.0 16.0  16.0  43.7  4.2   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  34.9  0.0  34.9   0.0 16.0  16.0  43.7  4.2   0.0
HCM2kAvg:       0    0     0    10    0    10     0   14    14     8    3     0
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
Lane Group:  xxxx xxxx  xxxx   LTR  LTR   LTR  xxxx  RT     RT    L    T   xxxx
#LnsInGrps:     0    0     0     2    1     2     0    3     3     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     5 xxxx     5  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Area Adj:    xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      xxxx xxxx xxxxx  0.93 xxxx  0.93  xxxx 0.95  0.95  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.81 xxxx  0.81  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.95  0.95  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  1.00 0.91  1.00
Fnl Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.87  0.87  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    22.01   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    26.01   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx     0.00   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        0   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        2   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx      373   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     0.50   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx     1.00   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx    10.36   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx        0   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.20   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     1.00   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    25.81   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx     0.00   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     1.07   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     1.40   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx     1.00   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.16   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.70   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.81   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.00  0.00  0.26 0.00  0.26  0.00 0.56  0.56  0.18 0.74  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  0.0   0.0   7.7  0.0   7.7   0.0 12.0  12.0   5.8  3.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           0.0  0.0   0.0   1.9  0.0   1.9   0.0  1.9   1.9   1.8  0.4   0.0
HCM2KQueue:   0.0  0.0   0.0   9.6  0.0   9.6   0.0 14.0  14.0   7.6  3.3   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.20  1.20  1.18 1.20  1.18  1.20 1.17  1.17  1.18 1.19  1.20
70th%HCM2kQ:  0.0  0.0   0.0  11.3  0.0  11.3   0.0 16.3  16.3   9.0  4.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.60  1.60  1.52 1.60  1.52  1.60 1.49  1.49  1.53 1.57  1.60
85th%HCM2kQ:  0.0  0.0   0.0  14.5  0.0  14.6   0.0 20.8  20.8  11.7  5.2   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.80  1.80  1.65 1.80  1.65  1.80 1.60  1.60  1.67 1.74  1.80
90th%HCM2kQ:  0.0  0.0   0.0  15.8  0.0  15.8   0.0 22.3  22.3  12.8  5.8   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 2.10  2.10  1.85 2.10  1.85  2.10 1.78  1.78  1.89 2.00  2.10
95th%HCM2kQ:  0.0  0.0   0.0  17.7  0.0  17.8   0.0 24.8  24.8  14.4  6.7   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.70  2.70  2.18 2.70  2.18  2.70 2.04  2.04  2.26 2.47  2.70
98th%HCM2kQ:  0.0  0.0   0.0  20.9  0.0  20.9   0.0 28.5  28.5  17.2  8.3   0.0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.918
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        32.5
Optimal Cycle:      180                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     466    0   302     0    0     0     0 1255   395   349  754     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  466    0   302     0    0     0     0 1255   395   349  754     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   466    0   302     0    0     0     0 1255   395   349  754     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  466    0   302     0    0     0     0 1255   395   349  754     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   466    0   302     0    0     0     0 1255   395   349  754     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.73 1.00  0.76  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
Lanes:       1.44 0.00  0.56  0.00 0.00  0.00  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:  2013    0   801     0    0     0     0 3610  1615  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.23 0.00  0.38  0.00 0.00  0.00  0.00 0.35  0.24  0.19 0.15  0.00
Crit Moves:             ****                        ****        ****
Green/Cycle: 0.41 0.00  0.41  0.00 0.00  0.00  0.00 0.38  0.38  0.21 0.59  0.00
Volume/Cap:  0.56 0.00  0.92  0.00 0.00  0.00  0.00 0.92  0.65  0.92 0.25  0.00
Delay/Veh:   23.2  0.0  43.0   0.0  0.0   0.0   0.0 39.5  27.9  65.2  9.9   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  23.2  0.0  43.0   0.0  0.0   0.0   0.0 39.5  27.9  65.2  9.9   0.0
HCM2kAvg:      10    0    24     0    0     0     0   23    11    15    4     0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
Lane Group:   LTR  LTR   LTR  xxxx xxxx  xxxx  xxxx   T     R     L    T   xxxx
#LnsInGrps:     2    1     1     0    0     0     0    2     1     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:      5 xxxx     5  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Area Adj:    1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      0.94 xxxx  0.94  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.78 xxxx  0.81  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.73 1.00  0.76  1.00 1.00  1.00  1.00 1.00  0.85  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.95  1.00  1.00 0.91  1.00
Fnl Sat Adj: 0.73 1.00  0.76  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            37.01   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         41.01   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:               0.00   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       0   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   2   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                466   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     0.61   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:      1.00   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                      12.94   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                    0   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:          0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.15   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       1.00   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:           0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       40.86   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:      0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:     0.00   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.35   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    1.40   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:        1.00   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.11   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.65   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.78   xxxxxx   xxxxxx   xxxxxx
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.41 0.00  0.41  0.00 0.00  0.00  0.00 0.38  0.38  0.21 0.59  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           8.8  0.0  17.7   0.0  0.0   0.0   0.0 16.6   9.0  10.0  3.4   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           1.3  0.0   6.2   0.0  0.0   0.0   0.0  6.0   1.7   5.0  0.3   0.0
HCM2KQueue:  10.1  0.0  23.9   0.0  0.0   0.0   0.0 22.6  10.7  15.0  3.7   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.20  1.16  1.20 1.20  1.20  1.20 1.16  1.18  1.17 1.19  1.20
70th%HCM2kQ: 11.9  0.0  27.6   0.0  0.0   0.0   0.0 26.1  12.6  17.5  4.4   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.51 1.60  1.44  1.60 1.60  1.60  1.60 1.44  1.51  1.48 1.57  1.60
85th%HCM2kQ: 15.3  0.0  34.3   0.0  0.0   0.0   0.0 32.5  16.2  22.2  5.8   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.64 1.80  1.52  1.80 1.80  1.80  1.80 1.53  1.63  1.59 1.73  1.80
90th%HCM2kQ: 16.6  0.0  36.4   0.0  0.0   0.0   0.0 34.5  17.5  23.8  6.4   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.84 2.10  1.66  2.10 2.10  2.10  2.10 1.67  1.83  1.76 1.99  2.10
95th%HCM2kQ: 18.6  0.0  39.7   0.0  0.0   0.0   0.0 37.7  19.6  26.4  7.3   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.16 2.70  1.86  2.70 2.70  2.70  2.70 1.88  2.14  2.02 2.45  2.70
98th%HCM2kQ: 21.8  0.0  44.4   0.0  0.0   0.0   0.0 42.4  22.9  30.2  9.0   0.0
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.683
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        20.5
Optimal Cycle:       59                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     453  975     0     0 1014   565     0    0     0   314    0   465
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  453  975     0     0 1014   565     0    0     0   314    0   465
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   453  975     0     0 1014   565     0    0     0   314    0   465
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  453  975     0     0 1014   565     0    0     0   314    0   465
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   453  975     0     0 1014   565     0    0     0   314    0   465
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.75 1.00  0.75
Lanes:       2.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.40 0.00  1.60
Final Sat.:  3502 3610     0     0 3610  1615     0    0     0  2009    0  2286
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.27  0.00  0.00 0.28  0.35  0.00 0.00  0.00  0.16 0.00  0.20
Crit Moves:  ****                        ****                              ****
Green/Cycle: 0.19 0.70  0.00  0.00 0.51  0.51  0.00 0.00  0.00  0.30 0.00  0.30
Volume/Cap:  0.68 0.38  0.00  0.00 0.55  0.68  0.00 0.00  0.00  0.53 0.00  0.69
Delay/Veh:   40.6  6.1   0.0   0.0 16.8  20.5   0.0  0.0   0.0  29.7  0.0  32.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  40.6  6.1   0.0   0.0 16.8  20.5   0.0  0.0   0.0  29.7  0.0  32.8
HCM2kAvg:       8    6     0     0   11    14     0    0     0     7    0    11
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
Lane Group:    L    T   xxxx  xxxx   T     R   xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     2    2     0     0    2     1     0    0     0     2    1     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     5 xxxx     5
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx  0.91 xxxx  0.91
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.83 xxxx  0.83
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  1.00 1.00  1.00  0.75 1.00  0.75
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 0.97 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.75 1.00  0.75
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx   xxxxxx      100
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx   xxxxxx    25.67
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx   xxxxxx    29.67
Opposing Effective Green Time, go:             xxxxxx   xxxxxx   xxxxxx     0.00
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx   xxxxxx        0
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx   xxxxxx        2
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx   xxxxxx      314
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx   xxxxxx     0.40
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx     1.00
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx   xxxxxx     8.72
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx   xxxxxx        0
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx   xxxxxx     0.00
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx   xxxxxx     1.00
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx   xxxxxx     0.00
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx   xxxxxx     0.40
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx   xxxxxx     1.00
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx   xxxxxx     0.00
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx   xxxxxx    29.27
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx     0.00
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx     0.00
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx   xxxxxx     0.87
Through-car Equivalents, el1:                  xxxxxx   xxxxxx   xxxxxx     1.40
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx     1.00
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx   xxxxxx     0.13
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx   xxxxxx     0.75
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx   xxxxxx     0.83
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.19 0.70  0.00  0.00 0.51  0.51  0.00 0.00  0.00  0.30 0.00  0.30
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           6.2  5.5   0.0   0.0  9.5  11.7   0.0  0.0   0.0   6.3  0.0   8.6
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
Q2:           1.9  0.6   0.0   0.0  1.2   2.0   0.0  0.0   0.0   1.1  0.0   2.0
HCM2KQueue:   8.0  6.1   0.0   0.0 10.7  13.8   0.0  0.0   0.0   7.3  0.0  10.6
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.17  1.20 1.20  1.20  1.18 1.20  1.18
70th%HCM2kQ:  9.5  7.3   0.0   0.0 12.6  16.1   0.0  0.0   0.0   8.7  0.0  12.5
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.53 1.54  1.60  1.60 1.51  1.49  1.60 1.60  1.60  1.53 1.60  1.51
85th%HCM2kQ: 12.3  9.5   0.0   0.0 16.2  20.5   0.0  0.0   0.0  11.3  0.0  16.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.67 1.69  1.80  1.80 1.63  1.60  1.80 1.80  1.80  1.68 1.80  1.64
90th%HCM2kQ: 13.4 10.4   0.0   0.0 17.5  22.0   0.0  0.0   0.0  12.3  0.0  17.3
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.88 1.93  2.10  2.10 1.83  1.78  2.10 2.10  2.10  1.90 2.10  1.83
95th%HCM2kQ: 15.2 11.8   0.0   0.0 19.6  24.5   0.0  0.0   0.0  13.9  0.0  19.4
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.24 2.32  2.70  2.70 2.14  2.05  2.70 2.70  2.70  2.27 2.70  2.14
98th%HCM2kQ: 18.0 14.2   0.0   0.0 22.9  28.2   0.0  0.0   0.0  16.6  0.0  22.7
```

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--------------------------------------------------------------------------------
                         CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                        Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap. (X):         0.706
Loss Time (sec):        0 (Y+R =  4 sec) Average Delay (sec/veh):        25.7
Optimal Cycle:         63               Level Of Service:                   C
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Protected         Permitted         Permitted
Rights:          Include          Include           Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  905   383   497  829     0   516  158   414     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  905   383   497  829     0   516  158   414     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  905   383   497  829     0   516  158   414     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  905   383   497  829     0   516  158   414     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  905   383   497  829     0   516  158   414     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.89 0.89  0.89  1.00 1.00  1.00
Lanes:       0.00 2.81  1.19  2.00 2.00  0.00  1.42 0.25  1.33  0.00 0.00  0.00
Final Sat.:     0 4641  1964  3502 3610     0  2389  428  2251     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.20  0.20  0.14 0.23  0.00  0.22 0.37  0.18  0.00 0.00  0.00
Crit Moves:       ****        ****                   ****
Green/Cycle: 0.00 0.28  0.28  0.20 0.48  0.00  0.52 0.52  0.52  0.00 0.00  0.00
Volume/Cap:  0.00 0.71  0.71  0.71 0.48  0.00  0.41 0.71  0.35  0.00 0.00  0.00
Delay/Veh:    0.0 33.8  33.8  40.5 17.9   0.0  14.6 19.6  14.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 33.8  33.8  40.5 17.9   0.0  14.6 19.6  14.0   0.0  0.0   0.0
HCM2kAvg:       0   10    10     9    9     0     7   16     6     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
Lane Group:  xxxx  RT     RT    L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    4     4     2    2     0     2    1     2     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx 0.96  0.96  xxxx xxxx xxxxx  0.94 0.94  0.94  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.94 0.94  0.94  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.96  0.96  0.95 1.00  1.00  0.89 0.89  0.89  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  0.97 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.92 0.95  1.00  0.89 0.89  0.89  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.28  0.28  0.20 0.48  0.00  0.52 0.52  0.52  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  8.0   8.0   6.8  7.8   0.0   6.5 13.9   5.4   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.1   2.1   2.1  0.9   0.0   0.7  2.3   0.5   0.0  0.0   0.0
HCM2KQueue:   0.0 10.2  10.2   8.8  8.7   0.0   7.2 16.1   5.9   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.18 1.18  1.20  1.18 1.17  1.19  1.20 1.20  1.20
70th%HCM2kQ:  0.0 12.0  12.0  10.4 10.3   0.0   8.6 18.8   7.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.51  1.52 1.52  1.60  1.54 1.48  1.55  1.60 1.60  1.60
85th%HCM2kQ:  0.0 15.4  15.4  13.5 13.3   0.0  11.1 23.8   9.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.64  1.64  1.66 1.66  1.80  1.68 1.58  1.70  1.80 1.80  1.80
90th%HCM2kQ:  0.0 16.7  16.7  14.7 14.5   0.0  12.2 25.5  10.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.84  1.84  1.87 1.87  2.10  1.90 1.74  1.93  2.10 2.10  2.10
95th%HCM2kQ:  0.0 18.7  18.7  16.5 16.3   0.0  13.8 28.1  11.4   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.16  2.16  2.21 2.21  2.70  2.27 1.99  2.34  2.70 2.70  2.70
98th%HCM2kQ:  0.0 21.9  21.9  19.5 19.3   0.0  16.5 32.1  13.8   0.0  0.0   0.0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.690
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        22.6
Optimal Cycle:       60                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     428 1171     0     0  790   361   344     0   306     0     0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  428 1171     0     0  790   361   344     0   306     0     0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   428 1171     0     0  790   361   344     0   306     0     0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  428 1171     0     0  790   361   344     0   306     0     0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   428 1171     0     0  790   361   344     0   306     0     0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
Lanes:       1.00 3.00  0.00  0.00 2.00  2.00  1.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:  1805 5187     0     0 3610  2842  1467     0  1615     0     0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.24 0.23  0.00  0.00 0.22  0.13  0.23 0.00  0.19  0.00 0.00  0.00
Crit Moves:  ****                  ****        ****
Green/Cycle: 0.34 0.66  0.00  0.00 0.32  0.32  0.34 0.00  0.34  0.00 0.00  0.00
Volume/Cap:  0.69 0.34  0.00  0.00 0.69  0.40  0.69 0.00  0.56  0.00 0.00  0.00
Delay/Veh:   31.6  7.5   0.0   0.0 31.7  27.0  32.6   0.0  28.2   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  31.6  7.5   0.0   0.0 31.7  27.0  32.6   0.0  28.2   0.0  0.0   0.0
HCM2kAvg:     13    5     0     0   12     5    13     0     8     0    0     0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
Lane Group:    L    T   xxxx  xxxx   T     R     L  xxxx    R   xxxx xxxx  xxxx
#LnsInGrps:     1    3     0     0    2     2     1    0     1     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:     Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx     2 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  0.77 xxxx xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  0.77 1.00  0.85  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.95  0.88  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx      100   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx    29.99   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx    33.99   xxxxxx
Opposing Effective Green Time, go:             xxxxxx   xxxxxx     0.00   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx        0   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx        1   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx      344   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx     1.00   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx     1.00   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx     9.56   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx        0   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx     0.00   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx     1.00   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx     0.35   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx     1.00   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx    33.64   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx     0.00   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx     0.00   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx     1.00   xxxxxx
Through-car Equivalents, el1:                  xxxxxx   xxxxxx     1.30   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx     1.00   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx     0.12   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx     0.77   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx     0.77   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.34 0.66  0.00  0.00 0.32  0.32  0.34 0.00  0.34  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          10.8  4.8   0.0   0.0  9.6   3.9  10.7  0.0   6.9   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Q2:           2.1  0.5   0.0   0.0  2.0   0.7   2.1  0.0   1.2   0.0  0.0   0.0
HCM2KQueue:  12.8  5.3   0.0   0.0 11.6   4.6  12.7  0.0   8.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.19  1.20  1.20 1.17  1.19  1.17 1.20  1.18  1.20 1.20  1.20
70th%HCM2kQ: 15.1  6.3   0.0   0.0 13.7   5.4  14.9  0.0   9.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.50 1.55  1.60  1.60 1.50  1.56  1.50 1.60  1.53  1.60 1.60  1.60
85th%HCM2kQ: 19.2  8.2   0.0   0.0 17.5   7.1  19.0  0.0  12.4   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.61 1.71  1.80  1.80 1.62  1.72  1.61 1.80  1.67  1.80 1.80  1.80
90th%HCM2kQ: 20.7  9.0   0.0   0.0 18.9   7.9  20.5  0.0  13.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.79 1.95  2.10  2.10 1.81  1.97  1.80 2.10  1.88  2.10 2.10  2.10
95th%HCM2kQ: 23.0 10.3   0.0   0.0 21.1   9.0  22.9  0.0  15.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.07 2.37  2.70  2.70 2.11  2.40  2.08 2.70  2.23  2.70 2.70  2.70
98th%HCM2kQ: 26.6 12.5   0.0   0.0 24.5  11.0  26.4  0.0  18.2   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
                      CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.661
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       24.7
Optimal Cycle:       55               Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        1  0  2  0  0   0  0  2  1  0   0  0  0  0  0   1  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     486  724     0     0  578   258     0     0     0   443  173   359
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  486  724     0     0  578   258     0     0     0   443  173   359
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   486  724     0     0  578   258     0     0     0   443  173   359
Reduct Vol:     0    0     0     0    0     0     0     0     0     0    0     0
Reduced Vol:  486  724     0     0  578   258     0     0     0   443  173   359
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   486  724     0     0  578   258     0     0     0   443  173   359
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.87  0.87  1.00 1.00  1.00  0.85 0.85  0.85
Lanes:       1.00 2.00  0.00  0.00 2.07  0.93  0.00 0.00  0.00  1.44 0.56  1.00
Final Sat.:  1805 3610     0     0 3421  1527     0     0     0  2318  905  1612
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.27 0.20  0.00  0.00 0.17  0.17  0.00 0.00  0.00  0.19 0.19  0.22
Crit Moves:  ****                  ****                                     ****
Green/Cycle: 0.41 0.66  0.00  0.00 0.26  0.26  0.00 0.00  0.00  0.34 0.34  0.34
Volume/Cap:  0.66 0.30  0.00  0.00 0.66  0.66  0.00 0.00  0.00  0.57 0.57  0.66
Delay/Veh:   26.3  7.2   0.0   0.0 34.7  34.7   0.0  0.0   0.0  27.6 27.6  29.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  26.3  7.2   0.0   0.0 34.7  34.7   0.0  0.0   0.0  27.6 27.6  29.4
HCM2kAvg:      13    5     0     0    9     9     0    0     0     9    9    11
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx  xxxx  LTR  LTR    LTR
#LnsInGrps:     1    2     0     0    3     3     0    0     0     3    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 0.95  0.95  xxxx xxxx xxxxx  0.95 0.95  0.95
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 0.95  0.95
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 0.95  0.95  1.00 1.00  1.00  0.89 0.89  0.89
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.95 0.95  0.95
Fnl Sat Adj: 0.95 0.95  1.00  1.00 0.87  0.87  1.00 1.00  1.00  0.85 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
*******************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.41 0.66  0.00  0.00 0.26  0.26  0.00 0.00  0.00  0.34 0.34  0.34
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          11.5  4.2   0.0   0.0  6.9   6.9   0.0  0.0   0.0   7.4  7.4   9.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           1.8  0.4   0.0   0.0  1.8   1.8   0.0  0.0   0.0   1.3  1.3   1.8
HCM2KQueue:  13.4  4.7   0.0   0.0  8.7   8.7   0.0  0.0   0.0   8.7  8.7  10.8
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.19  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.18 1.18  1.18
70th%HCM2kQ: 15.7  5.6   0.0   0.0 10.3  10.3   0.0  0.0   0.0  10.2 10.2  12.7
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.49 1.56  1.60  1.60 1.52  1.52  1.60 1.60  1.60  1.52 1.52  1.51
85th%HCM2kQ: 19.9  7.3   0.0   0.0 13.3  13.3   0.0  0.0   0.0  13.2 13.2  16.3
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.60 1.72  1.80  1.80 1.66  1.66  1.80 1.80  1.80  1.66 1.66  1.63
90th%HCM2kQ: 21.5  8.0   0.0   0.0 14.4  14.4   0.0  0.0   0.0  14.4 14.4  17.7
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.79 1.96  2.10  2.10 1.87  1.87  2.10 2.10  2.10  1.87 1.87  1.83
95th%HCM2kQ: 23.9  9.2   0.0   0.0 16.3  16.3   0.0  0.0   0.0  16.2 16.2  19.8
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.06 2.40  2.70  2.70 2.21  2.21  2.70 2.70  2.70  2.21 2.21  2.14
98th%HCM2kQ: 27.5 11.2   0.0   0.0 19.3  19.3   0.0  0.0   0.0  19.2 19.2  23.1
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.610
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        21.9
Optimal Cycle:       48                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted       Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  906   770   341  671     0   298  538   271     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  906   770   341  671     0   298  538   271     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  906   770   341  671     0   298  538   271     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  906   770   341  671     0   298  538   271     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  906   770   341  671     0   298  538   271     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.75  0.92 0.95  1.00  0.88 0.88  0.88  1.00 1.00  1.00
Lanes:       0.00 2.00  2.00  2.00 2.00  0.00  1.00 1.33  0.67  0.00 0.00  0.00
Final Sat.:     0 3610  2842  3502 3610     0  1674 2226  1121     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.25  0.27  0.10 0.19  0.00  0.18 0.24  0.24  0.00 0.00  0.00
Crit Moves:             ****  ****                  ****
Green/Cycle: 0.00 0.44  0.44  0.16 0.60  0.00  0.40 0.40  0.40  0.00 0.00  0.00
Volume/Cap:  0.00 0.57  0.61  0.61 0.31  0.00  0.45 0.61  0.61  0.00 0.00  0.00
Delay/Veh:    0.0 21.1  22.1  41.1  9.7   0.0  22.3 24.6  24.6   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 21.1  22.1  41.1  9.7   0.0  22.3 24.6  24.6   0.0  0.0   0.0
HCM2kAvg:      0   11    10     6    5     0     7   11    11     0    0     0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
Lane Group:  xxxx   T     R     L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    2     2     2    2     0     3    3     3     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx  0.85  xxxx xxxx xxxxx  0.96 0.96  0.96  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.96 0.96  0.96  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  0.85  0.95 1.00  1.00  0.93 0.93  0.93  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  0.88  0.97 0.95  1.00  0.95 0.95  0.95  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.95  0.75  0.92 0.95  1.00  0.88 0.88  0.88  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.44  0.44  0.16 0.60  0.00  0.40 0.40  0.40  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  9.3   8.2   4.6  4.5   0.0   6.3  9.3   9.3   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  1.3   1.5   1.4  0.4   0.0   0.8  1.5   1.5   0.0  0.0   0.0
HCM2KQueue:   0.0 10.6   9.6   6.1  5.0   0.0   7.1 10.8  10.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.19  1.20  1.18 1.18  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 12.5  11.4   7.2  5.9   0.0   8.4 12.7  12.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.52  1.55 1.55  1.60  1.54 1.51  1.51  1.60 1.60  1.60
85th%HCM2kQ:  0.0 16.0  14.6   9.4  7.7   0.0  10.9 16.3  16.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.64  1.65  1.70 1.71  1.80  1.68 1.63  1.63  1.80 1.80  1.80
90th%HCM2kQ:  0.0 17.3  15.9  10.3  8.5   0.0  12.0 17.6  17.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.83  1.85  1.93 1.96  2.10  1.90 1.83  1.83  2.10 2.10  2.10
95th%HCM2kQ:  0.0 19.4  17.9  11.7  9.7   0.0  13.6 19.7  19.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.14  2.18  2.33 2.38  2.70  2.28 2.14  2.14  2.70 2.70  2.70
98th%HCM2kQ:  0.0 22.7  21.0  14.1 11.9   0.0  16.2 23.0  23.0   0.0  0.0   0.0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):       0.640
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        25.6
Optimal Cycle:       63                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     655   19   236    17   28    27    28 1661   322   587  807    13
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  655   19   236    17   28    27    28 1661   322   587  807    13
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   655   19   236    17   28    27    28 1661   322   587  807    13
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  655   19   236    17   28    27    28 1661   322   587  807    13
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   655   19   236    17   28    27    28 1661   322   587  807    13
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.89  0.89  0.92 0.91  0.91
Lanes:       1.94 0.06  1.00  0.24 0.39  0.37  1.00 4.00  1.00  2.00 2.95  0.05
Final Sat.:  3523  102  1615   421  693   668  1805 6750  1688  3502 5095    82
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.19 0.19  0.15  0.04 0.04  0.04  0.02 0.25  0.19  0.17 0.16  0.16
Crit Moves:  ****              ****                   ****        ****
Green/Cycle: 0.29 0.29  0.29  0.06 0.06  0.06  0.06 0.38  0.38  0.26 0.59  0.59
Volume/Cap:  0.64 0.64  0.50  0.64 0.64  0.64  0.27 0.64  0.50  0.64 0.27  0.27
Delay/Veh:   32.3 32.3  30.3  57.5 57.5  57.5  46.5 25.6  23.5  34.3 10.1  10.1
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  32.3 32.3  30.3  57.5 57.5  57.5  46.5 25.6  23.5  34.3 10.1  10.1
HCM2kAvg:      10   10     6     3    3     3     1   11     8     9    4     4
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
Lane Group:   LT   LT     R    LTR  LTR    LTR    L   RT     RT    L   RT     RT
#LnsInGrps:     2    2     1     1    1     1     1    5     5     2    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     4    4  xxxx     4    4     4     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  0.95 0.95  0.95  xxxx 0.98  0.98  xxxx 1.00  1.00
LT Adj:      0.95 0.95 xxxxx  0.99 0.99  0.99  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.98  0.98  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  0.97 0.91  0.91
Fnl Sat Adj: 0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.89  0.89  0.92 0.91  0.91
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.29 0.29  0.29  0.06 0.06  0.06  0.06 0.38  0.38  0.26 0.59  0.59
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           8.6  8.6   5.4   2.0  2.0   2.0   0.8  9.4   6.8   7.6  3.7   3.7
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q2:           1.7  1.7   1.0   1.4  1.4   1.4   0.4  1.7   1.0   1.7  0.4   0.4
HCM2KQueue:  10.2 10.2   6.4   3.4  3.4   3.4   1.1 11.1   7.8   9.3  4.1   4.1
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.19  1.19 1.19  1.19  1.20 1.18  1.18  1.18 1.19  1.19
70th%HCM2kQ: 12.0 12.0   7.6   4.0  4.0   4.0   1.4 13.0   9.2  10.9  4.9   4.9
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.51 1.51  1.54  1.57 1.57  1.57  1.59 1.51  1.53  1.52 1.56  1.56
85th%HCM2kQ: 15.5 15.5   9.9   5.3  5.3   5.3   1.8 16.7  11.9  14.1  6.4   6.4
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.64 1.64  1.69  1.74 1.74  1.74  1.78 1.63  1.67  1.65 1.73  1.73
90th%HCM2kQ: 16.8 16.8  10.9   5.9  5.9   5.9   2.0 18.1  13.0  15.3  7.0   7.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.84 1.84  1.92  2.00 2.00  2.00  2.06 1.82  1.89  1.86 1.98  1.98
95th%HCM2kQ: 18.8 18.8  12.3   6.7  6.7   6.7   2.4 20.2  14.7  17.2  8.1   8.1
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.16 2.16  2.31  2.47 2.47  2.47  2.62 2.13  2.25  2.19 2.43  2.43
98th%HCM2kQ: 22.0 22.0  14.8   8.3  8.3   8.3   3.0 23.6  17.5  20.3  9.9   9.9
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--------------------------------------------------------------------------------
                           CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                          Level Of Service Computation Report
                 2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.586
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        18.7
Optimal Cycle:       45               Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3 1159     0     0 1382     7     0    0    12   461   11   996
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3 1159     0     0 1382     7     0    0    12   461   11   996
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     3 1159     0     0 1382     7     0    0    12   461   11   996
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    3 1159     0     0 1382     7     0    0    12   461   11   996
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     3 1159     0     0 1382     7     0    0    12   461   11   996
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.10 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
Lanes:       1.00 3.00  0.00  0.00 2.98  0.02  0.00 0.00  1.00  1.00 0.02  1.98
Final Sat.:   184 5187     0     0 5156    26     0    0  1644  1805   35  3202
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.22  0.00  0.00 0.27  0.27  0.00 0.00  0.01  0.26 0.31  0.31
Crit Moves:                        ****                     ****              ****
Green/Cycle: 0.46 0.46  0.00  0.00 0.46  0.46  0.00 0.00  0.01  0.53 0.53  0.53
Volume/Cap:  0.04 0.49  0.00  0.00 0.59  0.59  0.00 0.00  0.59  0.48 0.59  0.59
Delay/Veh:   15.2 19.1   0.0   0.0 20.5  20.5   0.0  0.0  86.3  15.2 16.5  16.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  15.2 19.1   0.0   0.0 20.5  20.5   0.0  0.0  86.3  15.2 16.5  16.5
HCM2kAvg:       1    8     0     0   11    11     0    0     1     9   11    11
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx    R     L   RT     RT
#LnsInGrps:     1    3     0     0    3     3     0    0     1     1    2     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     2 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 1.00  1.00  xxxx xxxx  0.87  xxxx 0.85  0.85
LT Adj:      0.10 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.10 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.87  0.95 0.85  0.85
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.91  0.91  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.10 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            41.71   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         45.71   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:              45.71   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       3   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   1   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                  3   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     1.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                       0.08   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                 1389   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:         14.13   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       0.54   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:          21.39   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       24.32   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                 0.01   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.00   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    5.48   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.09   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.10   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.10   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.46 0.46  0.00  0.00 0.46  0.46  0.00 0.00  0.01  0.53 0.53  0.53
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.5  7.5   0.0   0.0  9.5   9.5   0.0  0.0   0.3   8.5  9.5   9.5
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
Q2:           0.0  0.9   0.0   0.0  1.4   1.4   0.0  0.0   0.8   0.9  1.4   1.4
HCM2KQueue:   0.5  8.4   0.0   0.0 10.9  10.9   0.0  0.0   1.1   9.4 10.9  10.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.18 1.18  1.18
70th%HCM2kQ:  0.6 10.0   0.0   0.0 12.8  12.8   0.0  0.0   1.4  11.1 12.8  12.8
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.59 1.53  1.60  1.60 1.51  1.51  1.60 1.60  1.59  1.52 1.51  1.51
85th%HCM2kQ:  0.8 12.9   0.0   0.0 16.5  16.5   0.0  0.0   1.8  14.3 16.5  16.5
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.79 1.66  1.80  1.80 1.63  1.63  1.80 1.80  1.78  1.65 1.63  1.63
90th%HCM2kQ:  0.9 14.0   0.0   0.0 17.8  17.8   0.0  0.0   2.0  15.5 17.8  17.8
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.08 1.88  2.10  2.10 1.83  1.83  2.10 2.10  2.06  1.86 1.83  1.83
95th%HCM2kQ:  1.1 15.8   0.0   0.0 19.9  19.9   0.0  0.0   2.3  17.5 19.9  19.9
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.66 2.22  2.70  2.70 2.13  2.13  2.70 2.70  2.62  2.18 2.13  2.13
98th%HCM2kQ:  1.4 18.8   0.0   0.0 23.3  23.3   0.0  0.0   3.0  20.6 23.3  23.3
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                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.482
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        13.4
Optimal Cycle:       36                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0    0    0     0
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1031   473   15 1075     0  477    7   279    0    0     9
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    0 1031   473   15 1075     0  477    7   279    0    0     9
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:     0 1031   473   15 1075     0  477    7   279    0    0     9
Reduct Vol:     0    0     0     0    0     0     0    0     0    0    0     0
Reduced Vol:    0 1031   473   15 1075     0  477    7   279    0    0     9
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:     0 1031   473   15 1075     0  477    7   279    0    0     9
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  1.00 0.87  0.87 0.13 0.95  1.00 0.95 0.95  0.85 1.00 1.00  0.87
Lanes:       0.00 2.06  0.94 1.00 2.00  0.00 1.97 0.03  1.00 0.00 0.00  1.00
Final Sat.:     0 3389  1555  249 3610     0  3569   52  1615     0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.30  0.30 0.06 0.30  0.00 0.13 0.13  0.17 0.00 0.00  0.01
Crit Moves:       ****                                  ****             ****
Green/Cycle: 0.00 0.63  0.63 0.63 0.63  0.00 0.36 0.36  0.36 0.00 0.00  0.01
Volume/Cap:  0.00 0.48  0.48 0.10 0.47  0.00 0.37 0.37  0.48 0.00 0.00  0.48
Delay/Veh:    0.0  9.9   9.9  7.5  9.9   0.0 24.0 24.0  25.5  0.0  0.0  67.5
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   0.0  9.9   9.9  7.5  9.9   0.0 24.0 24.0  25.5  0.0  0.0  67.5
HCM2kAvg:      0    8     8    1    9     0    6    6     7    0    0     1
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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
Lane Group:  xxxx  RT     RT    L    T   xxxx   LT   LT     R   xxxx xxxx    R
#LnsInGrps:     0    3     3     1    2     0     2    2     1     0    0     1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     2 xxxx  xxxx     4    4  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
RT Adj:      xxxx 0.95  0.95  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.87
LT Adj:      xxxx xxxx xxxxx  0.13 xxxx xxxxx  0.95 0.95 xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.95  0.95  0.13 1.00  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.13 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
********************************************************************************
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    59.06   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    63.06   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx    63.06   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        3   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        1   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx       15   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     1.00   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx     0.42   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx     1504   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx    14.66   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     0.37   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx    15.32   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    47.74   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     1.00   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     5.79   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.06   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.13   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.13   xxxxxx   xxxxxx
********************************************************************************
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2014) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.63  0.63  0.63 0.63  0.00  0.36 0.36  0.36  0.00 0.00  0.01
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  7.4   7.4   1.3  7.9   0.0   5.2  5.2   6.0   0.0  0.0   0.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Q2:           0.0  0.9   0.9   0.1  0.9   0.0   0.6  0.6   0.9   0.0  0.0   0.6
HCM2KQueue:   0.0  8.3   8.3   1.4  8.7   0.0   5.8  5.8   6.9   0.0  0.0   0.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.20 1.18  1.20  1.19 1.19  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0  9.8   9.8   1.6 10.3   0.0   6.9  6.9   8.2   0.0  0.0   1.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.53  1.53  1.59 1.52  1.60  1.55 1.55  1.54  1.60 1.60  1.59
85th%HCM2kQ:  0.0 12.7  12.7   2.2 13.3   0.0   9.0  9.0  10.7   0.0  0.0   1.4
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.66  1.66  1.77 1.66  1.80  1.70 1.70  1.68  1.80 1.80  1.78
90th%HCM2kQ:  0.0 13.8  13.8   2.4 14.5   0.0   9.9  9.9  11.7   0.0  0.0   1.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.88  1.88  2.06 1.87  2.10  1.93 1.93  1.91  2.10 2.10  2.07
95th%HCM2kQ:  0.0 15.6  15.6   2.8 16.3   0.0  11.2 11.2  13.2   0.0  0.0   1.8
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.23  2.23  2.60 2.21  2.70  2.34 2.34  2.29  2.70 2.70  2.64
98th%HCM2kQ:  0.0 18.5  18.5   3.5 19.3   0.0  13.6 13.6  15.8   0.0  0.0   2.3
```

TRAFFIX WORKSHEETS

CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.812
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        23.8
Optimal Cycle:       99                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted       Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   542    0   722     0  622   460   369 1658     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   542    0   722     0  622   460   369 1658     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   542    0   722     0  622   460   369 1658     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   542    0   722     0  622   460   369 1658     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0    0     0   542    0   722     0  622   460   369 1658     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.85  0.85  0.95 0.91  1.00
Lanes:       0.00 0.00  0.00  1.43 0.00  1.57  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:     0    0     0  2030    0  2232     0 3237  1618  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.27 0.00  0.32  0.00 0.19  0.28  0.20 0.32  0.00
Crit Moves:                              ****             ****  ****
Green/Cycle: 0.00 0.00  0.00  0.40 0.00  0.40  0.00 0.35  0.35  0.25 0.60  0.00
Volume/Cap:  0.00 0.00  0.00  0.67 0.00  0.81  0.00 0.55  0.81  0.81 0.53  0.00
Delay/Veh:    0.0  0.0   0.0  25.7  0.0  30.3   0.0 26.4  33.3  45.7 11.8   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  25.7  0.0  30.3   0.0 26.4  33.3  45.7 11.8   0.0
HCM2kAvg:      0    0     0    13    0    17     0    8    15    13   10     0
********************************************************************************
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
Lane Group:  xxxx xxxx  xxxx   LTR  LTR   LTR  xxxx  RT     RT    L    T   xxxx
#LnsInGrps:     0    0     0     2    1     2     0    3     3     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     5 xxxx     5  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Area Adj:    xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      xxxx xxxx xxxxx  0.91 xxxx  0.91  xxxx 0.94  0.94  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.82 xxxx  0.82  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.94  0.94  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  1.00 0.91  1.00
Fnl Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.85  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    35.74   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    39.74   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx     0.00   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        0   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        2   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx      542   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     0.43   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx     1.00   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx    15.06   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx        0   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.08   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     1.00   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    39.66   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx     0.00   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     0.95   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     1.40   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx     1.00   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.10   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.73   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.82   xxxxxx   xxxxxx
********************************************************************************
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.00  0.00  0.40 0.00  0.40  0.00 0.35  0.35  0.25 0.60  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  0.0   0.0  10.6  0.0  13.9   0.0  6.9  11.6  10.1  9.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           0.0  0.0   0.0   1.9  0.0   3.6   0.0  1.2   3.4   3.3  1.1   0.0
HCM2KQueue:   0.0  0.0   0.0  12.5  0.0  17.5   0.0  8.1  15.0  13.5 10.1   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.20  1.20  1.17 1.20  1.16  1.20 1.18  1.17  1.17 1.18  1.20
70th%HCM2kQ:  0.0  0.0   0.0  14.7  0.0  20.4   0.0  9.6  17.5  15.8 11.9   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.60  1.60  1.50 1.60  1.47  1.60 1.53  1.48  1.49 1.51  1.60
85th%HCM2kQ:  0.0  0.0   0.0  18.7  0.0  25.6   0.0 12.4  22.2  20.1 15.3   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.80  1.80  1.61 1.80  1.57  1.80 1.67  1.59  1.60 1.64  1.80
90th%HCM2kQ:  0.0  0.0   0.0  20.2  0.0  27.4   0.0 13.5  23.9  21.6 16.5   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 2.10  2.10  1.80 2.10  1.73  2.10 1.88  1.76  1.78 1.84  2.10
95th%HCM2kQ:  0.0  0.0   0.0  22.5  0.0  30.2   0.0 15.3  26.4  24.0 18.6   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.70  2.70  2.08 2.70  1.96  2.70 2.24  2.02  2.06 2.16  2.70
98th%HCM2kQ:  0.0  0.0   0.0  26.0  0.0  34.3   0.0 18.1  30.3  27.7 21.8   0.0
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.838
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        27.1
Optimal Cycle:      115               Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     827    0   277     0    0     0     0  940   221   145 1208     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  827    0   277     0    0     0     0  940   221   145 1208     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   827    0   277     0    0     0     0  940   221   145 1208     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  827    0   277     0    0     0     0  940   221   145 1208     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   827    0   277     0    0     0     0  940   221   145 1208     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.72 1.00  0.74  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
Lanes:       1.60 0.00  0.40  0.00 0.00  0.00  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:  2207    0   557     0    0     0     0 3610  1615  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.37 0.00  0.50  0.00 0.00  0.00  0.00 0.26  0.14  0.08 0.23  0.00
Crit Moves:             ****                       ****        ****
Green/Cycle: 0.59 0.00  0.59  0.00 0.00  0.00  0.00 0.31  0.31  0.10 0.41  0.00
Volume/Cap:  0.63 0.00  0.84  0.00 0.00  0.00  0.00 0.84  0.44  0.84 0.57  0.00
Delay/Veh:   14.0  0.0  21.4   0.0  0.0   0.0   0.0 37.9  28.2  73.2 23.3   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  14.0  0.0  21.4   0.0  0.0   0.0   0.0 37.9  28.2  73.2 23.3   0.0
HCM2kAvg:      14    0    25     0    0     0     0   16     6     7   10     0
********************************************************************************
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
Lane Group:   LTR  LTR   LTR  xxxx xxxx  xxxx  xxxx   T     R     L    T   xxxx
#LnsInGrps:     2    1     1     0    0     0     0    2     1     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     5 xxxx     5  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Area Adj:    1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      0.96 xxxx  0.96  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.75 xxxx  0.77  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.72 1.00  0.74  1.00 1.00  1.00  1.00 1.00  0.85  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.95  1.00  1.00 0.91  1.00
Fnl Sat Adj: 0.72 1.00  0.74  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            55.35   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         59.35   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:               0.00   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       0   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   2   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                827   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     0.75   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:      1.00   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                      22.97   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                    0   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:          0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.01   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       1.00   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:           0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       59.34   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:      0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:     0.00   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.70   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    1.40   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:        1.00   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.09   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.60   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.75   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.59 0.00  0.59  0.00 0.00  0.00  0.00 0.31  0.31  0.10 0.41  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          12.4  0.0  20.4   0.0  0.0   0.0   0.0 12.2   4.9   4.2  8.7   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           1.7  0.0   4.3   0.0  0.0   0.0   0.0  3.9   0.8   2.9  1.3   0.0
HCM2KQueue:  14.0  0.0  24.8   0.0  0.0   0.0   0.0 16.0   5.7   7.1 10.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.20  1.15  1.20 1.20  1.20  1.20 1.17  1.19  1.18 1.18  1.20
70th%HCM2kQ: 16.4  0.0  28.6   0.0  0.0   0.0   0.0 18.7   6.7   8.4 11.7   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.49 1.60  1.43  1.60 1.60  1.60  1.60 1.48  1.55  1.54 1.52  1.60
85th%HCM2kQ: 20.9  0.0  35.4   0.0  0.0   0.0   0.0 23.7   8.8  10.9 15.1   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.60 1.80  1.52  1.80 1.80  1.80  1.80 1.58  1.70  1.68 1.64  1.80
90th%HCM2kQ: 22.4  0.0  37.5   0.0  0.0   0.0   0.0 25.3   9.7  11.9 16.4   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.78 2.10  1.65  2.10 2.10  2.10  2.10 1.75  1.94  1.91 1.85  2.10
95th%HCM2kQ: 24.9  0.0  40.9   0.0  0.0   0.0   0.0 28.0  11.0  13.5 18.4   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.04 2.70  1.85  2.70 2.70  2.70  2.70 1.99  2.35  2.28 2.17  2.70
98th%HCM2kQ: 28.6  0.0  45.8   0.0  0.0   0.0   0.0 31.9  13.3  16.1 21.5   0.0
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.747
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        17.7
Optimal Cycle:       73                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     440 1132     0     0  896   717     0     0     0   143     1   389
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  440 1132     0     0  896   717     0     0     0   143     1   389
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   440 1132     0     0  896   717     0     0     0   143     1   389
Reduct Vol:     0    0     0     0    0     0     0     0     0     0     0     0
Reduced Vol:  440 1132     0     0  896   717     0     0     0   143     1   389
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   440 1132     0     0  896   717     0     0     0   143     1   389
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.79 0.79  0.79
Lanes:       2.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.26 0.01  1.73
Final Sat.:  3502 3610     0     0 3610  1615     0     0     0  1912     6  2607
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.31  0.00  0.00 0.25  0.44  0.00 0.00  0.00  0.07 0.18  0.15
Crit Moves:  ****                        ****                         ****
Green/Cycle: 0.17 0.76  0.00  0.00 0.59  0.59  0.00 0.00  0.00  0.24 0.24  0.24
Volume/Cap:  0.75 0.41  0.00  0.00 0.42  0.75  0.00 0.00  0.00  0.32 0.75  0.63
Delay/Veh:   44.8  4.2   0.0   0.0 11.1  18.0   0.0  0.0   0.0  31.6 39.7  35.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  44.8  4.2   0.0   0.0 11.1  18.0   0.0  0.0   0.0  31.6 39.7  35.7
HCM2kAvg:       8    6     0     0    7    17     0    0     0     3   10     8
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
Lane Group:    L    T   xxxx  xxxx   T     R   xxxx xxxx  xxxx  LTR  LTR    LTR
#LnsInGrps:     2    2     0     0    2     1     0    0     0     2    1     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx  0.89 0.89  0.89
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.89 0.89  0.89
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  1.00 1.00  1.00  0.79 0.79  0.79
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 0.97 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.79 0.79  0.79
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.17 0.76  0.00  0.00 0.59  0.59  0.00 0.00  0.00  0.24 0.24  0.24
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           6.1  5.4   0.0   0.0  6.7  14.5   0.0  0.0   0.0   2.9  7.7   6.3
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           2.4  0.7   0.0   0.0  0.7   2.7   0.0  0.0   0.0   0.5  2.5   1.6
HCM2KQueue:   8.5  6.1   0.0   0.0  7.4  17.2   0.0  0.0   0.0   3.4 10.2   7.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.17  1.20 1.20  1.20  1.19 1.18  1.18
70th%HCM2kQ: 10.0  7.3   0.0   0.0  8.8  20.1   0.0  0.0   0.0   4.0 12.0   9.3
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.53 1.54  1.60  1.60 1.53  1.47  1.60 1.60  1.60  1.57 1.51  1.53
85th%HCM2kQ: 13.0  9.5   0.0   0.0 11.4  25.3   0.0  0.0   0.0   5.3 15.4  12.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.66 1.69  1.80  1.80 1.68  1.57  1.80 1.80  1.80  1.74 1.64  1.67
90th%HCM2kQ: 14.1 10.4   0.0   0.0 12.4  27.0   0.0  0.0   0.0   5.8 16.7  13.1
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.87 1.93  2.10  2.10 1.90  1.73  2.10 2.10  2.10  2.00 1.84  1.89
95th%HCM2kQ: 15.9 11.8   0.0   0.0 14.1  29.8   0.0  0.0   0.0   6.7 18.7  14.8
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.22 2.32  2.70  2.70 2.27  1.97  2.70 2.70  2.70  2.47 2.16  2.25
98th%HCM2kQ: 18.9 14.2   0.0   0.0 16.8  33.9   0.0  0.0   0.0   8.3 22.0  17.7
```

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-------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
*******************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.741
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       25.8
Optimal Cycle:       72               Level Of Service:                  C
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted       Protected         Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  2  1  1   2  0  2  0  0   1  0  1! 0  1   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0  794   313   507  539     0   769   20   614     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0  794   313   507  539     0   769   20   614     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    0  794   313   507  539     0   769   20   614     0    0     0
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   0  794   313   507  539     0   769   20   614     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    0  794   313   507  539     0   769   20   614     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.87 0.87  0.87  1.00 1.00  1.00
Lanes:       0.00 2.87  1.13  2.00 2.00  0.00  1.54 0.03  1.43  0.00 0.00  0.00
Final Sat.:     0 4752  1873  3502 3610     0  2553   47  2373     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.17  0.17  0.14 0.15  0.00  0.30 0.43  0.26  0.00 0.00  0.00
Crit Moves:       ****        ****                  ****
Green/Cycle: 0.00 0.23  0.23  0.20 0.42  0.00  0.58 0.58  0.58  0.00 0.00  0.00
Volume/Cap:  0.00 0.74  0.74  0.74 0.35  0.00  0.52 0.74  0.45  0.00 0.00  0.00
Delay/Veh:    0.0 38.0  38.0  42.2 19.9   0.0  12.9 17.1  12.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 38.0  38.0  42.2 19.9   0.0  12.9 17.1  12.0   0.0  0.0   0.0
HCM2kAvg:       0   10    10     9    6     0    10   18     8     0    0     0
*******************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
Lane Group:  xxxx  RT     RT    L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    4     4     2    2     0     2    1     2     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx 0.96  0.96  xxxx xxxx xxxxx  0.93 0.93  0.93  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.93 0.93  0.93  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.96  0.96  0.95 1.00  1.00  0.87 0.87  0.87  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  0.97 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.92 0.95  1.00  0.87 0.87  0.87  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.23  0.23  0.20 0.42  0.00  0.58 0.58  0.58  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  7.1   7.1   7.0  5.1   0.0   8.9 15.6   7.2   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.4   2.4   2.4  0.5   0.0   1.1  2.7   0.8   0.0  0.0   0.0
HCM2KQueue:   0.0  9.5   9.5   9.3  5.6   0.0  10.0 18.3   8.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.18 1.19  1.20  1.18 1.16  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 11.2  11.2  11.0  6.7   0.0  11.8 21.2   9.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.52  1.52  1.52 1.55  1.60  1.51 1.46  1.53  1.60 1.60  1.60
85th%HCM2kQ:  0.0 14.5  14.5  14.2  8.7   0.0  15.2 26.7  12.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.65  1.65  1.65 1.70  1.80  1.64 1.56  1.67  1.80 1.80  1.80
90th%HCM2kQ:  0.0 15.7  15.7  15.4  9.6   0.0  16.4 28.5  13.4   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.85  1.85  1.86 1.94  2.10  1.84 1.72  1.88  2.10 2.10  2.10
95th%HCM2kQ:  0.0 17.7  17.7  17.4 10.9   0.0  18.5 31.4  15.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.18  2.18  2.19 2.35  2.70  2.16 1.95  2.24  2.70 2.70  2.70
98th%HCM2kQ:  0.0 20.8  20.8  20.4 13.2   0.0  21.6 35.5  18.0   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.788
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        28.7
Optimal Cycle:       88                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     354  827     0     0  668   456   400    0   657     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  354  827     0     0  668   456   400    0   657     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   354  827     0     0  668   456   400    0   657     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  354  827     0     0  668   456   400    0   657     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   354  827     0     0  668   456   400    0   657     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
Lanes:       1.00 3.00  0.00  0.00 2.00  2.00  1.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:  1805 5187     0     0 3610  2842  1465    0  1615     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.20 0.16  0.00  0.00 0.19  0.16  0.27 0.00  0.41  0.00 0.00  0.00
Crit Moves:  ****                  ****                  ****
Green/Cycle: 0.25 0.48  0.00  0.00 0.23  0.23  0.52 0.00  0.52  0.00 0.00  0.00
Volume/Cap:  0.79 0.33  0.00  0.00 0.79  0.68  0.53 0.00  0.79  0.00 0.00  0.00
Delay/Veh:   44.1 15.9   0.0   0.0 40.9  37.8  16.8  0.0  24.8   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  44.1 15.9   0.0   0.0 40.9  37.8  16.8  0.0  24.8   0.0  0.0   0.0
HCM2kAvg:     13    5     0     0   12     8    11    0    18     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
Lane Group:     L    T   xxxx  xxxx   T     R     L  xxxx    R   xxxx xxxx  xxxx
#LnsInGrps:      1    3     0     0    2     2     1    0     1     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:     Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx     2 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  0.77 xxxx xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  0.77 1.00  0.85  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.95  0.88  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx     100   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx   47.63   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx   51.63   xxxxxx
Opposing Effective Green Time, go:             xxxxxx   xxxxxx    0.00   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx       0   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx       1   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx     400   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx    1.00   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx    1.00   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx   11.11   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx       0   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx    0.00   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx    1.00   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx    0.00   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx    0.33   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx    1.00   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx    0.00   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx   51.30   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx    0.00   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx    0.00   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx  xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx    1.00   xxxxxx
Through-car Equivalents, el1:                  xxxxxx   xxxxxx    1.30   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx    1.00   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx    0.08   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx    0.77   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx    0.77   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.25 0.48  0.00  0.00 0.23  0.23  0.52 0.00  0.52  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           9.7  4.7   0.0   0.0  8.7   5.8   9.6  0.0  14.9   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Q2:           3.0  0.5   0.0   0.0  2.9   1.9   1.1  0.0   3.2   0.0  0.0   0.0
HCM2KQueue:  12.7  5.2   0.0   0.0 11.7   7.7  10.7  0.0  18.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.19  1.20  1.20 1.17  1.18  1.18 1.20  1.16  1.20 1.20  1.20
70th%HCM2kQ: 14.9  6.2   0.0   0.0 13.7   9.1  12.6  0.0  21.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.50 1.55  1.60  1.60 1.50  1.53  1.51 1.60  1.46  1.60 1.60  1.60
85th%HCM2kQ: 19.0  8.1   0.0   0.0 17.5  11.7  16.1  0.0  26.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.61 1.71  1.80  1.80 1.62  1.67  1.63 1.80  1.56  1.80 1.80  1.80
90th%HCM2kQ: 20.4  8.9   0.0   0.0 18.9  12.8  17.5  0.0  28.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.80 1.95  2.10  2.10 1.81  1.89  1.83 2.10  1.72  2.10 2.10  2.10
95th%HCM2kQ: 22.8 10.1   0.0   0.0 21.1  14.5  19.6  0.0  31.2   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.08 2.37  2.70  2.70 2.11  2.25  2.14 2.70  1.95  2.70 2.70  2.70
98th%HCM2kQ: 26.3 12.3   0.0   0.0 24.6  17.3  22.9  0.0  35.3   0.0  0.0   0.0
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.631
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        24.1
Optimal Cycle:       50                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     251  470     0     0  835   271     0    0     0   691  343   325
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  251  470     0     0  835   271     0    0     0   691  343   325
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   251  470     0     0  835   271     0    0     0   691  343   325
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  251  470     0     0  835   271     0    0     0   691  343   325
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   251  470     0     0  835   271     0    0     0   691  343   325
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.88  0.88  1.00 1.00  1.00  0.88 0.88  0.88
Lanes:       1.00 2.00  0.00  0.00 2.26  0.74  0.00 0.00  0.00  1.52 0.76  0.72
Final Sat.:  1805 3610     0     0 3771  1224     0    0     0  2559 1270  1203
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.14 0.13  0.00  0.00 0.22  0.22  0.00 0.00  0.00  0.27 0.27  0.27
Crit Moves:  ****                  ****                              ****
Green/Cycle: 0.22 0.57  0.00  0.00 0.35  0.35  0.00 0.00  0.00  0.43 0.43  0.43
Volume/Cap:  0.63 0.23  0.00  0.00 0.63  0.63  0.00 0.00  0.00  0.63 0.63  0.63
Delay/Veh:   38.5 10.6   0.0   0.0 27.8  27.8   0.0  0.0   0.0  23.0 23.0  23.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  38.5 10.6   0.0   0.0 27.8  27.8   0.0  0.0   0.0  23.0 23.0  23.0
HCM2kAvg:       8    4     0     0   10    10     0    0     0    12   12    12
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:       1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     1    2     0     0    3     3     0    0     0     3    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:   < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:      Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 0.96  0.96  xxxx xxxx xxxxx  0.96 0.96  0.96
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.96 0.96  0.96
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 0.96  0.96  1.00 1.00  1.00  0.93 0.93  0.93
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.95 0.95  0.95
Fnl Sat Adj: 0.95 0.95  1.00  1.00 0.88  0.88  1.00 1.00  1.00  0.88 0.88  0.88
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.22 0.57  0.00  0.00 0.35  0.35  0.00 0.00  0.00  0.43 0.43  0.43
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           6.6  3.2   0.0   0.0  8.5   8.5   0.0  0.0   0.0  10.2 10.2  10.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           1.6  0.3   0.0   0.0  1.6   1.6   0.0  0.0   0.0   1.6  1.6   1.6
HCM2KQueue:   8.2  3.5   0.0   0.0 10.1  10.1   0.0  0.0   0.0  11.9 11.9  11.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.17 1.17  1.17
70th%HCM2kQ:  9.7  4.2   0.0   0.0 11.9  11.9   0.0  0.0   0.0  13.9 13.9  13.9
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.53 1.57  1.60  1.60 1.51  1.51  1.60 1.60  1.60  1.50 1.50  1.50
85th%HCM2kQ: 12.6  5.5   0.0   0.0 15.4  15.4   0.0  0.0   0.0  17.8 17.8  17.8
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.67 1.74  1.80  1.80 1.64  1.64  1.80 1.80  1.80  1.62 1.62  1.62
90th%HCM2kQ: 13.7  6.1   0.0   0.0 16.6  16.6   0.0  0.0   0.0  19.2 19.2  19.2
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.88 1.99  2.10  2.10 1.84  1.84  2.10 2.10  2.10  1.81 1.81  1.81
95th%HCM2kQ: 15.5  7.0   0.0   0.0 18.7  18.7   0.0  0.0   0.0  21.5 21.5  21.5
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.23 2.46  2.70  2.70 2.16  2.16  2.70 2.70  2.70  2.10 2.10  2.10
98th%HCM2kQ: 18.3  8.6   0.0   0.0 21.9  21.9   0.0  0.0   0.0  24.9 24.9  24.9
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.599
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        25.3
Optimal Cycle:       65                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted       Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  417   366   500 1022     0   301   85   479     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  417   366   500 1022     0   301   85   479     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  417   366   500 1022     0   301   85   479     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  417   366   500 1022     0   301   85   479     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  417   366   500 1022     0   301   85   479     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.75  0.92 0.95  1.00  0.80 0.80  0.80  1.00 1.00  1.00
Lanes:       0.00 2.00  2.00  2.00 2.00  0.00  1.56 0.44  1.00  0.00 0.00  0.00
Final Sat.:     0 3610  2842  3502 3610     0  2367  668  1518     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.12  0.13  0.14 0.28  0.00  0.13 0.13  0.32  0.00 0.00  0.00
Crit Moves:                      ****                    ****
Green/Cycle: 0.00 0.16  0.16  0.40 0.56  0.00  0.44 0.44  0.44  0.00 0.00  0.00
Volume/Cap:  0.00 0.71  0.80  0.36 0.51  0.00  0.29 0.29  0.71  0.00 0.00  0.00
Delay/Veh:    0.0 43.9  49.7  21.4 13.8   0.0  17.9 17.9  24.8   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 43.9  49.7  21.4 13.8   0.0  17.9 17.9  24.8   0.0  0.0   0.0
HCM2kAvg:      0    8     8     6   10     0     4    4    14     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
Lane Group:  xxxx   T     R     L     T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    2     2     2    2     0     3    3     3     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:      Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx  0.85  xxxx xxxx xxxxx  0.92 0.92  0.92  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.92 0.92  0.92  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  0.85  0.95 1.00  1.00  0.84 0.84  0.84  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  0.88  0.97 0.95  1.00  0.95 0.95  0.95  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.95  0.75  0.92 0.95  1.00  0.80 0.80  0.80  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.16  0.16  0.40 0.56  0.00  0.44 0.44  0.44  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  5.5   4.9   5.1  8.7   0.0   3.7  3.7  11.8   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.1   2.7   0.6  1.0   0.0   0.4  0.4   2.3   0.0  0.0   0.0
HCM2KQueue:   0.0  7.6   7.6   5.7  9.8   0.0   4.1  4.1  14.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.18  1.20  1.19 1.19  1.17  1.20 1.20  1.20
70th%HCM2kQ:  0.0  9.0   9.0   6.8 11.5   0.0   4.9  4.9  16.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.53  1.53  1.55 1.52  1.60  1.56 1.56  1.49  1.60 1.60  1.60
85th%HCM2kQ:  0.0 11.6  11.6   8.8 14.8   0.0   6.5  6.5  21.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.67  1.67  1.70 1.65  1.80  1.73 1.73  1.60  1.80 1.80  1.80
90th%HCM2kQ:  0.0 12.7  12.7   9.7 16.1   0.0   7.1  7.1  22.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.89  1.89  1.94 1.85  2.10  1.98 1.98  1.77  2.10 2.10  2.10
95th%HCM2kQ:  0.0 14.3  14.3  11.1 18.0   0.0   8.2  8.2  25.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.26  2.26  2.34 2.17  2.70  2.43 2.43  2.04  2.70 2.70  2.70
98th%HCM2kQ:  0.0 17.1  17.1  13.4 21.2   0.0  10.0 10.0  28.8   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.648
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        27.4
Optimal Cycle:       65                Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     613    3   154    12   68    43    46  804   471   889 1083    25
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  613    3   154    12   68    43    46  804   471   889 1083    25
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   613    3   154    12   68    43    46  804   471   889 1083    25
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  613    3   154    12   68    43    46  804   471   889 1083    25
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   613    3   154    12   68    43    46  804   471   889 1083    25
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.86  0.86  0.92 0.91  0.91
Lanes:       1.99 0.01  1.00  0.10 0.55  0.35  1.00 3.15  1.85  2.00 2.93  0.07
Final Sat.:  3604   18  1615   176  996   630  1805 5152  3018  3502 5055   117
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.17 0.17  0.10  0.07 0.07  0.07  0.03 0.16  0.16  0.25 0.21  0.21
Crit Moves:  ****                  ****             ****        ****
Green/Cycle: 0.26 0.26  0.26  0.11 0.11  0.11  0.07 0.24  0.24  0.39 0.57  0.57
Volume/Cap:  0.65 0.65  0.36  0.65 0.65  0.65  0.38 0.65  0.65  0.65 0.38  0.38
Delay/Veh:   34.4 34.4  30.6  50.6 50.6  50.6  46.6 34.9  34.9  25.9 12.1  12.1
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  34.4 34.4  30.6  50.6 50.6  50.6  46.6 34.9  34.9  25.9 12.1  12.1
HCM2kAvg:      10   10     4     5    5     5     2    8     8    12    6     6
********************************************************************************
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
Lane Group:   LT   LT     R    LTR  LTR   LTR    L   RT     RT    L   RT     RT
#LnsInGrps:     2    2     1     1    1     1     1    5     5     2    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     4    4  xxxx     4    4     4     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  0.95 0.95  0.95  xxxx 0.95  0.95  xxxx 1.00  1.00
LT Adj:      0.95 0.95 xxxxx  1.00 1.00  1.00  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.95  0.95  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  0.97 0.91  0.91
Fnl Sat Adj: 0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.86  0.86  0.92 0.91  0.91
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.26 0.26  0.26  0.11 0.11  0.11  0.07 0.24  0.24  0.39 0.57  0.57
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           8.0  8.0   3.5   3.3  3.3   3.3   1.3  6.4   6.4  10.6  5.7   5.7
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q2:           1.7  1.7   0.6   1.6  1.6   1.6   0.6  1.7   1.7   1.7  0.6   0.6
HCM2KQueue:   9.7  9.7   4.0   4.9  4.9   4.9   1.9  8.1   8.1  12.3  6.3   6.3
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.19  1.19 1.19  1.19  1.20 1.18  1.18  1.17 1.19  1.19
70th%HCM2kQ: 11.4 11.4   4.8   5.8  5.8   5.8   2.2  9.5   9.5  14.5  7.4   7.4
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.52  1.56  1.56 1.56  1.56  1.58 1.53  1.53  1.50 1.54  1.54
85th%HCM2kQ: 14.7 14.7   6.3   7.5  7.5   7.5   2.9 12.3  12.3  18.5  9.7   9.7
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.65 1.65  1.73  1.71 1.71  1.71  1.76 1.67  1.67  1.62 1.69  1.69
90th%HCM2kQ: 16.0 16.0   7.0   8.3  8.3   8.3   3.3 13.4  13.4  19.9 10.6  10.6
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.85 1.85  1.98  1.96 1.96  1.96  2.04 1.88  1.88  1.80 1.92  1.92
95th%HCM2kQ: 17.9 17.9   8.0   9.5  9.5   9.5   3.8 15.2  15.2  22.2 12.1  12.1
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.17 2.17  2.43  2.39 2.39  2.39  2.57 2.24  2.24  2.09 2.32  2.32
98th%HCM2kQ: 21.1 21.1   9.9  11.6 11.6  11.6   4.8 18.0  18.0  25.8 14.6  14.6
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.460
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        15.6
Optimal Cycle:       34                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       7 1225     0     0 1260     9     0    0     5   200   12   675
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    7 1225     0     0 1260     9     0    0     5   200   12   675
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     7 1225     0     0 1260     9     0    0     5   200   12   675
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    7 1225     0     0 1260     9     0    0     5   200   12   675
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     7 1225     0     0 1260     9     0    0     5   200   12   675
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.14 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
Lanes:       1.00 3.00  0.00  0.00 2.98  0.02  0.00 0.00  1.00  1.00 0.03  1.97
Final Sat.:   274 5187     0     0 5145    37     0     0  1644  1805    57  3185
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.24  0.00  0.00 0.24  0.24  0.00 0.00  0.00  0.11 0.21  0.21
Crit Moves:                        ****                   ****       ****
Green/Cycle: 0.53 0.53  0.00  0.00 0.53  0.53  0.00 0.00  0.01  0.46 0.46  0.46
Volume/Cap:  0.05 0.44  0.00  0.00 0.46  0.46  0.00 0.00  0.46  0.24 0.46  0.46
Delay/Veh:   11.4 14.4   0.0   0.0 14.6  14.6   0.0   0.0  77.3  16.5 18.7  18.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  11.4 14.4   0.0   0.0 14.6  14.6   0.0   0.0  77.3  16.5 18.7  18.7
HCM2kAvg:      1    8     0     0    8     8     0    0     1     4    7     7
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0   0  0  2  1  0   0  0  0  0  1   1  0  0  1  1
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx    R     L   RT     RT
#LnsInGrps:     1    3     0     0    3     3     0    0     1     1    2     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     2 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 1.00  1.00  xxxx xxxx  0.87  xxxx 0.85  0.85
LT Adj:      0.14 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.14 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.87  0.95 0.85  0.85
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.91  0.91  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.14 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:                                        North    South    East     West
Cycle Length, C:                                   100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:             49.25   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:          53.25   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:               53.25   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                        3   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                    1   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                   7   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:      1.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:     xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                        0.19   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                  1269   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:          12.91   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                      1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                          0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:       0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                        0.47   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:           16.28   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:        36.97   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:     xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                  0.08   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:      1.00   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                     4.83   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:       xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:        0.08   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:      0.14   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                 0.14   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.53 0.53  0.00  0.00 0.53  0.53  0.00 0.00  0.01  0.46 0.46  0.46
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.6  6.9   0.0   0.0  7.3   7.3   0.0  0.0   0.1   3.5  6.5   6.5
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
Q2:           0.1  0.8   0.0   0.0  0.8   0.8   0.0  0.0   0.5   0.3  0.8   0.8
HCM2KQueue:   0.7  7.7   0.0   0.0  8.1   8.1   0.0  0.0   0.6   3.9  7.4   7.4
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.19 1.18  1.18
70th%HCM2kQ:  0.8  9.1   0.0   0.0  9.6   9.6   0.0  0.0   0.8   4.6  8.7   8.7
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.59 1.53  1.60  1.60 1.53  1.53  1.60 1.60  1.59  1.56 1.53  1.53
85th%HCM2kQ:  1.1 11.8   0.0   0.0 12.4  12.4   0.0  0.0   1.0   6.0 11.3  11.3
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.79 1.67  1.80  1.80 1.67  1.67  1.80 1.80  1.79  1.73 1.68  1.68
90th%HCM2kQ:  1.2 12.9   0.0   0.0 13.5  13.5   0.0  0.0   1.1   6.7 12.3  12.3
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.08 1.89  2.10  2.10 1.88  1.88  2.10 2.10  2.08  1.98 1.90  1.90
95th%HCM2kQ:  1.5 14.6   0.0   0.0 15.3  15.3   0.0  0.0   1.3   7.7 14.0  14.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.65 2.25  2.70  2.70 2.24  2.24  2.70 2.70  2.65  2.44 2.27  2.27
98th%HCM2kQ:  1.8 17.4   0.0   0.0 18.1  18.1   0.0  0.0   1.7   9.4 16.7  16.7
```

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-------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
*******************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.567
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        16.0
Optimal Cycle:       43                Level Of Service:                  B
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted      Split Phase      Split Phase
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  2  1  0   1  0  2  0  0   1  1  0  0  1   0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1040   537   25  515     0  671    2   380    0    0     7
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    0 1040   537   25  515     0  671    2   380    0    0     7
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:     0 1040   537   25  515     0  671    2   380    0    0     7
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    0 1040   537   25  515     0  671    2   380    0    0     7
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:     0 1040   537   25  515     0  671    2   380    0    0     7
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  1.00 0.86  0.86 0.11 0.95  1.00 0.95 0.95  0.85 1.00 1.00  0.87
Lanes:       0.00 2.00  1.00 1.00 2.00  0.00 1.99 0.01  1.00 0.00 0.00  1.00
Final Sat.:     0 3282  1641  205 3610     0 3611   11  1615    0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.32  0.33 0.12 0.14  0.00 0.19 0.19  0.24 0.00 0.00  0.00
Crit Moves:             ****                              ****            ****
Green/Cycle: 0.00 0.58  0.58 0.58 0.58  0.00 0.42 0.42  0.42 0.00 0.00  0.01
Volume/Cap:  0.00 0.55  0.57 0.21 0.25  0.00 0.45 0.45  0.57 0.00 0.00  0.57
Delay/Veh:    0.0 13.3  13.6 11.1 10.5   0.0 21.2 21.2  23.5  0.0  0.0  99.2
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   0.0 13.3  13.6 11.1 10.5   0.0 21.2 21.2  23.5  0.0  0.0  99.2
HCM2kAvg:       0   10    11    3    4     0    8    8     9    0    0     1
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
Lane Group:  xxxx  RT     RT    L    T   xxxx   LT   LT     R   xxxx xxxx    R
#LnsInGrps:     0    3     3     1    2     0     2    2     1     0    0     1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     2 xxxx  xxxx     4    4  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
RT Adj:      xxxx 0.95  0.95  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.87
LT Adj:      xxxx xxxx xxxxx  0.11 xxxx xxxxx  0.95 0.95 xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.95  0.95  0.11 1.00  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.86  0.86  0.11 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    53.74   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    57.74   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx    57.74   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        3   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        1   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx       25   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     1.00   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx     0.69   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx     1577   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx    15.37   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     0.42   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx    18.76   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    38.98   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     1.00   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     6.24   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.07   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.11   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.11   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.58  0.58  0.58 0.58  0.00  0.42 0.42  0.42  0.00 0.00  0.01
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  8.9   9.4   3.1  3.5   0.0   7.0  7.0   8.1   0.0  0.0   0.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Q2:           0.0  1.2   1.3   0.3  0.3   0.0   0.8  0.8   1.3   0.0  0.0   0.7
HCM2KQueue:   0.0 10.1  10.6   3.4  3.9   0.0   7.8  7.8   9.3   0.0  0.0   0.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.19  1.20  1.18 1.18  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 11.9  12.5   4.0  4.6   0.0   9.3  9.3  11.0   0.0  0.0   1.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.51  1.57 1.56  1.60  1.53 1.53  1.52  1.60 1.60  1.59
85th%HCM2kQ:  0.0 15.3  16.1   5.3  6.0   0.0  12.0 12.0  14.2   0.0  0.0   1.4
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.64  1.63  1.74 1.73  1.80  1.67 1.67  1.65  1.80 1.80  1.78
90th%HCM2kQ:  0.0 16.6  17.4   5.8  6.7   0.0  13.1 13.1  15.4   0.0  0.0   1.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.84  1.83  2.00 1.98  2.10  1.89 1.89  1.86  2.10 2.10  2.07
95th%HCM2kQ:  0.0 18.7  19.5   6.7  7.6   0.0  14.8 14.8  17.3   0.0  0.0   1.8
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.16  2.14  2.47 2.44  2.70  2.25 2.25  2.19  2.70 2.70  2.64
98th%HCM2kQ:  0.0 21.9  22.8   8.3  9.4   0.0  17.6 17.6  20.4   0.0  0.0   2.2
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.668
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        18.1
Optimal Cycle:       56                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted       Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   372    0   374     0 1277   578   212 1001     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   372    0   374     0 1277   578   212 1001     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   372    0   374     0 1277   578   212 1001     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   372    0   374     0 1277   578   212 1001     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0    0     0   372    0   374     0 1277   578   212 1001     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.87  0.87  0.95 0.91  1.00
Lanes:       0.00 0.00  0.00  1.50 0.00  1.50  0.00 2.07  0.93  1.00 3.00  0.00
Final Sat.:     0    0     0  2123    0  2127     0 3403  1540  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.18 0.00  0.18  0.00 0.38  0.38  0.12 0.19  0.00
Crit Moves:                   ****                  ****        ****
Green/Cycle: 0.00 0.00  0.00  0.26 0.00  0.26  0.00 0.56  0.56  0.18 0.74  0.00
Volume/Cap:  0.00 0.00  0.00  0.67 0.00  0.68  0.00 0.67  0.67  0.67 0.26  0.00
Delay/Veh:    0.0  0.0   0.0  34.8  0.0  34.9   0.0 15.9  15.9  43.7  4.2   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  34.8  0.0  34.9   0.0 15.9  15.9  43.7  4.2   0.0
HCM2kAvg:      0    0     0    10    0   10      0  14     14     8    3     0
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
Lane Group:  xxxx xxxx  xxxx   LTR  LTR   LTR  xxxx  RT     RT    L    T   xxxx
#LnsInGrps:     0    0     0     2    1     2     0    3     3     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     5 xxxx     5  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Area Adj:    xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      xxxx xxxx xxxxx  0.93 xxxx  0.93  xxxx 0.95  0.95  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.81 xxxx  0.81  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.95  0.95  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  1.00 0.91  1.00
Fnl Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.87  0.87  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
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-------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
-------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
******************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
******************************************************************************
Approach:                                      North    South    East     West
Cycle Length, C:                              xxxxxx     100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:          xxxxxx   22.02   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:       xxxxxx   26.02   xxxxxx   xxxxxx
Opposing Effective Green Time, go:            xxxxxx    0.00   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                 xxxxxx       0   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:             xxxxxx       2   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:            xxxxxx     372   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:  xxxxxx    0.50   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:   xxxxxx    1.00   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                    xxxxxx   10.33   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:              xxxxxx       0   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:       xxxxxx    0.00   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                  xxxxxx    1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                      xxxxxx    0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:   xxxxxx    0.20   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                    xxxxxx    1.00   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:        xxxxxx    0.00   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:     xxxxxx   25.82   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:   xxxxxx    0.00   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:  xxxxxx    0.00   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:              xxxxxx  xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:  xxxxxx    1.07   xxxxxx   xxxxxx
Through-car Equivalents, el1:                 xxxxxx    1.40   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:     xxxxxx    1.00   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:    xxxxxx    0.16   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:  xxxxxx    0.70   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:             xxxxxx    0.81   xxxxxx   xxxxxx
******************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
*******************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
*******************************************************************************
Approach:       North Bound       South Bound        East Bound        West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.00  0.00  0.26 0.00  0.26  0.00 0.56  0.56  0.18 0.74  0.00
ArrivalType:          3                 3                 3                 3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  0.0   0.0   7.7  0.0   7.7   0.0 12.0  12.0   5.8  3.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           0.0  0.0   0.0   1.9  0.0   1.9   0.0  1.9   1.9   1.8  0.4   0.0
HCM2KQueue:   0.0  0.0   0.0   9.5  0.0   9.6   0.0 13.9  13.9   7.6  3.3   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.20  1.20  1.18 1.20  1.18  1.20 1.17  1.17  1.18 1.19  1.20
70th%HCM2kQ:  0.0  0.0   0.0  11.3  0.0  11.3   0.0 16.3  16.3   8.9  4.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.60  1.60  1.52 1.60  1.52  1.60 1.49  1.49  1.53 1.57  1.60
85th%HCM2kQ:  0.0  0.0   0.0  14.5  0.0  14.6   0.0 20.7  20.7  11.6  5.2   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.80  1.80  1.65 1.80  1.65  1.80 1.60  1.60  1.67 1.74  1.80
90th%HCM2kQ:  0.0  0.0   0.0  15.7  0.0  15.8   0.0 22.2  22.2  12.6  5.8   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 2.10  2.10  1.85 2.10  1.85  2.10 1.78  1.78  1.89 2.00  2.10
95th%HCM2kQ:  0.0  0.0   0.0  17.7  0.0  17.8   0.0 24.7  24.7  14.3  6.7   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.70  2.70  2.18 2.70  2.18  2.70 2.04  2.04  2.26 2.47  2.70
98th%HCM2kQ:  0.0  0.0   0.0  20.8  0.0  20.9   0.0 28.4  28.4  17.1  8.3   0.0
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.915
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        32.3
Optimal Cycle:      180               Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted         Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     466    0   300     0    0     0     0 1252   395   347  749     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  466    0   300     0    0     0     0 1252   395   347  749     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   466    0   300     0    0     0     0 1252   395   347  749     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  466    0   300     0    0     0     0 1252   395   347  749     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   466    0   300     0    0     0     0 1252   395   347  749     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.73 1.00  0.76  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
Lanes:       1.44 0.00  0.56  0.00 0.00  0.00  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:  2015    0   799     0    0     0     0 3610  1615  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.23 0.00  0.38  0.00 0.00  0.00  0.00 0.35  0.24  0.19 0.14  0.00
Crit Moves:             ****                        ****        ****
Green/Cycle: 0.41 0.00  0.41  0.00 0.00  0.00  0.00 0.38  0.38  0.21 0.59  0.00
Volume/Cap:  0.56 0.00  0.92  0.00 0.00  0.00  0.00 0.91  0.64  0.91 0.24  0.00
Delay/Veh:   23.2  0.0  42.4   0.0  0.0   0.0   0.0 39.1  27.9  64.6  9.9   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  23.2  0.0  42.4   0.0  0.0   0.0   0.0 39.1  27.9  64.6  9.9   0.0
HCM2kAvg:     10    0    24     0    0     0     0  22     11    15    4     0
********************************************************************************
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
Lane Group:   LTR  LTR   LTR  xxxx xxxx  xxxx  xxxx   T     R     L    T   xxxx
#LnsInGrps:     2    1     1     0    0     0     0    2     1     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:        No                No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     5 xxxx     5  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Area Adj:    1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      0.94 xxxx  0.94  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.78 xxxx  0.81  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.73 1.00  0.76  1.00 1.00  1.00  1.00 1.00  0.85  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.95  1.00  1.00 0.91  1.00
Fnl Sat Adj: 0.73 1.00  0.76  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            37.02   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         41.02   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:               0.00   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       0   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   2   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                466   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     0.61   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:      1.00   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                      12.94   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                    0   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:          0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.15   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       1.00   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:           0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       40.87   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:      0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:     0.00   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.35   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    1.40   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:        1.00   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.11   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.65   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.78   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.41 0.00  0.41  0.00 0.00  0.00  0.00 0.38  0.38  0.21 0.59  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           8.8  0.0  17.6   0.0  0.0   0.0   0.0 16.5   9.0   9.9  3.3   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           1.3  0.0   6.1   0.0  0.0   0.0   0.0  5.9   1.7   4.9  0.3   0.0
HCM2KQueue:  10.1  0.0  23.7   0.0  0.0   0.0   0.0 22.4  10.7  14.9  3.6   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.20  1.16  1.20 1.20  1.20  1.20 1.16  1.18  1.17 1.19  1.20
70th%HCM2kQ: 11.9  0.0  27.4   0.0  0.0   0.0   0.0 25.9  12.6  17.4  4.3   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.51 1.60  1.44  1.60 1.60  1.60  1.60 1.44  1.51  1.48 1.57  1.60
85th%HCM2kQ: 15.2  0.0  34.0   0.0  0.0   0.0   0.0 32.3  16.2  22.0  5.7   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.64 1.80  1.52  1.80 1.80  1.80  1.80 1.53  1.63  1.59 1.73  1.80
90th%HCM2kQ: 16.5  0.0  36.1   0.0  0.0   0.0   0.0 34.3  17.5  23.6  6.3   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.84 2.10  1.66  2.10 2.10  2.10  2.10 1.67  1.83  1.76 1.99  2.10
95th%HCM2kQ: 18.5  0.0  39.3   0.0  0.0   0.0   0.0 37.5  19.6  26.2  7.3   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.16 2.70  1.86  2.70 2.70  2.70  2.70 1.88  2.14  2.02 2.46  2.70
98th%HCM2kQ: 21.8  0.0  44.1   0.0  0.0   0.0   0.0 42.1  22.9  30.0  9.0   0.0
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.679
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        20.3
Optimal Cycle:       58                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     440  970     0     0 1010   565     0    0     0   314    0   465
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  440  970     0     0 1010   565     0    0     0   314    0   465
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   440  970     0     0 1010   565     0    0     0   314    0   465
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  440  970     0     0 1010   565     0    0     0   314    0   465
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   440  970     0     0 1010   565     0    0     0   314    0   465
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.75 1.00  0.75
Lanes:       2.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.40 0.00  1.60
Final Sat.:  3502 3610     0     0 3610  1615     0    0     0  2009    0  2286
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.27  0.00  0.00 0.28  0.35  0.00 0.00  0.00  0.16 0.00  0.20
Crit Moves:  ****                        ****                              ****
Green/Cycle: 0.19 0.70  0.00  0.00 0.52  0.52  0.00 0.00  0.00  0.30 0.00  0.30
Volume/Cap:  0.68 0.38  0.00  0.00 0.54  0.68  0.00 0.00  0.00  0.52 0.00  0.68
Delay/Veh:   40.8  6.2   0.0   0.0 16.6  20.3   0.0  0.0   0.0  29.5  0.0  32.6
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  40.8  6.2   0.0   0.0 16.6  20.3   0.0  0.0   0.0  29.5  0.0  32.6
HCM2kAvg:       8    6     0     0   11    14     0    0     0     7    0    11
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
Lane Group:     L    T   xxxx  xxxx   T     R   xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     2    2     0     0    2     1     0    0     0     2    1     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:     < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:      Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     5 xxxx     5
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx  0.91 xxxx  0.91
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.83 xxxx  0.83
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  1.00 1.00  1.00  0.75 1.00  0.75
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 0.97 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.75 1.00  0.75
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx   xxxxxx      100
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx   xxxxxx    25.83
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx   xxxxxx    29.83
Opposing Effective Green Time, go:             xxxxxx   xxxxxx   xxxxxx     0.00
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx   xxxxxx        0
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx   xxxxxx        2
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx   xxxxxx      314
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx   xxxxxx     0.40
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx     1.00
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx   xxxxxx     8.72
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx   xxxxxx        0
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx   xxxxxx     0.00
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx   xxxxxx     1.00
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx   xxxxxx     0.00
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx   xxxxxx     0.40
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx   xxxxxx     1.00
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx   xxxxxx     0.00
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx   xxxxxx    29.43
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx     0.00
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx     0.00
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx   xxxxxx     0.87
Through-car Equivalents, el1:                  xxxxxx   xxxxxx   xxxxxx     1.40
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx     1.00
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx   xxxxxx     0.13
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx   xxxxxx     0.75
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx   xxxxxx     0.83
********************************************************************************
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-------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
-------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
*******************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.19 0.70  0.00  0.00 0.52  0.52  0.00 0.00  0.00  0.30 0.00  0.30
ArrivalType:         3                3                 3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           6.0  5.5   0.0   0.0  9.4  11.7   0.0  0.0   0.0   6.2  0.0   8.6
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
Q2:           1.9  0.6   0.0   0.0  1.2   2.0   0.0  0.0   0.0   1.1  0.0   2.0
HCM2KQueue:   7.8  6.1   0.0   0.0 10.6  13.7   0.0  0.0   0.0   7.3  0.0  10.6
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.17  1.20 1.20  1.20  1.18 1.20  1.18
70th%HCM2kQ:  9.3  7.2   0.0   0.0 12.5  16.0   0.0  0.0   0.0   8.6  0.0  12.4
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.53 1.54  1.60  1.60 1.51  1.49  1.60 1.60  1.60  1.54 1.60  1.51
85th%HCM2kQ: 12.0  9.4   0.0   0.0 16.0  20.4   0.0  0.0   0.0  11.2  0.0  16.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.67 1.69  1.80  1.80 1.64  1.60  1.80 1.80  1.80  1.68 1.80  1.64
90th%HCM2kQ: 13.1 10.4   0.0   0.0 17.3  21.9   0.0  0.0   0.0  12.3  0.0  17.3
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.89 1.93  2.10  2.10 1.83  1.78  2.10 2.10  2.10  1.90 2.10  1.83
95th%HCM2kQ: 14.8 11.8   0.0   0.0 19.4  24.3   0.0  0.0   0.0  13.9  0.0  19.4
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.25 2.32  2.70  2.70 2.14  2.05  2.70 2.70  2.70  2.27 2.70  2.14
98th%HCM2kQ: 17.6 14.2   0.0   0.0 22.7  28.0   0.0  0.0   0.0  16.6  0.0  22.6
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.699
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        25.6
Optimal Cycle:       62                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Protected        Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  2  1  1   2  0  2  0  0   1  0  1! 0  1   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0  886   383   497  825     0   516  158   404     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0  886   383   497  825     0   516  158   404     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    0  886   383   497  825     0   516  158   404     0    0     0
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   0  886   383   497  825     0   516  158   404     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    0  886   383   497  825     0   516  158   404     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.89 0.89  0.89  1.00 1.00  1.00
Lanes:       0.00 2.79  1.21  2.00 2.00  0.00  1.42 0.25  1.33  0.00 0.00  0.00
Final Sat.:    0 4611  1993  3502 3610     0  2400  433  2247     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.19  0.19  0.14 0.23  0.00  0.21 0.36  0.18  0.00 0.00  0.00
Crit Moves:       ****        ****                   ****
Green/Cycle: 0.00 0.27  0.27  0.20 0.48  0.00  0.52 0.52  0.52  0.00 0.00  0.00
Volume/Cap:  0.00 0.70  0.70  0.70 0.48  0.00  0.41 0.70  0.34  0.00 0.00  0.00
Delay/Veh:    0.0 33.8  33.8  40.1 17.9   0.0  14.7 19.4  14.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 33.8  33.8  40.1 17.9   0.0  14.7 19.4  14.0   0.0  0.0   0.0
HCM2kAvg:      0   10    10     9    9     0     7   16     6     0    0     0
********************************************************************************
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-------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
-------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
*******************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
Lane Group:  xxxx  RT     RT    L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    4     4     2    2     0     2    1     2     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                 8                8
% Hev Veh:           0                0                 0                0
Grade:              0%               0%                0%               0%
Parking/Hr:         No               No                No               No
Bus Stp/Hr:          0                0                 0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                 0                0
ExclusiveRT:     Include          Include           Include          Include
% RT Prtct:          0                0                 0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx 0.96  0.96  xxxx xxxx xxxxx  0.94 0.94  0.94  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.94 0.94  0.94  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.96  0.96  0.95 1.00  1.00  0.89 0.89  0.89  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  0.97 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.92 0.95  1.00  0.89 0.89  0.89  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.27  0.27  0.20 0.48  0.00  0.52 0.52  0.52  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  7.9   7.9   6.7  7.8   0.0   6.5 13.7   5.2   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.1   2.1   2.0  0.9   0.0   0.7  2.2   0.5   0.0  0.0   0.0
HCM2KQueue:   0.0 10.0  10.0   8.8  8.7   0.0   7.2 15.9   5.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.18 1.18  1.20  1.18 1.17  1.19  1.20 1.20  1.20
70th%HCM2kQ:  0.0 11.8  11.8  10.4 10.2   0.0   8.5 18.5   6.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.52  1.52  1.52 1.52  1.60  1.54 1.48  1.55  1.60 1.60  1.60
85th%HCM2kQ:  0.0 15.1  15.1  13.4 13.2   0.0  11.1 23.4   8.9   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.64  1.64  1.66 1.66  1.80  1.68 1.58  1.70  1.80 1.80  1.80
90th%HCM2kQ:  0.0 16.4  16.4  14.6 14.4   0.0  12.1 25.1   9.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.84  1.84  1.87 1.87  2.10  1.90 1.75  1.94  2.10 2.10  2.10
95th%HCM2kQ:  0.0 18.4  18.4  16.4 16.2   0.0  13.7 27.8  11.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.16  2.16  2.21 2.21  2.70  2.27 1.99  2.34  2.70 2.70  2.70
98th%HCM2kQ:  0.0 21.6  21.6  19.4 19.2   0.0  16.4 31.7  13.5   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap. (X):        0.663
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       22.3
Optimal Cycle:       55              Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  3  0  0   0  0  2  0  2   1  0  0  0  1   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     397 1128     0     0  753   361   344    0   293     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  397 1128     0     0  753   361   344    0   293     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   397 1128     0     0  753   361   344    0   293     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  397 1128     0     0  753   361   344    0   293     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   397 1128     0     0  753   361   344    0   293     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
Lanes:       1.00 3.00  0.00  0.00 2.00  2.00  1.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:  1805 5187     0     0 3610  2842  1467    0  1615     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.22 0.22  0.00  0.00 0.21  0.13  0.23 0.00  0.18  0.00 0.00  0.00
Crit Moves:  ****                  ****        ****
Green/Cycle: 0.33 0.65  0.00  0.00 0.31  0.31  0.35 0.00  0.35  0.00 0.00  0.00
Volume/Cap:  0.66 0.34  0.00  0.00 0.66  0.40  0.66 0.00  0.51  0.00 0.00  0.00
Delay/Veh:   31.4  8.1   0.0   0.0 31.2  27.2  30.5  0.0  26.3   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  31.4  8.1   0.0   0.0 31.2  27.2  30.5  0.0  26.3   0.0  0.0   0.0
HCM2kAvg:      12    5     0     0   11     5    12    0     7     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
Lane Group:    L    T   xxxx  xxxx   T     R     L  xxxx    R   xxxx xxxx  xxxx
#LnsInGrps:     1    3     0     0    2     2     1    0     1     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx     2 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  0.77 xxxx xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  0.77 1.00  0.85  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.95  0.88  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < <   No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
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               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx     100   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx   31.37   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx   35.37   xxxxxx
Opposing Effective Green Time, go:             xxxxxx   xxxxxx    0.00   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx       0   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx       1   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx     344   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx    1.00   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx    1.00   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx    9.56   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx       0   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx    0.00   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx    1.00   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx    0.00   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx    0.37   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx    1.00   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx    0.00   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx   35.00   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx    0.00   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx    0.00   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx  xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx    1.00   xxxxxx
Through-car Equivalents, el1:                  xxxxxx   xxxxxx    1.30   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx    1.00   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx    0.11   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx    0.77   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx    0.77   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.33 0.65  0.00  0.00 0.31  0.31  0.35 0.00  0.35  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           9.9  4.7   0.0   0.0  9.1   3.9  10.5  0.0   6.4   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Q2:           1.8  0.5   0.0   0.0  1.8   0.7   1.8  0.0   1.0   0.0  0.0   0.0
HCM2KQueue:  11.8  5.2   0.0   0.0 10.9   4.6  12.3  0.0   7.4   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.19  1.20  1.20 1.18  1.19  1.17 1.20  1.18  1.20 1.20  1.20
70th%HCM2kQ: 13.8  6.2   0.0   0.0 12.8   5.5  14.4  0.0   8.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.50 1.55  1.60  1.60 1.51  1.56  1.50 1.60  1.53  1.60 1.60  1.60
85th%HCM2kQ: 17.7  8.1   0.0   0.0 16.4   7.2  18.4  0.0  11.4   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.62 1.71  1.80  1.80 1.63  1.72  1.62 1.80  1.68  1.80 1.80  1.80
90th%HCM2kQ: 19.1  8.9   0.0   0.0 17.8   7.9  19.9  0.0  12.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.81 1.95  2.10  2.10 1.83  1.96  1.80 2.10  1.90  2.10 2.10  2.10
95th%HCM2kQ: 21.4 10.2   0.0   0.0 19.9   9.0  22.2  0.0  14.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.10 2.37  2.70  2.70 2.13  2.40  2.09 2.70  2.26  2.70 2.70  2.70
98th%HCM2kQ: 24.8 12.4   0.0   0.0 23.2  11.0  25.7  0.0  16.9   0.0  0.0   0.0
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap. (X):        0.658
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):        24.6
Optimal Cycle:        54               Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  0   0  0  2  1  0   0  0  0  0  0   1  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     486  721     0     0  573   258     0    0     0   443  173   356
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  486  721     0     0  573   258     0    0     0   443  173   356
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   486  721     0     0  573   258     0    0     0   443  173   356
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  486  721     0     0  573   258     0    0     0   443  173   356
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   486  721     0     0  573   258     0    0     0   443  173   356
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.87  0.87  1.00 1.00  1.00  0.85 0.85  0.85
Lanes:       1.00 2.00  0.00  0.00 2.07  0.93  0.00 0.00  0.00  1.44 0.56  1.00
Final Sat.:  1805 3610     0     0 3412  1536     0    0     0  2318  905  1612
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.27 0.20  0.00  0.00 0.17  0.17  0.00 0.00  0.00  0.19 0.19  0.22
Crit Moves:  ****                  ****                                     ****
Green/Cycle: 0.41 0.66  0.00  0.00 0.26  0.26  0.00 0.00  0.00  0.34 0.34  0.34
Volume/Cap:  0.66 0.30  0.00  0.00 0.66  0.66  0.00 0.00  0.00  0.57 0.57  0.66
Delay/Veh:   26.1  7.1   0.0   0.0 34.6  34.6   0.0  0.0   0.0  27.7 27.7  29.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  26.1  7.1   0.0   0.0 34.6  34.6   0.0  0.0   0.0  27.7 27.7  29.4
HCM2kAvg:      13    5     0     0    9     9     0    0     0     9    9    11
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     1    2     0     0    3     3     0    0     0     3    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 0.95  0.95  xxxx xxxx xxxxx  0.95 0.95  0.95
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 0.95  0.95
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 0.95  0.95  1.00 1.00  1.00  0.89 0.89  0.89
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.95 0.95  0.95
Fnl Sat Adj: 0.95 0.95  1.00  1.00 0.87  0.87  1.00 1.00  1.00  0.85 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.41 0.66  0.00  0.00 0.26  0.26  0.00 0.00  0.00  0.34 0.34  0.34
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          11.5  4.2   0.0   0.0  6.9   6.9   0.0  0.0   0.0   7.4  7.4   8.9
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           1.8  0.4   0.0   0.0  1.8   1.8   0.0  0.0   0.0   1.3  1.3   1.8
HCM2KQueue:  13.3  4.6   0.0   0.0  8.6   8.6   0.0  0.0   0.0   8.7  8.7  10.7
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.19  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.18 1.18  1.18
70th%HCM2kQ: 15.6  5.5   0.0   0.0 10.2  10.2   0.0  0.0   0.0  10.3 10.3  12.6
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.49 1.56  1.60  1.60 1.52  1.52  1.60 1.60  1.60  1.52 1.52  1.51
85th%HCM2kQ: 19.9  7.2   0.0   0.0 13.2  13.2   0.0  0.0   0.0  13.3 13.3  16.2
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.61 1.72  1.80  1.80 1.66  1.66  1.80 1.80  1.80  1.66 1.66  1.63
90th%HCM2kQ: 21.4  7.9   0.0   0.0 14.3  14.3   0.0  0.0   0.0  14.4 14.4  17.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.79 1.96  2.10  2.10 1.87  1.87  2.10 2.10  2.10  1.87 1.87  1.83
95th%HCM2kQ: 23.8  9.1   0.0   0.0 16.2  16.2   0.0  0.0   0.0  16.3 16.3  19.6
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.06 2.40  2.70  2.70 2.21  2.21  2.70 2.70  2.70  2.21 2.21  2.14
98th%HCM2kQ: 27.4 11.1   0.0   0.0 19.1  19.1   0.0  0.0   0.0  19.3 19.3  22.9
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               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap. (X):        0.609
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):      21.9
Optimal Cycle:        48              Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Protected        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  905   770   337  670     0   296  538   271     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  905   770   337  670     0   296  538   271     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  905   770   337  670     0   296  538   271     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  905   770   337  670     0   296  538   271     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  905   770   337  670     0   296  538   271     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.75  0.92 0.95  1.00  0.88 0.88  0.88  1.00 1.00  1.00
Lanes:       0.00 2.00  2.00  2.00 2.00  0.00  1.00 1.33  0.67  0.00 0.00  0.00
Final Sat.:     0 3610  2842  3502 3610     0  1674 2226  1121     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.25  0.27  0.10 0.19  0.00  0.18 0.24  0.24  0.00 0.00  0.00
Crit Moves:             ****  ****                   ****
Green/Cycle: 0.00 0.45  0.45  0.16 0.60  0.00  0.40 0.40  0.40  0.00 0.00  0.00
Volume/Cap:  0.00 0.56  0.61  0.61 0.31  0.00  0.45 0.61  0.61  0.00 0.00  0.00
Delay/Veh:    0.0 21.0  22.0  41.2  9.8   0.0  22.2 24.6  24.6   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 21.0  22.0  41.2  9.8   0.0  22.2 24.6  24.6   0.0  0.0   0.0
HCM2kAvg:       0   11    10     6    5     0     7   11    11     0    0     0
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
Lane Group:  xxxx   T     R     L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    2     2     2    2     0     3    3     3     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx  0.85  xxxx xxxx xxxxx  0.96 0.96  0.96  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.96 0.96  0.96  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  0.85  0.95 1.00  1.00  0.93 0.93  0.93  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  0.88  0.97 0.95  1.00  0.95 0.95  0.95  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.95  0.75  0.92 0.95  1.00  0.88 0.88  0.88  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
********************************************************************************
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-------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
-------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.45  0.45  0.16 0.60  0.00  0.40 0.40  0.40  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  9.3   8.1   4.6  4.5   0.0   6.3  9.3   9.3   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  1.3   1.5   1.4  0.4   0.0   0.8  1.5   1.5   0.0  0.0   0.0
HCM2KQueue:   0.0 10.6   9.6   6.0  5.0   0.0   7.0 10.8  10.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.19  1.20  1.18 1.18  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 12.4  11.3   7.1  5.9   0.0   8.3 12.7  12.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.52  1.55 1.55  1.60  1.54 1.51  1.51  1.60 1.60  1.60
85th%HCM2kQ:  0.0 16.0  14.6   9.3  7.7   0.0  10.8 16.3  16.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.64  1.65  1.70 1.71  1.80  1.68 1.63  1.63  1.80 1.80  1.80
90th%HCM2kQ:  0.0 17.3  15.9  10.2  8.5   0.0  11.8 17.6  17.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.83  1.85  1.93 1.96  2.10  1.91 1.83  1.83  2.10 2.10  2.10
95th%HCM2kQ:  0.0 19.4  17.8  11.6  9.7   0.0  13.4 19.7  19.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.14  2.18  2.33 2.38  2.70  2.28 2.14  2.14  2.70 2.70  2.70
98th%HCM2kQ:  0.0 22.6  21.0  14.0 11.9   0.0  16.1 23.0  23.0   0.0  0.0   0.0
```

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-------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
*******************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.633
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        25.5
Optimal Cycle:       62                Level Of Service:                  C
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     636   19   234    17   28    27    28 1651   303   587  800    13
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  636   19   234    17   28    27    28 1651   303   587  800    13
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   636   19   234    17   28    27    28 1651   303   587  800    13
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  636   19   234    17   28    27    28 1651   303   587  800    13
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   636   19   234    17   28    27    28 1651   303   587  800    13
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.89  0.89  0.92 0.91  0.91
Lanes:       1.94 0.06  1.00  0.24 0.39  0.37  1.00 4.00  1.00  2.00 2.95  0.05
Final Sat.:  3520  105  1615   421  693   668  1805 6757  1689  3502 5094    83
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.18 0.18  0.14  0.04 0.04  0.04  0.02 0.24  0.18  0.17 0.16  0.16
Crit Moves:       ****        ****                  ****        ****
Green/Cycle: 0.29 0.29  0.29  0.06 0.06  0.06  0.06 0.39  0.39  0.26 0.59  0.59
Volume/Cap:  0.63 0.63  0.51  0.63 0.63  0.63  0.27 0.63  0.46  0.63 0.27  0.27
Delay/Veh:   32.5 32.5  30.8  56.7 56.7  56.7  46.4 25.4  23.1  33.9  9.9   9.9
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  32.5 32.5  30.8  56.7 56.7  56.7  46.4 25.4  23.1  33.9  9.9   9.9
HCM2kAvg:      10   10     6     3    3     3     1   11     7     9    4     4
*******************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
Lane Group:   LT   LT     R    LTR  LTR   LTR    L   RT     RT    L   RT     RT
#LnsInGrps:     2    2     1     1    1     1     1    5     5     2    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     4    4  xxxx     4    4     4     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  0.95 0.95  0.95  xxxx 0.98  0.98  xxxx 1.00  1.00
LT Adj:      0.95 0.95 xxxxx  0.99 0.99  0.99  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.98  0.98  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  0.97 0.91  0.91
Fnl Sat Adj: 0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.89  0.89  0.92 0.91  0.91
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.29 0.29  0.29  0.06 0.06  0.06  0.06 0.39  0.39  0.26 0.59  0.59
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           8.3  8.3   5.4   2.0  2.0   2.0   0.8  9.3   6.3   7.6  3.6   3.6
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q2:           1.6  1.6   1.0   1.4  1.4   1.4   0.3  1.6   0.9   1.6  0.4   0.4
HCM2KQueue:   9.9  9.9   6.4   3.3  3.3   3.3   1.1 11.0   7.1   9.2  4.0   4.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.19  1.19 1.19  1.19  1.20 1.18  1.18  1.18 1.19  1.19
70th%HCM2kQ: 11.7 11.7   7.6   4.0  4.0   4.0   1.4 12.9   8.5  10.8  4.8   4.8
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.52  1.54  1.57 1.57  1.57  1.59 1.51  1.54  1.52 1.56  1.56
85th%HCM2kQ: 15.1 15.1   9.9   5.2  5.2   5.2   1.8 16.5  11.0  14.0  6.3   6.3
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.64 1.64  1.69  1.74 1.74  1.74  1.78 1.63  1.68  1.65 1.73  1.73
90th%HCM2kQ: 16.3 16.3  10.9   5.8  5.8   5.8   2.0 17.9  12.0  15.2  6.9   6.9
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.85 1.85  1.92  2.00 2.00  2.00  2.06 1.83  1.90  1.86 1.98  1.98
95th%HCM2kQ: 18.3 18.3  12.3   6.7  6.7   6.7   2.3 20.0  13.6  17.1  7.9   7.9
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.17 2.17  2.31  2.47 2.47  2.47  2.62 2.13  2.28  2.19 2.44  2.44
98th%HCM2kQ: 21.5 21.5  14.8   8.3  8.3   8.3   3.0 23.3  16.3  20.2  9.7   9.7
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.586
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       18.7
Optimal Cycle:       45               Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0   0  0  2  1  0   0  0  0  0  1   1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3 1159     0     0 1382     7     0    0    12   461   11   995
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3 1159     0     0 1382     7     0    0    12   461   11   995
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     3 1159     0     0 1382     7     0    0    12   461   11   995
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    3 1159     0     0 1382     7     0    0    12   461   11   995
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     3 1159     0     0 1382     7     0    0    12   461   11   995
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.10 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
Lanes:       1.00 3.00  0.00  0.00 2.98  0.02  0.00 0.00  1.00  1.00 0.02  1.98
Final Sat.:   184 5187     0     0 5156    26     0    0  1644  1805   35  3202
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.22  0.00  0.00 0.27  0.27  0.00 0.00  0.01  0.26 0.31  0.31
Crit Moves:                        ****                     ****       ****
Green/Cycle: 0.46 0.46  0.00  0.00 0.46  0.46  0.00 0.00  0.01  0.53 0.53  0.53
Volume/Cap:  0.04 0.49  0.00  0.00 0.59  0.59  0.00 0.00  0.59  0.48 0.59  0.59
Delay/Veh:   15.1 19.1   0.0   0.0 20.5  20.5   0.0  0.0  86.2  15.2 16.5  16.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  15.1 19.1   0.0   0.0 20.5  20.5   0.0  0.0  86.2  15.2 16.5  16.5
HCM2kAvg:       1    8     0     0   11    11     0    0     1     9   11    11
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx    R     L   RT     RT
#LnsInGrps:     1    3     0     0    3     3     0    0     1     1    2     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     2 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 1.00  1.00  xxxx xxxx  0.87  xxxx 0.85  0.85
LT Adj:      0.10 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.10 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.87  0.95 0.85  0.85
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.91  0.91  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.10 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            41.74   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         45.74   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:              45.74   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       3   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   1   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                  3   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     1.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                       0.08   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                 1389   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:         14.13   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       0.54   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:          21.38   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       24.36   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                 0.01   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.00   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    5.48   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.09   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.10   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.10   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.46 0.46  0.00  0.00 0.46  0.46  0.00 0.00  0.01  0.53 0.53  0.53
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.5  7.5   0.0   0.0  9.5   9.5   0.0  0.0   0.3   8.5  9.5   9.5
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
Q2:           0.0  0.9   0.0   0.0  1.4   1.4   0.0  0.0   0.8   0.9  1.4   1.4
HCM2KQueue:   0.5  8.4   0.0   0.0 10.9  10.9   0.0  0.0   1.1   9.4 10.9  10.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.18 1.18  1.18
70th%HCM2kQ:  0.6 10.0   0.0   0.0 12.8  12.8   0.0  0.0   1.4  11.1 12.8  12.8
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.59 1.53  1.60  1.60 1.51  1.51  1.60 1.60  1.59  1.52 1.51  1.51
85th%HCM2kQ:  0.8 12.9   0.0   0.0 16.5  16.5   0.0  0.0   1.8  14.3 16.4  16.4
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.79 1.66  1.80  1.80 1.63  1.63  1.80 1.80  1.78  1.65 1.63  1.63
90th%HCM2kQ:  0.9 14.0   0.0   0.0 17.8  17.8   0.0  0.0   2.0  15.5 17.8  17.8
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.08 1.88  2.10  2.10 1.83  1.83  2.10 2.10  2.06  1.86 1.83  1.83
95th%HCM2kQ:  1.1 15.8   0.0   0.0 19.9  19.9   0.0  0.0   2.3  17.5 19.9  19.9
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.66 2.22  2.70  2.70 2.13  2.13  2.70 2.70  2.62  2.18 2.13  2.13
98th%HCM2kQ:  1.4 18.8   0.0   0.0 23.3  23.3   0.0  0.0   3.0  20.6 23.2  23.2
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.482
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       13.4
Optimal Cycle:       36               Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1031   473    15 1075     0   477    7   279     0    0     9
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1031   473    15 1075     0   477    7   279     0    0     9
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1031   473    15 1075     0   477    7   279     0    0     9
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1031   473    15 1075     0   477    7   279     0    0     9
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0 1031   473    15 1075     0   477    7   279     0    0     9
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.13 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Lanes:       0.00 2.06  0.94  1.00 2.00  0.00  1.97 0.03  1.00  0.00 0.00  1.00
Final Sat.:     0 3389  1555   249 3610     0  3569   52  1615     0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.30  0.30  0.06 0.30  0.00  0.13 0.13  0.17  0.00 0.00  0.01
Crit Moves:       ****                                    ****              ****
Green/Cycle: 0.00 0.63  0.63  0.63 0.63  0.00  0.36 0.36  0.36  0.00 0.00  0.01
Volume/Cap:  0.00 0.48  0.48  0.10 0.47  0.00  0.37 0.37  0.48  0.00 0.00  0.48
Delay/Veh:    0.0  9.9   9.9   7.5  9.9   0.0  24.0 24.0  25.5   0.0  0.0  67.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  9.9   9.9   7.5  9.9   0.0  24.0 24.0  25.5   0.0  0.0  67.5
HCM2kAvg:       0    8     8     1    9     0     6    6     7     0    0     1
********************************************************************************
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
Lane Group:  xxxx  RT     RT    L    T   xxxx    LT   LT     R   xxxx xxxx    R
#LnsInGrps:     0    3     3     1    2     0     2    2     1     0    0     1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     2 xxxx  xxxx     4    4  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
RT Adj:      xxxx 0.95  0.95  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.87
LT Adj:      xxxx xxxx xxxxx  0.13 xxxx xxxxx  0.95 0.95 xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.95  0.95  0.13 1.00  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.13 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:                                        North    South    East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    59.06   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    63.06   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx    63.06   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        3   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        1   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx       15   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     1.00   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx     0.42   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx     1504   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx    14.66   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     0.37   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx    15.32   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    47.74   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     1.00   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     5.79   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.06   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.13   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.13   xxxxxx   xxxxxx
********************************************************************************
```

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--------------------------------------------------------------------------------
               CUMULATIVE (2014) PLUS TIER I PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.63  0.63  0.63 0.63  0.00  0.36 0.36  0.36  0.00 0.00  0.01
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  7.4   7.4   1.3  7.9   0.0   5.2  5.2   6.0   0.0  0.0   0.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Q2:           0.0  0.9   0.9   0.1  0.9   0.0   0.6  0.6   0.9   0.0  0.0   0.6
HCM2KQueue:   0.0  8.3   8.3   1.4  8.7   0.0   5.8  5.8   6.9   0.0  0.0   0.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.20 1.18  1.20  1.19 1.19  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0  9.8   9.8   1.6 10.3   0.0   6.9  6.9   8.2   0.0  0.0   1.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.53  1.53  1.59 1.52  1.60  1.55 1.55  1.54  1.60 1.60  1.59
85th%HCM2kQ:  0.0 12.7  12.7   2.2 13.3   0.0   9.0  9.0  10.7   0.0  0.0   1.4
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.66  1.66  1.77 1.66  1.80  1.70 1.70  1.68  1.80 1.80  1.78
90th%HCM2kQ:  0.0 13.8  13.8   2.4 14.5   0.0   9.9  9.9  11.7   0.0  0.0   1.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.88  1.88  2.06 1.87  2.10  1.93 1.93  1.91  2.10 2.10  2.07
95th%HCM2kQ:  0.0 15.6  15.6   2.8 16.3   0.0  11.2 11.2  13.2   0.0  0.0   1.8
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.23  2.23  2.60 2.21  2.70  2.34 2.34  2.29  2.70 2.70  2.64
98th%HCM2kQ:  0.0 18.5  18.5   3.5 19.3   0.0  13.6 13.6  15.8   0.0  0.0   2.3
```

TRAFFIX WORKSHEETS

CUMULATIVE (2020) BASE CONDITIONS

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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.847
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        24.8
Optimal Cycle:      122                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted       Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   566    0   753     0  651   479   386 1730     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   566    0   753     0  651   479   386 1730     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   566    0   753     0  651   479   386 1730     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   566    0   753     0  651   479   386 1730     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0    0     0   566    0   753     0  651   479   386 1730     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.85  0.85  0.95 0.91  1.00
Lanes:       0.00 0.00  0.00  1.43 0.00  1.57  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:     0    0     0  2030    0  2232     0 3237  1618  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.28 0.00  0.34  0.00 0.20  0.30  0.21 0.33  0.00
Crit Moves:                              ****             ****  ****
Green/Cycle: 0.00 0.00  0.00  0.40 0.00  0.40  0.00 0.35  0.35  0.25 0.60  0.00
Volume/Cap:  0.00 0.00  0.00  0.70 0.00  0.85  0.00 0.57  0.85  0.85 0.55  0.00
Delay/Veh:    0.0  0.0   0.0  26.4  0.0  32.0   0.0 26.9  35.2  49.1 12.1   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  26.4  0.0  32.0   0.0 26.9  35.2  49.1 12.1   0.0
HCM2kAvg:      0    0     0    13    0    19     0    9    16    15   11     0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
Lane Group:  xxxx xxxx  xxxx   LTR  LTR   LTR  xxxx  RT     RT    L    T  xxxx
#LnsInGrps:     0    0     0     2    1     2     0    3     3     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     5 xxxx     5  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Area Adj:    xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      xxxx xxxx xxxxx  0.91 xxxx  0.91  xxxx 0.94  0.94  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.82 xxxx  0.82  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.94  0.94  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  1.00 0.91  1.00
Fnl Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.85  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
*******************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
*******************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    35.74   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    39.74   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx     0.00   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        0   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        2   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx      566   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     0.43   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx     1.00   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx    15.72   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx        0   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.06   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     1.00   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    39.68   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx     0.00   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     0.95   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     1.40   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx     1.00   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.10   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.73   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.82   xxxxxx   xxxxxx
*******************************************************************************
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.00  0.00  0.40 0.00  0.40  0.00 0.35  0.35  0.25 0.60  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  0.0   0.0  11.2  0.0  14.8   0.0  7.4  12.3  10.7  9.6   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           0.0  0.0   0.0   2.2  0.0   4.2   0.0  1.3   4.0   3.9  1.2   0.0
HCM2KQueue:   0.0  0.0   0.0  13.4  0.0  19.0   0.0  8.7  16.3  14.6 10.8   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.20  1.20  1.17 1.20  1.16  1.20 1.18  1.17  1.17 1.18  1.20
70th%HCM2kQ:  0.0  0.0   0.0  15.7  0.0  22.1   0.0 10.2  19.0  17.1 12.7   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.60  1.60  1.49 1.60  1.46  1.60 1.52  1.47  1.48 1.51  1.60
85th%HCM2kQ:  0.0  0.0   0.0  20.0  0.0  27.8   0.0 13.2  24.0  21.7 16.3   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.80  1.80  1.60 1.80  1.55  1.80 1.66  1.58  1.59 1.63  1.80
90th%HCM2kQ:  0.0  0.0   0.0  21.5  0.0  29.6   0.0 14.4  25.7  23.3 17.6   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 2.10  2.10  1.78 2.10  1.71  2.10 1.87  1.74  1.77 1.83  2.10
95th%HCM2kQ:  0.0  0.0   0.0  23.9  0.0  32.5   0.0 16.2  28.4  25.8 19.7   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.70  2.70  2.06 2.70  1.93  2.70 2.21  1.99  2.03 2.14  2.70
98th%HCM2kQ:  0.0  0.0   0.0  27.6  0.0  36.8   0.0 19.2  32.4  29.6 23.0   0.0
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--------------------------------------------------------------------------------
                      CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap. (X):        0.875
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       28.6
Optimal Cycle:      149              Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     862    0   290     0    0     0     0  983   230   151 1262     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  862    0   290     0    0     0     0  983   230   151 1262     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   862    0   290     0    0     0     0  983   230   151 1262     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  862    0   290     0    0     0     0  983   230   151 1262     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   862    0   290     0    0     0     0  983   230   151 1262     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.72 1.00  0.74  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
Lanes:       1.60 0.00  0.40  0.00 0.00  0.00  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:  2206    0   558     0    0     0     0 3610  1615  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.39 0.00  0.52  0.00 0.00  0.00  0.00 0.27  0.14  0.08 0.24  0.00
Crit Moves:             ****                        ****        ****
Green/Cycle: 0.59 0.00  0.59  0.00 0.00  0.00  0.00 0.31  0.31  0.10 0.41  0.00
Volume/Cap:  0.66 0.00  0.88  0.00 0.00  0.00  0.00 0.88  0.46  0.88 0.60  0.00
Delay/Veh:   14.5  0.0  24.1   0.0  0.0   0.0   0.0 40.5  28.3  80.4 23.7   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  14.5  0.0  24.1   0.0  0.0   0.0   0.0 40.5  28.3  80.4 23.7   0.0
HCM2kAvg:      15    0    28     0    0     0     0   18     6     8   11     0
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
Lane Group:   LTR  LTR   LTR  xxxx xxxx  xxxx  xxxx   T     R     L    T   xxxx
#LnsInGrps:     2    1     1     0    0     0     0    2     1     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     5 xxxx     5  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Area Adj:    1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      0.96 xxxx  0.96  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.75 xxxx  0.77  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.72 1.00  0.74  1.00 1.00  1.00  1.00 1.00  0.85  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.95  1.00  1.00 0.91  1.00
Fnl Sat Adj: 0.72 1.00  0.74  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            55.34   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         59.34   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:               0.00   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       0   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   2   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                862   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     0.75   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:      1.00   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                      23.94   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                    0   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:          0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.01   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       1.00   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:           0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       59.33   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:      0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:     0.00   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.70   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    1.40   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:        1.00   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.09   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.60   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.75   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
*******************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.59 0.00  0.59  0.00 0.00  0.00  0.00 0.31  0.31  0.10 0.41  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          13.2  0.0  22.3   0.0  0.0   0.0   0.0 12.9   5.1   4.4  9.2   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           1.9  0.0   5.3   0.0  0.0   0.0   0.0  4.6   0.8   3.3  1.4   0.0
HCM2KQueue:  15.1  0.0  27.7   0.0  0.0   0.0   0.0 17.5   6.0   7.6 10.6   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.20  1.15  1.20 1.20  1.20  1.20 1.16  1.19  1.18 1.18  1.20
70th%HCM2kQ: 17.6  0.0  31.8   0.0  0.0   0.0   0.0 20.4   7.1   9.0 12.5   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.48 1.60  1.42  1.60 1.60  1.60  1.60 1.47  1.55  1.53 1.51  1.60
85th%HCM2kQ: 22.4  0.0  39.3   0.0  0.0   0.0   0.0 25.7   9.2  11.7 16.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.59 1.80  1.50  1.80 1.80  1.80  1.80 1.57  1.70  1.67 1.64  1.80
90th%HCM2kQ: 24.0  0.0  41.5   0.0  0.0   0.0   0.0 27.5  10.1  12.7 17.3   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.76 2.10  1.63  2.10 2.10  2.10  2.10 1.73  1.93  1.89 1.83  2.10
95th%HCM2kQ: 26.6  0.0  45.1   0.0  0.0   0.0   0.0 30.3  11.5  14.4 19.4   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.01 2.70  1.82  2.70 2.70  2.70  2.70 1.96  2.33  2.26 2.14  2.70
98th%HCM2kQ: 30.4  0.0  50.3   0.0  0.0   0.0   0.0 34.4  13.9  17.2 22.7   0.0
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.780
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):         18.4
Optimal Cycle:       85                 Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     468 1184     0     0  940   747     0    0     0   149    1   405
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  468 1184     0     0  940   747     0    0     0   149    1   405
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   468 1184     0     0  940   747     0    0     0   149    1   405
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  468 1184     0     0  940   747     0    0     0   149    1   405
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   468 1184     0     0  940   747     0    0     0   149    1   405
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.79 0.79  0.79
Lanes:       2.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.26 0.01  1.73
Final Sat.:  3502 3610     0     0 3610  1615     0    0     0  1913    5  2607
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.33  0.00  0.00 0.26  0.46  0.00 0.00  0.00  0.08 0.18  0.16
Crit Moves:  ****                        ****                        ****
Green/Cycle: 0.17 0.76  0.00  0.00 0.59  0.59  0.00 0.00  0.00  0.24 0.24  0.24
Volume/Cap:  0.78 0.43  0.00  0.00 0.44  0.78  0.00 0.00  0.00  0.33 0.78  0.66
Delay/Veh:   46.2  4.3   0.0   0.0 11.4  19.6   0.0  0.0   0.0  31.8 41.3  36.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  46.2  4.3   0.0   0.0 11.4  19.6   0.0  0.0   0.0  31.8 41.3  36.5
HCM2kAvg:       9    7     0     0    8    19     0    0     0     4   11     8
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
Lane Group:     L    T   xxxx  xxxx   T     R   xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:      2    2     0     0    2     1     0    0     0     2    1     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx  0.89 0.89  0.89
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.89 0.89  0.89
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  1.00 1.00  1.00  0.79 0.79  0.79
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 0.97 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.79 0.79  0.79
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.17 0.76  0.00  0.00 0.59  0.59  0.00 0.00  0.00  0.24 0.24  0.24
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           6.5  5.8   0.0   0.0  7.2  15.7   0.0  0.0   0.0   3.0  8.1   6.6
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           2.7  0.7   0.0   0.0  0.8   3.2   0.0  0.0   0.0   0.5  2.8   1.7
HCM2KQueue:   9.3  6.5   0.0   0.0  8.0  18.9   0.0  0.0   0.0   3.5 10.9   8.4
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.20  1.20 1.18  1.16  1.20 1.20  1.20  1.19 1.18  1.18
70th%HCM2kQ: 10.9  7.7   0.0   0.0  9.4  22.0   0.0  0.0   0.0   4.2 12.9   9.9
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.54  1.60  1.60 1.53  1.46  1.60 1.60  1.60  1.57 1.51  1.53
85th%HCM2kQ: 14.1 10.1   0.0   0.0 12.2  27.6   0.0  0.0   0.0   5.5 16.5  12.8
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.65 1.69  1.80  1.80 1.67  1.56  1.80 1.80  1.80  1.74 1.63  1.66
90th%HCM2kQ: 15.3 11.0   0.0   0.0 13.3  29.4   0.0  0.0   0.0   6.1 17.9  13.9
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.86 1.92  2.10  2.10 1.89  1.71  2.10 2.10  2.10  1.99 1.83  1.88
95th%HCM2kQ: 17.2 12.5   0.0   0.0 15.0  32.3   0.0  0.0   0.0   7.0 20.0  15.7
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.19 2.31  2.70  2.70 2.24  1.93  2.70 2.70  2.70  2.46 2.13  2.23
98th%HCM2kQ: 20.3 15.0   0.0   0.0 17.9  36.5   0.0  0.0   0.0   8.7 23.3  18.6
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.778
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        26.5
Optimal Cycle:       84                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted       Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:      0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  842   326   528  568     0   801   20   653     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  842   326   528  568     0   801   20   653     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  842   326   528  568     0   801   20   653     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  842   326   528  568     0   801   20   653     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  842   326   528  568     0   801   20   653     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.87 0.87  0.87  1.00 1.00  1.00
Lanes:       0.00 2.88  1.12  2.00 2.00  0.00  1.53 0.03  1.44  0.00 0.00  0.00
Final Sat.:     0 4776  1849  3502 3610     0  2546   44  2382     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.18  0.18  0.15 0.16  0.00  0.31 0.45  0.27  0.00 0.00  0.00
Crit Moves:       ****        ****                  ****
Green/Cycle: 0.00 0.23  0.23  0.19 0.42  0.00  0.58 0.58  0.58  0.00 0.00  0.00
Volume/Cap:  0.00 0.78  0.78  0.78 0.37  0.00  0.54 0.78  0.47  0.00 0.00  0.00
Delay/Veh:    0.0 38.9  38.9  43.9 20.1   0.0  13.1 18.2  12.3   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 38.9  38.9  43.9 20.1   0.0  13.1 18.2  12.3   0.0  0.0   0.0
HCM2kAvg:      0   10    10    10    6     0    11   20     9     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
Lane Group:  xxxx  RT     RT    L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    4     4     2    2     0     2    1     2     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx 0.96  0.96  xxxx xxxx xxxxx  0.93 0.93  0.93  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.93 0.93  0.93  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.96  0.96  0.95 1.00  1.00  0.87 0.87  0.87  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  0.97 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.92 0.95  1.00  0.87 0.87  0.87  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.23  0.23  0.19 0.42  0.00  0.58 0.58  0.58  0.00 0.00  0.00
ArrivalType:         3                 3                 3                 3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  7.6   7.6   7.3  5.4   0.0   9.5 17.0   7.8   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.8   2.8   2.7  0.6   0.0   1.2  3.2   0.9   0.0  0.0   0.0
HCM2KQueue:   0.0 10.4  10.4  10.1  6.0   0.0  10.7 20.2   8.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.18 1.19  1.20  1.18 1.16  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 12.2  12.2  11.9  7.1   0.0  12.6 23.4  10.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.51  1.51 1.55  1.60  1.51 1.45  1.52  1.60 1.60  1.60
85th%HCM2kQ:  0.0 15.7  15.7  15.2  9.3   0.0  16.1 29.3  13.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.64  1.64  1.64 1.70  1.80  1.63 1.55  1.66  1.80 1.80  1.80
90th%HCM2kQ:  0.0 17.0  17.0  16.5 10.2   0.0  17.5 31.2  14.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.84  1.84  1.84 1.93  2.10  1.83 1.70  1.87  2.10 2.10  2.10
95th%HCM2kQ:  0.0 19.1  19.1  18.6 11.6   0.0  19.6 34.2  16.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.15  2.15  2.16 2.33  2.70  2.14 1.91  2.21  2.70 2.70  2.70
98th%HCM2kQ:  0.0 22.3  22.3  21.8 14.0   0.0  22.9 38.5  19.3   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.859
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       31.5
Optimal Cycle:      132               Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     388  898     0     0  756   490   445    0   702     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  388  898     0     0  756   490   445    0   702     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   388  898     0     0  756   490   445    0   702     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  388  898     0     0  756   490   445    0   702     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   388  898     0     0  756   490   445    0   702     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
Lanes:       1.00 3.00  0.00  0.00 2.00  2.00  1.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:  1805 5187     0     0 3610  2842  1463    0  1615     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.17  0.00  0.00 0.21  0.17  0.30 0.00  0.43  0.00 0.00  0.00
Crit Moves:  ****                  ****                   ****
Green/Cycle: 0.25 0.49  0.00  0.00 0.24  0.24  0.51 0.00  0.51  0.00 0.00  0.00
Volume/Cap:  0.86 0.35  0.00  0.00 0.86  0.71  0.60 0.00  0.86  0.00 0.00  0.00
Delay/Veh:   51.0 15.6   0.0   0.0 44.7  37.9  18.9  0.0  30.7   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  51.0 15.6   0.0   0.0 44.7  37.9  18.9  0.0  30.7   0.0  0.0   0.0
HCM2kAvg:     15    6     0     0   14     8    13    0    22     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
Lane Group:    L    T   xxxx  xxxx   T     R     L  xxxx    R   xxxx xxxx  xxxx
#LnsInGrps:     1    3     0     0    2     2     1    0     1     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:      Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx     2 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  0.77 xxxx xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  0.77 1.00  0.85  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.95  0.88  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:                                   North    South    East     West
Cycle Length, C:                           xxxxxx   xxxxxx     100   xxxxxx
Actual Green Time Per Lane Group, G:       xxxxxx   xxxxxx   46.60   xxxxxx
Effective Green Time Per Lane Group, g:    xxxxxx   xxxxxx   50.60   xxxxxx
Opposing Effective Green Time, go:         xxxxxx   xxxxxx    0.00   xxxxxx
Number Of Opposing Lanes, No:              xxxxxx   xxxxxx       0   xxxxxx
Number Of Lanes In Lane Group, N:          xxxxxx   xxxxxx       1   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:         xxxxxx   xxxxxx     445   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx    1.00   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx    1.00   xxxxxx
Left Turns Per Cycle, LTC:                 xxxxxx   xxxxxx   12.36   xxxxxx
Adjusted Opposing Flow Rate, Vo:           xxxxxx   xxxxxx       0   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:    xxxxxx   xxxxxx    0.00   xxxxxx
Opposing Platoon Ratio, Rpo:               xxxxxx   xxxxxx    1.00   xxxxxx
Lost Time Per Phase, tl:                   xxxxxx   xxxxxx    0.00   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx    0.22   xxxxxx
Opposing Queue Ratio, qro:                 xxxxxx   xxxxxx    1.00   xxxxxx
Eff grn blocked by opposing queue, gq:     xxxxxx   xxxxxx    0.00   xxxxxx
Eff grn while left turns filter thru, gu:  xxxxxx   xxxxxx   50.38   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx    0.00   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx    0.00   xxxxxx
Left-turn Saturation Factor, fs:           xxxxxx   xxxxxx  xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx    1.00   xxxxxx
Through-car Equivalents, el1:              xxxxxx   xxxxxx    1.30   xxxxxx
Single Lane Through-car Equivalents, el2:  xxxxxx   xxxxxx    1.00   xxxxxx
Minimum Left Turn Adjustment Factor, fmin: xxxxxx   xxxxxx    0.08   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx    0.77   xxxxxx
Left Turn Adjustment Factor, flt:          xxxxxx   xxxxxx    0.77   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.25 0.49  0.00  0.00 0.24  0.24  0.51 0.00  0.51  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          10.8  5.1   0.0   0.0 10.0   6.2  11.4  0.0  17.0   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Q2:           4.1  0.5   0.0   0.0  4.0   2.1   1.5  0.0   4.6   0.0  0.0   0.0
HCM2KQueue:  14.9  5.6   0.0   0.0 14.1   8.3  12.9  0.0  21.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.19  1.20  1.20 1.17  1.18  1.17 1.20  1.16  1.20 1.20  1.20
70th%HCM2kQ: 17.5  6.7   0.0   0.0 16.5   9.8  15.1  0.0  25.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.48 1.55  1.60  1.60 1.49  1.53  1.50 1.60  1.45  1.60 1.60  1.60
85th%HCM2kQ: 22.1  8.7   0.0   0.0 20.9  12.7  19.2  0.0  31.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.59 1.70  1.80  1.80 1.60  1.66  1.61 1.80  1.54  1.80 1.80  1.80
90th%HCM2kQ: 23.7  9.6   0.0   0.0 22.5  13.8  20.7  0.0  33.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.76 1.94  2.10  2.10 1.77  1.88  1.79 2.10  1.68  2.10 2.10  2.10
95th%HCM2kQ: 26.3 10.9   0.0   0.0 24.9  15.6  23.1  0.0  36.4   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.02 2.35  2.70  2.70 2.04  2.23  2.07 2.70  1.89  2.70 2.70  2.70
98th%HCM2kQ: 30.1 13.2   0.0   0.0 28.7  18.5  26.6  0.0  40.9   0.0  0.0   0.0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.659
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       24.6
Optimal Cycle:       55               Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     262  492     0     0  872   285     0    0     0   720  357   343
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  262  492     0     0  872   285     0    0     0   720  357   343
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   262  492     0     0  872   285     0    0     0   720  357   343
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  262  492     0     0  872   285     0    0     0   720  357   343
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   262  492     0     0  872   285     0    0     0   720  357   343
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.88  0.88  1.00 1.00  1.00  0.88 0.88  0.88
Lanes:       1.00 2.00  0.00  0.00 2.26  0.74  0.00 0.00  0.00  1.53 0.75  0.72
Final Sat.:  1805 3610     0     0 3765  1230     0    0     0  2552 1265  1216
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.15 0.14  0.00  0.00 0.23  0.23  0.00 0.00  0.00  0.28 0.28  0.28
Crit Moves:  ****                  ****                              ****
Green/Cycle: 0.22 0.57  0.00  0.00 0.35  0.35  0.00 0.00  0.00  0.43 0.43  0.43
Volume/Cap:  0.66 0.24  0.00  0.00 0.66  0.66  0.00 0.00  0.00  0.66 0.66  0.66
Delay/Veh:   39.6 10.7   0.0   0.0 28.3  28.3   0.0  0.0   0.0  23.5 23.5  23.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  39.6 10.7   0.0   0.0 28.3  28.3   0.0  0.0   0.0  23.5 23.5  23.5
HCM2kAvg:       9    4     0     0   11    11     0    0     0    13   13    13
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
Lane Group:     L    T   xxxx  xxxx  RT     RT  xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     1    2     0     0    3     3     0    0     0     3    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:      Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 0.96  0.96  xxxx xxxx xxxxx  0.96 0.96  0.96
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.96 0.96  0.96
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 0.96  0.96  1.00 1.00  1.00  0.93 0.93  0.93
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.95 0.95  0.95
Fnl Sat Adj: 0.95 0.95  1.00  1.00 0.88  0.88  1.00 1.00  1.00  0.88 0.88  0.88
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.22 0.57  0.00  0.00 0.35  0.35  0.00 0.00  0.00  0.43 0.43  0.43
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           7.0  3.4   0.0   0.0  9.0   9.0   0.0  0.0   0.0  10.9 10.9  10.9
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           1.8  0.3   0.0   0.0  1.8   1.8   0.0  0.0   0.0   1.8  1.8   1.8
HCM2KQueue:   8.7  3.7   0.0   0.0 10.8  10.8   0.0  0.0   0.0  12.7 12.7  12.7
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.17 1.17  1.17
70th%HCM2kQ: 10.3  4.4   0.0   0.0 12.8  12.8   0.0  0.0   0.0  14.9 14.9  14.9
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.57  1.60  1.60 1.51  1.51  1.60 1.60  1.60  1.50 1.50  1.50
85th%HCM2kQ: 13.3  5.8   0.0   0.0 16.4  16.4   0.0  0.0   0.0  19.0 19.0  19.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.66 1.73  1.80  1.80 1.63  1.63  1.80 1.80  1.80  1.61 1.61  1.61
90th%HCM2kQ: 14.5  6.4   0.0   0.0 17.7  17.7   0.0  0.0   0.0  20.5 20.5  20.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.87 1.99  2.10  2.10 1.83  1.83  2.10 2.10  2.10  1.80 1.80  1.80
95th%HCM2kQ: 16.3  7.4   0.0   0.0 19.8  19.8   0.0  0.0   0.0  22.8 22.8  22.8
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.21 2.45  2.70  2.70 2.13  2.13  2.70 2.70  2.70  2.08 2.08  2.08
98th%HCM2kQ: 19.3  9.1   0.0   0.0 23.1  23.1   0.0  0.0   0.0  26.4 26.4  26.4
```

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--------------------------------------------------------------------------------
                      CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.624
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        26.0
Optimal Cycle:       73                Level Of Service:                  C
********************************************************************************
Approach:     North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted       Protected        Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:       0  0  2  0  2   2  0  2  0  0   1  1  0  1  0   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0  436   382   523 1065     0   316   89   500     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0  436   382   523 1065     0   316   89   500     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    0  436   382   523 1065     0   316   89   500     0    0     0
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   0  436   382   523 1065     0   316   89   500     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    0  436   382   523 1065     0   316   89   500     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.75  0.92 0.95  1.00  0.80 0.80  0.80  1.00 1.00  1.00
Lanes:       0.00 2.00  2.00  2.00 2.00  0.00  1.56 0.44  1.00  0.00 0.00  0.00
Final Sat.:     0 3610  2842  3502 3610     0  2369  667  1518     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.12  0.13  0.15 0.30  0.00  0.13 0.13  0.33  0.00 0.00  0.00
Crit Moves:                        ****                     ****
Green/Cycle: 0.00 0.16  0.16  0.40 0.56  0.00  0.44 0.44  0.44  0.00 0.00  0.00
Volume/Cap:  0.00 0.75  0.83  0.38 0.53  0.00  0.30 0.30  0.75  0.00 0.00  0.00
Delay/Veh:    0.0 45.1  52.5  21.6 14.1   0.0  18.0 18.0  25.8   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 45.1  52.5  21.6 14.1   0.0  18.0 18.0  25.8   0.0  0.0   0.0
HCM2kAvg:       0    8     8     6   10     0     4    4    15     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
Lane Group:  xxxx   T     R     L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    2     2     2    2     0     3    3     3     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:     < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:      Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx  0.85  xxxx xxxx xxxxx  0.92 0.92  0.92  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.92 0.92  0.92  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  0.85  0.95 1.00  1.00  0.84 0.84  0.84  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  0.88  0.97 0.95  1.00  0.95 0.95  0.95  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.95  0.75  0.92 0.95  1.00  0.80 0.80  0.80  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.16  0.16  0.40 0.56  0.00  0.44 0.44  0.44  0.00 0.00  0.00
ArrivalType:        3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  5.8   5.1   5.4  9.3   0.0   3.9  3.9  12.6   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.3   3.0   0.6  1.1   0.0   0.4  0.4   2.6   0.0  0.0   0.0
HCM2KQueue:   0.0  8.1   8.1   6.0 10.4   0.0   4.4  4.4  15.2   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.18  1.20  1.19 1.19  1.17  1.20 1.20  1.20
70th%HCM2kQ:  0.0  9.6   9.6   7.2 12.2   0.0   5.2  5.2  17.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.53  1.53  1.55 1.51  1.60  1.56 1.56  1.48  1.60 1.60  1.60
85th%HCM2kQ:  0.0 12.4  12.5   9.3 15.7   0.0   6.8  6.8  22.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.67  1.67  1.70 1.64  1.80  1.72 1.72  1.59  1.80 1.80  1.80
90th%HCM2kQ:  0.0 13.5  13.6  10.2 17.0   0.0   7.5  7.5  24.2   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.88  1.88  1.93 1.84  2.10  1.97 1.97  1.76  2.10 2.10  2.10
95th%HCM2kQ:  0.0 15.3  15.3  11.6 19.1   0.0   8.6  8.6  26.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.24  2.23  2.33 2.15  2.70  2.41 2.41  2.01  2.70 2.70  2.70
98th%HCM2kQ:  0.0 18.1  18.2  14.0 22.3   0.0  10.6 10.6  30.6   0.0  0.0   0.0
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--------------------------------------------------------------------------------
                          CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                         Level Of Service Computation Report
                2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.689
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       28.1
Optimal Cycle:       73               Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     663    3   177    13   71    45    48  843   530   926 1151    26
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  663    3   177    13   71    45    48  843   530   926 1151    26
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   663    3   177    13   71    45    48  843   530   926 1151    26
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  663    3   177    13   71    45    48  843   530   926 1151    26
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   663    3   177    13   71    45    48  843   530   926 1151    26
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.86  0.86  0.92 0.91  0.91
Lanes:       1.99 0.01  1.00  0.10 0.55  0.35  1.00 3.07  1.93  2.00 2.93  0.07
Final Sat.:  3605   16  1615   182  992   628  1805 5000  3144  3502 5057   114
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.18 0.18  0.11  0.07 0.07  0.07  0.03 0.17  0.17  0.26 0.23  0.23
Crit Moves:       ****             ****             ****        ****
Green/Cycle: 0.27 0.27  0.27  0.10 0.10  0.10  0.07 0.24  0.24  0.38 0.56  0.56
Volume/Cap:  0.69 0.69  0.41  0.69 0.69  0.69  0.40 0.69  0.69  0.69 0.40  0.40
Delay/Veh:   35.0 35.0  30.8  53.6 53.6  53.6  47.1 35.3  35.3  27.3 12.4  12.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  35.0 35.0  30.8  53.6 53.6  53.6  47.1 35.3  35.3  27.3 12.4  12.4
HCM2kAvg:      11   11     5     5    5     5     2    9     9    13    7     7
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
Lane Group:   LT   LT     R    LTR  LTR    LTR    L   RT     RT    L   RT     RT
#LnsInGrps:     2    2     1     1    1     1     1    5     5     2    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:      Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     4    4  xxxx     4    4     4     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  0.95 0.95  0.95  xxxx 0.94  0.94  xxxx 1.00  1.00
LT Adj:      0.95 0.95 xxxxx  1.00 1.00  1.00  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.94  0.94  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  0.97 0.91  0.91
Fnl Sat Adj: 0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.86  0.86  0.92 0.91  0.91
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.27 0.27  0.27  0.10 0.10  0.10  0.07 0.24  0.24  0.38 0.56  0.56
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           8.7  8.7   4.0   3.5  3.5   3.5   1.3  6.9   6.9  11.3  6.2   6.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q2:           2.0  2.0   0.7   1.8  1.8   1.8   0.6  2.0   2.0   2.1  0.7   0.7
HCM2KQueue:  10.7 10.7   4.7   5.3  5.3   5.3   2.0  8.9   8.9  13.4  6.8   6.8
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.19  1.19 1.19  1.19  1.20 1.18  1.18  1.17 1.18  1.18
70th%HCM2kQ: 12.6 12.6   5.6   6.2  6.2   6.2   2.4 10.5  10.5  15.7  8.1   8.1
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.51 1.51  1.56  1.55 1.55  1.55  1.58 1.52  1.52  1.49 1.54  1.54
85th%HCM2kQ: 16.2 16.2   7.4   8.2  8.2   8.2   3.1 13.5  13.5  20.0 10.5  10.5
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.63 1.63  1.72  1.71 1.71  1.71  1.76 1.66  1.66  1.60 1.68  1.68
90th%HCM2kQ: 17.5 17.5   8.1   9.0  9.0   9.0   3.5 14.7  14.7  21.5 11.5  11.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.83 1.83  1.96  1.95 1.95  1.95  2.04 1.87  1.87  1.79 1.91  1.91
95th%HCM2kQ: 19.6 19.6   9.3  10.2 10.2  10.2   4.0 16.6  16.6  23.9 13.1  13.1
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.14 2.14  2.40  2.37 2.37  2.37  2.56 2.20  2.20  2.06 2.29  2.29
98th%HCM2kQ: 22.9 22.9  11.3  12.4 12.4  12.4   5.1 19.6  19.6  27.5 15.7  15.7
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.487
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        15.8
Optimal Cycle:       36                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       8 1288     0     0 1334    10     0    0     5   208   13   714
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    8 1288     0     0 1334    10     0    0     5   208   13   714
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     8 1288     0     0 1334    10     0    0     5   208   13   714
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    8 1288     0     0 1334    10     0    0     5   208   13   714
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     8 1288     0     0 1334    10     0    0     5   208   13   714
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.13 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
Lanes:       1.00 3.00  0.00  0.00 2.98  0.02  0.00 0.00  1.00  1.00 0.04  1.96
Final Sat.:   243 5187     0     0 5143    39     0    0  1644  1805   58  3183
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.25  0.00  0.00 0.26  0.26  0.00 0.00  0.00  0.12 0.22  0.22
Crit Moves:                        ****                   ****       ****
Green/Cycle: 0.53 0.53  0.00  0.00 0.53  0.53  0.00 0.00  0.01  0.46 0.46  0.46
Volume/Cap:  0.06 0.47  0.00  0.00 0.49  0.49  0.00 0.00  0.49  0.25 0.49  0.49
Delay/Veh:   11.5 14.6   0.0   0.0 14.9  14.9   0.0  0.0  81.6  16.6 19.0  19.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  11.5 14.6   0.0   0.0 14.9  14.9   0.0  0.0  81.6  16.6 19.0  19.0
HCM2kAvg:      1    8     0     0    9     9     0    0     1     4    8     8
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
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                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx    R     L   RT     RT
#LnsInGrps:     1    3     0     0    3     3     0    0     1     1    2     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     2 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 1.00  1.00  xxxx xxxx  0.87  xxxx 0.85  0.85
LT Adj:      0.13 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.13 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.87  0.95 0.85  0.85
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.91  0.91  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.13 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            49.29   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         53.29   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:              53.29   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       3   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   1   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                  8   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     1.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                       0.22   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                 1344   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:         13.68   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       0.47   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:          17.58   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       35.71   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                 0.04   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.00   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    5.23   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.08   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.13   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.13   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.53 0.53  0.00  0.00 0.53  0.53  0.00 0.00  0.01  0.46 0.46  0.46
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.8  7.4   0.0   0.0  7.8   7.8   0.0  0.0   0.1   3.7  7.0   7.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
Q2:           0.1  0.9   0.0   0.0  0.9   0.9   0.0  0.0   0.5   0.3  0.9   0.9
HCM2KQueue:   0.9  8.3   0.0   0.0  8.8   8.8   0.0  0.0   0.7   4.0  7.9   7.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.19 1.18  1.18
70th%HCM2kQ:  1.1  9.8   0.0   0.0 10.4  10.4   0.0  0.0   0.8   4.8  9.4   9.4
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.59 1.53  1.60  1.60 1.52  1.52  1.60 1.60  1.59  1.56 1.53  1.53
85th%HCM2kQ:  1.4 12.6   0.0   0.0 13.4  13.4   0.0  0.0   1.1   6.3 12.2  12.2
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.78 1.66  1.80  1.80 1.66  1.66  1.80 1.80  1.79  1.73 1.67  1.67
90th%HCM2kQ:  1.6 13.8   0.0   0.0 14.6  14.6   0.0  0.0   1.2   7.0 13.3  13.3
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.07 1.88  2.10  2.10 1.87  1.87  2.10 2.10  2.08  1.98 1.89  1.89
95th%HCM2kQ:  1.9 15.5   0.0   0.0 16.4  16.4   0.0  0.0   1.4   8.0 15.0  15.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.63 2.23  2.70  2.70 2.21  2.21  2.70 2.70  2.65  2.43 2.24  2.24
98th%HCM2kQ:  2.4 18.4   0.0   0.0 19.4  19.4   0.0  0.0   1.8   9.8 17.8  17.8
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--------------------------------------------------------------------------------
                      CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.591
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        16.3
Optimal Cycle:       45                 Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  2  1  0   1  0  2  0  0   1  1  0  0  1   0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1096   559   26  548     0  698    2   396    0    0     8
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    0 1096   559   26  548     0  698    2   396    0    0     8
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:     0 1096   559   26  548     0  698    2   396    0    0     8
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    0 1096   559   26  548     0  698    2   396    0    0     8
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:     0 1096   559   26  548     0  698    2   396    0    0     8
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  1.00 0.86  0.86 0.10 0.95  1.00 0.95 0.95  0.85 1.00 1.00  0.87
Lanes:       0.00 2.00  1.00 1.00 2.00  0.00 1.99 0.01  1.00 0.00 0.00  1.00
Final Sat.:     0 3282  1641  182 3610     0 3611   10  1615    0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.33  0.34 0.14 0.15  0.00 0.19 0.19  0.25 0.00 0.00  0.00
Crit Moves:             ****                              ****             ****
Green/Cycle: 0.00 0.58  0.58 0.58 0.58  0.00 0.42 0.42  0.42 0.00 0.00  0.01
Volume/Cap:  0.00 0.58  0.59 0.25 0.26  0.00 0.47 0.47  0.59 0.00 0.00  0.59
Delay/Veh:    0.0 13.8  13.9 11.7 10.6   0.0 21.4 21.4  24.1  0.0  0.0 103.6
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   0.0 13.8  13.9 11.7 10.6   0.0 21.4 21.4  24.1  0.0  0.0 103.6
HCM2kAvg:       0   11    11    4    4     0    8    8    10    0    0     1
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
Lane Group:  xxxx  RT     RT    L    T   xxxx   LT   LT     R   xxxx xxxx    R
#LnsInGrps:     0    3     3     1    2     0     2    2     1     0    0     1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     2 xxxx  xxxx     4    4  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
RT Adj:      xxxx 0.95  0.95  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.87
LT Adj:      xxxx xxxx xxxxx  0.10 xxxx xxxxx  0.95 0.95 xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.95  0.95  0.10 1.00  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.86  0.86  0.10 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < <   No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:                                      North    South    East     West
Cycle Length, C:                              xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:          xxxxxx    53.67   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:       xxxxxx    57.67   xxxxxx   xxxxxx
Opposing Effective Green Time, go:            xxxxxx    57.67   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                 xxxxxx        3   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:             xxxxxx        1   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:            xxxxxx       26   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:  xxxxxx     1.00   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                    xxxxxx     0.72   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:              xxxxxx     1655   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:       xxxxxx    16.13   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                  xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                      xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:   xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                    xxxxxx     0.42   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:        xxxxxx    20.16   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:     xxxxxx    37.51   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:  xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:              xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:  xxxxxx     1.00   xxxxxx   xxxxxx
Through-car Equivalents, el1:                 xxxxxx     6.75   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:     xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:    xxxxxx     0.07   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:  xxxxxx     0.10   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:             xxxxxx     0.10   xxxxxx   xxxxxx
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.58  0.58  0.58 0.58  0.00  0.42 0.42  0.42  0.00 0.00  0.01
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  9.7  10.0   3.7  3.8   0.0   7.4  7.4   8.5   0.0  0.0   0.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Q2:           0.0  1.3   1.4   0.3  0.4   0.0   0.9  0.9   1.4   0.0  0.0   0.7
HCM2KQueue:   0.0 11.0  11.4   4.0  4.2   0.0   8.3  8.3   9.9   0.0  0.0   0.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.19  1.20  1.18 1.18  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 13.0  13.4   4.8  4.9   0.0   9.8  9.8  11.7   0.0  0.0   1.1
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.51  1.56 1.56  1.60  1.53 1.53  1.52  1.60 1.60  1.59
85th%HCM2kQ:  0.0 16.6  17.1   6.3  6.5   0.0  12.6 12.6  15.0   0.0  0.0   1.5
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.63  1.63  1.73 1.72  1.80  1.66 1.66  1.64  1.80 1.80  1.78
90th%HCM2kQ:  0.0 18.0  18.5   7.0  7.2   0.0  13.7 13.7  16.3   0.0  0.0   1.7
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.83  1.82  1.98 1.98  2.10  1.88 1.88  1.85  2.10 2.10  2.07
95th%HCM2kQ:  0.0 20.1  20.7   8.0  8.2   0.0  15.5 15.5  18.3   0.0  0.0   1.9
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.13  2.12  2.43 2.43  2.70  2.23 2.23  2.17  2.70 2.70  2.63
98th%HCM2kQ:  0.0 23.4  24.1   9.8 10.1   0.0  18.4 18.4  21.5   0.0  0.0   2.5
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.698
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        18.4
Optimal Cycle:       62                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted       Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   388    0   390     0 1335   602   222 1094     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   388    0   390     0 1335   602   222 1094     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   388    0   390     0 1335   602   222 1094     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   388    0   390     0 1335   602   222 1094     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0    0     0   388    0   390     0 1335   602   222 1094     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.87  0.87  0.95 0.91  1.00
Lanes:       0.00 0.00  0.00  1.50 0.00  1.50  0.00 2.07  0.93  1.00 3.00  0.00
Final Sat.:     0    0     0  2123    0  2127     0 3407  1536  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.18 0.00  0.18  0.00 0.39  0.39  0.12 0.21  0.00
Crit Moves:                   ****                  ****        ****
Green/Cycle: 0.00 0.00  0.00  0.26 0.00  0.26  0.00 0.56  0.56  0.18 0.74  0.00
Volume/Cap:  0.00 0.00  0.00  0.70 0.00  0.71  0.00 0.70  0.70  0.70 0.28  0.00
Delay/Veh:    0.0  0.0   0.0  35.6  0.0  35.7   0.0 16.4  16.4  45.2  4.3   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  35.6  0.0  35.7   0.0 16.4  16.4  45.2  4.3   0.0
HCM2kAvg:      0    0     0    10    0   10      0   15    15     8    4     0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
Lane Group:  xxxx xxxx  xxxx   LTR  LTR   LTR  xxxx  RT     RT    L    T   xxxx
#LnsInGrps:     0    0     0     2    1     2     0    3     3     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     5 xxxx     5  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Area Adj:    xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      xxxx xxxx xxxxx  0.93 xxxx  0.93  xxxx 0.95  0.95  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.81 xxxx  0.81  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.95  0.95  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  1.00 0.91  1.00
Fnl Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.87  0.87  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    21.96   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    25.96   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx     0.00   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        0   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        2   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx      388   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     0.50   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx     1.00   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx    10.78   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx        0   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.17   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     1.00   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    25.79   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx     0.00   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     1.07   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     1.40   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx     1.00   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.16   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.70   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.81   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
*******************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.00  0.00  0.26 0.00  0.26  0.00 0.56  0.56  0.18 0.74  0.00
ArrivalType:         3                 3                 3                 3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  0.0   0.0   8.1  0.0   8.1   0.0 12.9  12.9   6.1  3.3   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           0.0  0.0   0.0   2.1  0.0   2.1   0.0  2.2   2.2   2.0  0.4   0.0
HCM2KQueue:   0.0  0.0   0.0  10.2  0.0  10.3   0.0 15.0  15.0   8.1  3.7   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.20  1.20  1.18 1.20  1.18  1.20 1.17  1.17  1.18 1.19  1.20
70th%HCM2kQ:  0.0  0.0   0.0  12.0  0.0  12.1   0.0 17.6  17.6   9.5  4.4   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.60  1.60  1.51 1.60  1.51  1.60 1.48  1.48  1.53 1.56  1.60
85th%HCM2kQ:  0.0  0.0   0.0  15.4  0.0  15.5   0.0 22.3  22.3  12.3  5.8   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.80  1.80  1.64 1.80  1.64  1.80 1.59  1.59  1.67 1.73  1.80
90th%HCM2kQ:  0.0  0.0   0.0  16.7  0.0  16.8   0.0 23.9  23.9  13.5  6.5   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 2.10  2.10  1.84 2.10  1.84  2.10 1.76  1.76  1.88 1.99  2.10
95th%HCM2kQ:  0.0  0.0   0.0  18.8  0.0  18.9   0.0 26.4  26.4  15.2  7.4   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.70  2.70  2.16 2.70  2.15  2.70 2.01  2.01  2.24 2.45  2.70
98th%HCM2kQ:  0.0  0.0   0.0  22.0  0.0  22.1   0.0 30.3  30.3  18.1  9.1   0.0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.956
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        36.1
Optimal Cycle:      180                Level Of Service:                  D
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted       Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     486    0   314     0    0     0     0 1309   412   363  787     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  486    0   314     0    0     0     0 1309   412   363  787     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   486    0   314     0    0     0     0 1309   412   363  787     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  486    0   314     0    0     0     0 1309   412   363  787     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   486    0   314     0    0     0     0 1309   412   363  787     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.73 1.00  0.76  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
Lanes:       1.44 0.00  0.56  0.00 0.00  0.00  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:  2013    0   800     0    0     0     0 3610  1615  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.24 0.00  0.39  0.00 0.00  0.00  0.00 0.36  0.26  0.20 0.15  0.00
Crit Moves:             ****                        ****        ****
Green/Cycle: 0.41 0.00  0.41  0.00 0.00  0.00  0.00 0.38  0.38  0.21 0.59  0.00
Volume/Cap:  0.59 0.00  0.96  0.00 0.00  0.00  0.00 0.96  0.67  0.96 0.26  0.00
Delay/Veh:   23.6  0.0  50.1   0.0  0.0   0.0   0.0 45.1  28.8  73.6  9.9   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  23.6  0.0  50.1   0.0  0.0   0.0   0.0 45.1  28.8  73.6  9.9   0.0
HCM2kAvg:     11    0    27     0    0     0     0   25    11    16    4     0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
Lane Group:   LTR  LTR   LTR  xxxx xxxx  xxxx  xxxx   T     R     L    T   xxxx
#LnsInGrps:     2    1     1     0    0     0     0    2     1     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     5 xxxx     5  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Area Adj:    1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      0.94 xxxx  0.94  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.78 xxxx  0.80  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.73 1.00  0.76  1.00 1.00  1.00  1.00 1.00  0.85  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.95  1.00  1.00 0.91  1.00
Fnl Sat Adj: 0.73 1.00  0.76  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
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--------------------------------------------------------------------------------
                                 CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                      North    South    East     West
Cycle Length, C:                                 100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           36.99   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        40.99   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:              0.00   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                      0   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                  2   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:               486   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:    0.61   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:     1.00   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     13.50   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                   0   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:         0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                    1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                        0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:     0.12   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                      1.00   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:          0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      40.87   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:     0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:    0.00   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:              xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:    1.35   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                   1.40   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:       1.00   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:      0.11   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:    0.65   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:               0.78   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.41 0.00  0.41  0.00 0.00  0.00  0.00 0.38  0.38  0.21 0.59  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           9.3  0.0  18.9   0.0  0.0   0.0   0.0 17.7   9.5  10.5  3.5   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           1.4  0.0   7.6   0.0  0.0   0.0   0.0  7.3   1.9   5.9  0.3   0.0
HCM2KQueue:  10.7  0.0  26.6   0.0  0.0   0.0   0.0 25.0  11.4  16.4  3.9   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.20  1.15  1.20 1.20  1.20  1.20 1.15  1.18  1.17 1.19  1.20
70th%HCM2kQ: 12.6  0.0  30.6   0.0  0.0   0.0   0.0 28.9  13.4  19.1  4.6   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.51 1.60  1.42  1.60 1.60  1.60  1.60 1.43  1.50  1.47 1.56  1.60
85th%HCM2kQ: 16.2  0.0  37.9   0.0  0.0   0.0   0.0 35.8  17.2  24.1  6.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.63 1.80  1.51  1.80 1.80  1.80  1.80 1.51  1.63  1.58 1.73  1.80
90th%HCM2kQ: 17.5  0.0  40.0   0.0  0.0   0.0   0.0 37.9  18.6  25.8  6.7   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.83 2.10  1.64  2.10 2.10  2.10  2.10 1.65  1.82  1.74 1.98  2.10
95th%HCM2kQ: 19.6  0.0  43.5   0.0  0.0   0.0   0.0 41.3  20.8  28.5  7.7   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.14 2.70  1.83  2.70 2.70  2.70  2.70 1.85  2.11  1.98 2.44  2.70
98th%HCM2kQ: 22.9  0.0  48.6   0.0  0.0   0.0   0.0 46.2  24.2  32.5  9.4   0.0
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.711
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       21.0
Optimal Cycle:       64                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     471 1018     0     0 1060   588     0    0     0   327    0   485
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  471 1018     0     0 1060   588     0    0     0   327    0   485
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   471 1018     0     0 1060   588     0    0     0   327    0   485
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  471 1018     0     0 1060   588     0    0     0   327    0   485
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   471 1018     0     0 1060   588     0    0     0   327    0   485
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.75 1.00  0.75
Lanes:       2.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.40 0.00  1.60
Final Sat.:  3502 3610     0     0 3610  1615     0    0     0  2006    0  2284
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.28  0.00  0.00 0.29  0.36  0.00 0.00  0.00  0.16 0.00  0.21
Crit Moves:  ****                        ****                              ****
Green/Cycle: 0.19 0.70  0.00  0.00 0.51  0.51  0.00 0.00  0.00  0.30 0.00  0.30
Volume/Cap:  0.71 0.40  0.00  0.00 0.57  0.71  0.00 0.00  0.00  0.55 0.00  0.71
Delay/Veh:   41.5  6.3   0.0   0.0 17.2  21.5   0.0  0.0   0.0  29.9  0.0  33.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  41.5  6.3   0.0   0.0 17.2  21.5   0.0  0.0   0.0  29.9  0.0  33.5
HCM2kAvg:      9    7     0     0   11    15     0    0     0     8    0    11
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
Lane Group:    L    T   xxxx  xxxx   T     R   xxxx xxxx  xxxx  LTR   LTR   LTR
#LnsInGrps:     2    2     0     0    2     1     0    0     0     2    1     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     5 xxxx     5
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx  0.91 xxxx  0.91
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.83 xxxx  0.83
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  1.00 1.00  1.00  0.75 1.00  0.75
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 0.97 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.75 1.00  0.75
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx   xxxxxx      100
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx   xxxxxx    25.75
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx   xxxxxx    29.75
Opposing Effective Green Time, go:             xxxxxx   xxxxxx   xxxxxx     0.00
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx   xxxxxx        0
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx   xxxxxx        2
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx   xxxxxx      327
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx   xxxxxx     0.40
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx     1.00
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx   xxxxxx     9.08
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx   xxxxxx        0
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx   xxxxxx     0.00
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx   xxxxxx     1.00
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx   xxxxxx     0.00
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx   xxxxxx     0.35
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx   xxxxxx     1.00
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx   xxxxxx     0.00
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx   xxxxxx    29.40
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx     0.00
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx     0.00
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx   xxxxxx     0.87
Through-car Equivalents, el1:                  xxxxxx   xxxxxx   xxxxxx     1.40
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx     1.00
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx   xxxxxx     0.13
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx   xxxxxx     0.74
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx   xxxxxx     0.83
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.19 0.70  0.00  0.00 0.51  0.51  0.00 0.00  0.00  0.30 0.00  0.30
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           6.4  5.9   0.0   0.0 10.2  12.5   0.0  0.0   0.0   6.6  0.0   9.1
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
Q2:           2.1  0.7   0.0   0.0  1.3   2.3   0.0  0.0   0.0   1.2  0.0   2.2
HCM2KQueue:   8.5  6.5   0.0   0.0 11.5  14.8   0.0  0.0   0.0   7.7  0.0  11.3
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.20  1.20 1.18  1.17  1.20 1.20  1.20  1.18 1.20  1.18
70th%HCM2kQ: 10.1  7.7   0.0   0.0 13.5  17.3   0.0  0.0   0.0   9.1  0.0  13.3
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.53 1.54  1.60  1.60 1.50  1.48  1.60 1.60  1.60  1.53 1.60  1.51
85th%HCM2kQ: 13.0 10.1   0.0   0.0 17.2  21.9   0.0  0.0   0.0  11.9  0.0  17.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.66 1.69  1.80  1.80 1.63  1.59  1.80 1.80  1.80  1.67 1.80  1.63
90th%HCM2kQ: 14.2 11.0   0.0   0.0 18.6  23.5   0.0  0.0   0.0  12.9  0.0  18.4
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.87 1.92  2.10  2.10 1.82  1.76  2.10 2.10  2.10  1.89 2.10  1.82
95th%HCM2kQ: 16.0 12.5   0.0   0.0 20.8  26.1   0.0  0.0   0.0  14.6  0.0  20.6
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.22 2.31  2.70  2.70 2.11  2.02  2.70 2.70  2.70  2.25 2.70  2.12
98th%HCM2kQ: 19.0 15.0   0.0   0.0 24.2  29.9   0.0  0.0   0.0  17.4  0.0  24.0
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.736
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        26.2
Optimal Cycle:       70                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted       Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  945   399   518  866     0   538  165   430     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  945   399   518  866     0   538  165   430     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  945   399   518  866     0   538  165   430     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  945   399   518  866     0   538  165   430     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  945   399   518  866     0   538  165   430     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.89 0.89  0.89  1.00 1.00  1.00
Lanes:       0.00 2.81  1.19  2.00 2.00  0.00  1.42 0.25  1.33  0.00 0.00  0.00
Final Sat.:     0 4644  1961  3502 3610     0  2390  430  2249     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.20  0.20  0.15 0.24  0.00  0.23 0.38  0.19  0.00 0.00  0.00
Crit Moves:       ****        ****                   ****
Green/Cycle: 0.00 0.28  0.28  0.20 0.48  0.00  0.52 0.52  0.52  0.00 0.00  0.00
Volume/Cap:  0.00 0.74  0.74  0.74 0.50  0.00  0.43 0.74  0.37  0.00 0.00  0.00
Delay/Veh:    0.0 34.4  34.4  41.5 18.2   0.0  14.8 20.4  14.2   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 34.4  34.4  41.5 18.2   0.0  14.8 20.4  14.2   0.0  0.0   0.0
HCM2kAvg:      0   11    11     9    9     0     8   17     6     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
Lane Group:  xxxx  RT     RT    L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    4     4     2    2     0     2    1     2     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx 0.96  0.96  xxxx xxxx xxxxx  0.94 0.94  0.94  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.94 0.94  0.94  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.96  0.96  0.95 1.00  1.00  0.89 0.89  0.89  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  0.97 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.92 0.95  1.00  0.89 0.89  0.89  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:       North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.28  0.28  0.20 0.48  0.00  0.52 0.52  0.52  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  8.5   8.5   7.1  8.3   0.0   6.9 14.8   5.6   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.4   2.4   2.3  1.0   0.0   0.7  2.6   0.6   0.0  0.0   0.0
HCM2KQueue:   0.0 10.9  10.9   9.4  9.3   0.0   7.7 17.4   6.2   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.18 1.18  1.20  1.18 1.16  1.19  1.20 1.20  1.20
70th%HCM2kQ:  0.0 12.8  12.8  11.1 10.9   0.0   9.1 20.3   7.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.51  1.52 1.52  1.60  1.53 1.47  1.54  1.60 1.60  1.60
85th%HCM2kQ:  0.0 16.4  16.4  14.3 14.1   0.0  11.7 25.5   9.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.63  1.63  1.65 1.65  1.80  1.67 1.57  1.69  1.80 1.80  1.80
90th%HCM2kQ:  0.0 17.7  17.7  15.6 15.3   0.0  12.8 27.3  10.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.83  1.83  1.86 1.86  2.10  1.89 1.73  1.93  2.10 2.10  2.10
95th%HCM2kQ:  0.0 19.9  19.9  17.5 17.2   0.0  14.5 30.1  11.9   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.13  2.13  2.18 2.19  2.70  2.25 1.96  2.32  2.70 2.70  2.70
98th%HCM2kQ:  0.0 23.2  23.2  20.6 20.3   0.0  17.3 34.1  14.4   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.754
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        24.4
Optimal Cycle:       76                 Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  3  0  0   0  0  2  0  2   1  0  0  0  1   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     443 1232     0    0  836   401  406    0   316    0    0     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  443 1232     0    0  836   401  406    0   316    0    0     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   443 1232     0    0  836   401  406    0   316    0    0     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  443 1232     0    0  836   401  406    0   316    0    0     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:   443 1232     0    0  836   401  406    0   316    0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 0.91  1.00 1.00 0.95  0.75 0.77 1.00  0.85 1.00 1.00  1.00
Lanes:       1.00 3.00  0.00 0.00 2.00  2.00 1.00 0.00  1.00 0.00 0.00  0.00
Final Sat.:  1805 5187     0    0 3610  2842 1465    0  1615    0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.25 0.24  0.00 0.00 0.23  0.14 0.28 0.00  0.20 0.00 0.00  0.00
Crit Moves:  ****                 ****       ****
Green/Cycle: 0.33 0.63  0.00 0.00 0.31  0.31 0.37 0.00  0.37 0.00 0.00  0.00
Volume/Cap:  0.75 0.38  0.00 0.00 0.75  0.46 0.75 0.00  0.53 0.00 0.00  0.00
Delay/Veh:   35.7  8.9   0.0  0.0 34.2  28.3 33.7  0.0  25.8  0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  35.7  8.9   0.0  0.0 34.2  28.3 33.7  0.0  25.8  0.0  0.0   0.0
HCM2kAvg:      14    6     0    0   13     5   16    0     8    0    0     0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
Lane Group:    L    T   xxxx  xxxx   T     R     L  xxxx    R   xxxx xxxx  xxxx
#LnsInGrps:     1    3     0     0    2     2     1    0     1     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx     2 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  0.77 xxxx xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  0.77 1.00  0.85  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.95  0.88  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:                                    North    South    East     West
Cycle Length, C:                            xxxxxx   xxxxxx     100   xxxxxx
Actual Green Time Per Lane Group, G:        xxxxxx   xxxxxx   32.75   xxxxxx
Effective Green Time Per Lane Group, g:     xxxxxx   xxxxxx   36.75   xxxxxx
Opposing Effective Green Time, go:          xxxxxx   xxxxxx    0.00   xxxxxx
Number Of Opposing Lanes, No:               xxxxxx   xxxxxx       0   xxxxxx
Number Of Lanes In Lane Group, N:           xxxxxx   xxxxxx       1   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:          xxxxxx   xxxxxx     406   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx    1.00   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx    1.00   xxxxxx
Left Turns Per Cycle, LTC:                  xxxxxx   xxxxxx   11.28   xxxxxx
Adjusted Opposing Flow Rate, Vo:            xxxxxx   xxxxxx       0   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:     xxxxxx   xxxxxx    0.00   xxxxxx
Opposing Platoon Ratio, Rpo:                xxxxxx   xxxxxx    1.00   xxxxxx
Lost Time Per Phase, tl:                    xxxxxx   xxxxxx    0.00   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx    0.22   xxxxxx
Opposing Queue Ratio, qro:                  xxxxxx   xxxxxx    1.00   xxxxxx
Eff grn blocked by opposing queue, gq:      xxxxxx   xxxxxx    0.00   xxxxxx
Eff grn while left turns filter thru, gu:   xxxxxx   xxxxxx   36.53   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx    0.00   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx    0.00   xxxxxx
Left-turn Saturation Factor, fs:            xxxxxx   xxxxxx  xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx    1.00   xxxxxx
Through-car Equivalents, el1:               xxxxxx   xxxxxx    1.30   xxxxxx
Single Lane Through-car Equivalents, el2:   xxxxxx   xxxxxx    1.00   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:  xxxxxx   xxxxxx    0.11   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx    0.77   xxxxxx
Left Turn Adjustment Factor, flt:           xxxxxx   xxxxxx    0.77   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.33 0.63  0.00  0.00 0.31  0.31  0.37 0.00  0.37  0.00 0.00  0.00
ArrivalType:        3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          11.6  5.5   0.0   0.0 10.5   4.5  12.8  0.0   6.9   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Q2:           2.7  0.6   0.0   0.0  2.7   0.8   2.7  0.0   1.1   0.0  0.0   0.0
HCM2KQueue:  14.3  6.1   0.0   0.0 13.1   5.3  15.5  0.0   8.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.19  1.20  1.20 1.17  1.19  1.17 1.20  1.18  1.20 1.20  1.20
70th%HCM2kQ: 16.7  7.2   0.0   0.0 15.4   6.3  18.1  0.0   9.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.49 1.54  1.60  1.60 1.49  1.55  1.48 1.60  1.53  1.60 1.60  1.60
85th%HCM2kQ: 21.2  9.4   0.0   0.0 19.6   8.3  23.0  0.0  12.2   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.60 1.69  1.80  1.80 1.61  1.71  1.58 1.80  1.67  1.80 1.80  1.80
90th%HCM2kQ: 22.8 10.3   0.0   0.0 21.1   9.1  24.6  0.0  13.4   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.77 1.93  2.10  2.10 1.79  1.95  1.75 2.10  1.88  2.10 2.10  2.10
95th%HCM2kQ: 25.3 11.7   0.0   0.0 23.5  10.4  27.2  0.0  15.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.03 2.33  2.70  2.70 2.06  2.36  2.00 2.70  2.24  2.70 2.70  2.70
98th%HCM2kQ: 29.0 14.2   0.0   0.0 27.1  12.6  31.1  0.0  17.9   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.688
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        25.1
Optimal Cycle:       60                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:      0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     506  753     0     0  601   269     0    0     0   462  180   373
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  506  753     0     0  601   269     0    0     0   462  180   373
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   506  753     0     0  601   269     0    0     0   462  180   373
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  506  753     0     0  601   269     0    0     0   462  180   373
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   506  753     0     0  601   269     0    0     0   462  180   373
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.87  0.87  1.00 1.00  1.00  0.85 0.85  0.85
Lanes:       1.00 2.00  0.00  0.00 2.07  0.93  0.00 0.00  0.00  1.44 0.56  1.00
Final Sat.:  1805 3610     0     0 3418  1530     0    0     0  2320  904  1612
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.28 0.21  0.00  0.00 0.18  0.18  0.00 0.00  0.00  0.20 0.20  0.23
Crit Moves:  ****                  ****                                    ****
Green/Cycle: 0.41 0.66  0.00  0.00 0.26  0.26  0.00 0.00  0.00  0.34 0.34  0.34
Volume/Cap:  0.69 0.31  0.00  0.00 0.69  0.69  0.00 0.00  0.00  0.59 0.59  0.69
Delay/Veh:   27.1  7.2   0.0   0.0 35.2  35.2   0.0  0.0   0.0  28.0 28.0  30.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  27.1  7.2   0.0   0.0 35.2  35.2   0.0  0.0   0.0  28.0 28.0  30.0
HCM2kAvg:      14    5     0     0    9     9     0    0     0     9    9    11
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
Lane Group:     L    T   xxxx  xxxx  RT     RT  xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:      1    2     0     0    3     3     0    0     0     3    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:      1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 0.95  0.95  xxxx xxxx xxxxx  0.95 0.95  0.95
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 0.95  0.95
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 0.95  0.95  1.00 1.00  1.00  0.89 0.89  0.89
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.95 0.95  0.95
Fnl Sat Adj: 0.95 0.95  1.00  1.00 0.87  0.87  1.00 1.00  1.00  0.85 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.41 0.66  0.00  0.00 0.26  0.26  0.00 0.00  0.00  0.34 0.34  0.34
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          12.2  4.4   0.0   0.0  7.3   7.3   0.0  0.0   0.0   7.8  7.8   9.5
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           2.1  0.5   0.0   0.0  2.0   2.0   0.0  0.0   0.0   1.4  1.4   2.0
HCM2KQueue:  14.2  4.9   0.0   0.0  9.2   9.2   0.0  0.0   0.0   9.2  9.2  11.5
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.19  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.18 1.18  1.18
70th%HCM2kQ: 16.7  5.8   0.0   0.0 10.9  10.9   0.0  0.0   0.0  10.9 10.9  13.5
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.49 1.55  1.60  1.60 1.52  1.52  1.60 1.60  1.60  1.52 1.52  1.50
85th%HCM2kQ: 21.2  7.6   0.0   0.0 14.1  14.1   0.0  0.0   0.0  14.0 14.0  17.3
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.60 1.71  1.80  1.80 1.65  1.65  1.80 1.80  1.80  1.65 1.65  1.63
90th%HCM2kQ: 22.7  8.4   0.0   0.0 15.3  15.3   0.0  0.0   0.0  15.2 15.2  18.7
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.77 1.96  2.10  2.10 1.86  1.86  2.10 2.10  2.10  1.86 1.86  1.82
95th%HCM2kQ: 25.2  9.6   0.0   0.0 17.2  17.2   0.0  0.0   0.0  17.1 17.1  20.9
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.03 2.39  2.70  2.70 2.19  2.19  2.70 2.70  2.70  2.19 2.19  2.11
98th%HCM2kQ: 29.0 11.7   0.0   0.0 20.2  20.2   0.0  0.0   0.0  20.2 20.2  24.3
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--------------------------------------------------------------------------------
                      CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.635
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        22.3
Optimal Cycle:       51                 Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted       Protected        Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  2  0  2   2  0  2  0  0   1  1  0  1  0   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  943   802  355  699     0  310  561   282    0    0     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    0  943   802  355  699     0  310  561   282    0    0     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:     0  943   802  355  699     0  310  561   282    0    0     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    0  943   802  355  699     0  310  561   282    0    0     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:     0  943   802  355  699     0  310  561   282    0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  1.00 0.95  0.75 0.92 0.95  1.00 0.88 0.88  0.88 1.00 1.00  1.00
Lanes:       0.00 2.00  2.00 2.00 2.00  0.00 1.00 1.33  0.67 0.00 0.00  0.00
Final Sat.:     0 3610  2842 3502 3610     0 1674 2228  1120    0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.26  0.28 0.10 0.19  0.00 0.19 0.25  0.25 0.00 0.00  0.00
Crit Moves:             **** ****                  ****
Green/Cycle: 0.00 0.44  0.44 0.16 0.60  0.00 0.40 0.40  0.40 0.00 0.00  0.00
Volume/Cap:  0.00 0.59  0.64 0.64 0.32  0.00 0.47 0.64  0.64 0.00 0.00  0.00
Delay/Veh:    0.0 21.5  22.6 41.7  9.8   0.0 22.5 25.1  25.1  0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   0.0 21.5  22.6 41.7  9.8   0.0 22.5 25.1  25.1  0.0  0.0   0.0
HCM2kAvg:       0   11    10    6    5     0    7   11    11    0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
Lane Group:  xxxx   T     R     L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    2     2     2    2     0     3    3     3     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:     < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:      Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx  0.85  xxxx xxxx xxxxx  0.96 0.96  0.96  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.96 0.96  0.96  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  0.85  0.95 1.00  1.00  0.93 0.93  0.93  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  0.88  0.97 0.95  1.00  0.95 0.95  0.95  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.95  0.75  0.92 0.95  1.00  0.88 0.88  0.88  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.44  0.44  0.16 0.60  0.00  0.40 0.40  0.40  0.00 0.00  0.00
ArrivalType:         3                3                 3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  9.9   8.6   4.9  4.8   0.0   6.6  9.8   9.8   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  1.4   1.6   1.6  0.5   0.0   0.9  1.7   1.7   0.0  0.0   0.0
HCM2KQueue:   0.0 11.2  10.3   6.4  5.2   0.0   7.5 11.5  11.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.19  1.20  1.18 1.18  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 13.2  12.1   7.6  6.2   0.0   8.9 13.5  13.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.51  1.54 1.55  1.60  1.53 1.50  1.50  1.60 1.60  1.60
85th%HCM2kQ:  0.0 16.9  15.5   9.9  8.1   0.0  11.5 17.3  17.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.63  1.64  1.69 1.71  1.80  1.68 1.63  1.63  1.80 1.80  1.80
90th%HCM2kQ:  0.0 18.3  16.8  10.8  9.0   0.0  12.5 18.6  18.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.82  1.84  1.92 1.95  2.10  1.90 1.82  1.82  2.10 2.10  2.10
95th%HCM2kQ:  0.0 20.5  18.9  12.3 10.2   0.0  14.2 20.8  20.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.12  2.15  2.31 2.37  2.70  2.26 2.11  2.11  2.70 2.70  2.70
98th%HCM2kQ:  0.0 23.8  22.1  14.8 12.4   0.0  16.9 24.2  24.2   0.0  0.0   0.0
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.667
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        26.1
Optimal Cycle:       68                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     680   19   270    18   29    28    29 1730   383   612  865    14
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  680   19   270    18   29    28    29 1730   383   612  865    14
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   680   19   270    18   29    28    29 1730   383   612  865    14
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  680   19   270    18   29    28    29 1730   383   612  865    14
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   680   19   270    18   29    28    29 1730   383   612  865    14
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.89  0.89  0.92 0.91  0.91
Lanes:       1.95 0.05  1.00  0.24 0.39  0.37  1.00 4.00  1.00  2.00 2.95  0.05
Final Sat.:  3527   99  1615   428  690   666  1805 6729  1682  3502 5094    82
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.19 0.19  0.17  0.04 0.04  0.04  0.02 0.26  0.23  0.17 0.17  0.17
Crit Moves:  ****                  ****             ****        ****
Green/Cycle: 0.29 0.29  0.29  0.06 0.06  0.06  0.06 0.39  0.39  0.26 0.59  0.59
Volume/Cap:  0.67 0.67  0.58  0.67 0.67  0.67  0.29 0.67  0.59  0.67 0.29  0.29
Delay/Veh:   33.0 33.0  32.1  60.1 60.1  60.1  46.9 26.0  24.7  34.9 10.1  10.1
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  33.0 33.0  32.1  60.1 60.1  60.1  46.9 26.0  24.7  34.9 10.1  10.1
HCM2kAvg:      11   11     8     4    4     4     1   12    10    10    4     4
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
Lane Group:   LT   LT     R    LTR  LTR   LTR    L   RT     RT    L   RT     RT
#LnsInGrps:     2    2     1     1    1     1     1    5     5     2    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:     < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:     Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     4    4  xxxx     4    4     4     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  0.95 0.95  0.95  xxxx 0.97  0.97  xxxx 1.00  1.00
LT Adj:      0.95 0.95 xxxxx  0.99 0.99  0.99  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.97  0.97  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  0.97 0.91  0.91
Fnl Sat Adj: 0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.89  0.89  0.92 0.91  0.91
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.29 0.29  0.29  0.06 0.06  0.06  0.06 0.39  0.39  0.26 0.59  0.59
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           9.0  9.0   6.4   2.1  2.1   2.1   0.8  9.9   8.5   8.0  4.0   4.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q2:           1.9  1.9   1.3   1.5  1.5   1.5   0.4  1.9   1.4   1.8  0.4   0.4
HCM2KQueue:  10.8 10.8   7.7   3.6  3.6   3.6   1.2 11.8   9.8   9.8  4.4   4.4
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.18  1.19 1.19  1.19  1.20 1.17  1.18  1.18 1.19  1.19
70th%HCM2kQ: 12.7 12.7   9.1   4.3  4.3   4.3   1.4 13.9  11.6  11.6  5.2   5.2
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.51 1.51  1.53  1.57 1.57  1.57  1.59 1.50  1.52  1.52 1.56  1.56
85th%HCM2kQ: 16.3 16.3  11.8   5.6  5.6   5.6   1.9 17.7  14.9  14.9  6.9   6.9
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.63 1.63  1.67  1.73 1.73  1.73  1.78 1.62  1.64  1.64 1.72  1.72
90th%HCM2kQ: 17.7 17.7  12.9   6.2  6.2   6.2   2.1 19.1  16.2  16.2  7.6   7.6
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.83 1.83  1.89  1.99 1.99  1.99  2.06 1.81  1.85  1.85 1.97  1.97
95th%HCM2kQ: 19.8 19.8  14.6   7.1  7.1   7.1   2.5 21.4  18.2  18.2  8.7   8.7
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.14 2.14  2.25  2.46 2.46  2.46  2.61 2.10  2.17  2.17 2.41  2.41
98th%HCM2kQ: 23.1 23.1  17.4   8.8  8.8   8.8   3.1 24.8  21.4  21.3 10.6  10.6
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--------------------------------------------------------------------------------
                          CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                         Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap. (X):        0.624
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):        19.2
Optimal Cycle:        49                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted       Split Phase      Split Phase
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3 1228     0     0 1479     8     0    0    13   479   12  1053
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3 1228     0     0 1479     8     0    0    13   479   12  1053
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     3 1228     0     0 1479     8     0    0    13   479   12  1053
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    3 1228     0     0 1479     8     0    0    13   479   12  1053
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     3 1228     0     0 1479     8     0    0    13   479   12  1053
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.09 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
Lanes:       1.00 3.00  0.00  0.00 2.98  0.02  0.00 0.00  1.00  1.00 0.02  1.98
Final Sat.:   165 5187     0     0 5154    28     0    0  1644  1805   36  3201
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.24  0.00  0.00 0.29  0.29  0.00 0.00  0.01  0.27 0.33  0.33
Crit Moves:                        ****                     ****       ****
Green/Cycle: 0.46 0.46  0.00  0.00 0.46  0.46  0.00 0.00  0.01  0.53 0.53  0.53
Volume/Cap:  0.04 0.51  0.00  0.00 0.62  0.62  0.00 0.00  0.62  0.50 0.62  0.62
Delay/Veh:   15.1 19.3   0.0   0.0 21.0  21.0   0.0  0.0  96.0  15.6 17.4  17.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  15.1 19.3   0.0   0.0 21.0  21.0   0.0  0.0  96.0  15.6 17.4  17.4
HCM2kAvg:       1    9     0     0   12    12     0    0     1    10   12    12
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
Lane Group:     L    T   xxxx  xxxx  RT     RT  xxxx xxxx    R     L   RT     RT
#LnsInGrps:      1    3     0     0    3     3     0    0     1     1    2     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:      2 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 1.00  1.00  xxxx xxxx  0.87  xxxx 0.85  0.85
LT Adj:      0.09 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.09 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.87  0.95 0.85  0.85
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.91  0.91  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.09 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:                                        North    South     East     West
Cycle Length, C:                                   100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:             42.00   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:          46.00   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:               46.00   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                        3   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                    1   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                   3   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:      1.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:     xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                        0.08   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                  1487   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:          15.13   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                      1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                          0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:       0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                        0.54   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:           23.43   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:        22.57   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:     xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                  0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:      1.00   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                     6.08   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:       xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:        0.09   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:      0.09   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                 0.09   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.46 0.46  0.00  0.00 0.46  0.46  0.00 0.00  0.01  0.53 0.53  0.53
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.5  8.0   0.0   0.0 10.4  10.4   0.0  0.0   0.4   9.0 10.4  10.4
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
Q2:           0.0  1.0   0.0   0.0  1.6   1.6   0.0  0.0   0.9   1.0  1.6   1.6
HCM2KQueue:   0.6  9.1   0.0   0.0 12.0  12.0   0.0  0.0   1.2  10.0 12.0  12.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.20  1.20 1.17  1.17  1.20 1.20  1.20  1.18 1.17  1.17
70th%HCM2kQ:  0.7 10.7   0.0   0.0 14.1  14.1   0.0  0.0   1.5  11.8 14.1  14.1
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.59 1.52  1.60  1.60 1.50  1.50  1.60 1.60  1.59  1.51 1.50  1.50
85th%HCM2kQ:  0.9 13.8   0.0   0.0 18.0  18.0   0.0  0.0   2.0  15.2 18.0  18.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.79 1.65  1.80  1.80 1.62  1.62  1.80 1.80  1.78  1.64 1.62  1.62
90th%HCM2kQ:  1.0 15.0   0.0   0.0 19.5  19.5   0.0  0.0   2.2  16.4 19.5  19.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.08 1.86  2.10  2.10 1.81  1.81  2.10 2.10  2.06  1.84 1.81  1.81
95th%HCM2kQ:  1.2 16.9   0.0   0.0 21.7  21.7   0.0  0.0   2.5  18.5 21.7  21.7
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.66 2.20  2.70  2.70 2.10  2.10  2.70 2.70  2.61  2.16 2.10  2.10
98th%HCM2kQ:  1.5 20.0   0.0   0.0 25.2  25.2   0.0  0.0   3.2  21.7 25.2  25.2
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--------------------------------------------------------------------------------
                           CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                          Level Of Service Computation Report
                 2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.507
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       13.6
Optimal Cycle:       38               Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted       Split Phase      Split Phase
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  2  1  0   1  0  2  0  0   1  1  0  0  1   0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1094   492    16 1141     0   497    8   291     0    0    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1094   492    16 1141     0   497    8   291     0    0    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1094   492    16 1141     0   497    8   291     0    0    10
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1094   492    16 1141     0   497    8   291     0    0    10
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0 1094   492    16 1141     0   497    8   291     0    0    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.12 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Lanes:       0.00 2.07  0.93  1.00 2.00  0.00  1.97 0.03  1.00  0.00 0.00  1.00
Final Sat.:     0 3413  1535   224 3610     0  3564   57  1615     0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.32  0.32  0.07 0.32  0.00  0.14 0.14  0.18  0.00 0.00  0.01
Crit Moves:       ****                                    ****              ****
Green/Cycle: 0.00 0.63  0.63  0.63 0.63  0.00  0.36 0.36  0.36  0.00 0.00  0.01
Volume/Cap:  0.00 0.51  0.51  0.11 0.50  0.00  0.39 0.39  0.51  0.00 0.00  0.51
Delay/Veh:    0.0 10.1  10.1   7.6 10.0   0.0  24.3 24.3  26.1   0.0  0.0  69.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 10.1  10.1   7.6 10.0   0.0  24.3 24.3  26.1   0.0  0.0  69.0
HCM2kAvg:       0    9     9     2   10     0     6    6     7     0    0     1
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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
Lane Group:  xxxx  RT     RT    L    T   xxxx   LT   LT     R   xxxx xxxx    R
#LnsInGrps:     0    3     3     1    2     0     2    2     1     0    0     1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     2 xxxx  xxxx     4    4  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
RT Adj:      xxxx 0.95  0.95  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.87
LT Adj:      xxxx xxxx xxxxx  0.12 xxxx xxxxx  0.95 0.95 xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.95  0.95  0.12 1.00  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.12 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
********************************************************************************
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    59.24   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    63.24   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx    63.24   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        3   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        1   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx       16   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     1.00   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx     0.44   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx     1586   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx    15.46   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     0.37   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx    16.45   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    46.79   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     1.00   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     6.29   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.06   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.12   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.12   xxxxxx   xxxxxx
********************************************************************************
```

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--------------------------------------------------------------------------------
                       CUMULATIVE (2020) BASE CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.63  0.63  0.63 0.63  0.00  0.36 0.36  0.36  0.00 0.00  0.01
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  7.9   7.9   1.5  8.5   0.0   5.5  5.5   6.4   0.0  0.0   0.3
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Q2:           0.0  1.0   1.0   0.1  1.0   0.0   0.6  0.6   1.0   0.0  0.0   0.7
HCM2KQueue:   0.0  9.0   9.0   1.6  9.5   0.0   6.1  6.1   7.4   0.0  0.0   0.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.20 1.18  1.20  1.19 1.19  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 10.6  10.6   1.9 11.2   0.0   7.3  7.3   8.7   0.0  0.0   1.1
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.52  1.52  1.58 1.52  1.60  1.54 1.54  1.53  1.60 1.60  1.59
85th%HCM2kQ:  0.0 13.6  13.6   2.6 14.4   0.0   9.5  9.5  11.3   0.0  0.0   1.5
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.66  1.66  1.77 1.65  1.80  1.69 1.69  1.68  1.80 1.80  1.78
90th%HCM2kQ:  0.0 14.8  14.8   2.9 15.7   0.0  10.4 10.4  12.3   0.0  0.0   1.7
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.86  1.86  2.05 1.85  2.10  1.93 1.93  1.90  2.10 2.10  2.07
95th%HCM2kQ:  0.0 16.7  16.7   3.3 17.6   0.0  11.8 11.8  14.0   0.0  0.0   1.9
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.20  2.20  2.58 2.18  2.70  2.32 2.32  2.27  2.70 2.70  2.63
98th%HCM2kQ:  0.0 19.7  19.7   4.2 20.7   0.0  14.3 14.3  16.7   0.0  0.0   2.5
```

TRAFFIX WORKSHEETS

CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
           2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.850
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        24.9
Optimal Cycle:      124                 Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   572    0   753     0  660   479   390 1733     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   572    0   753     0  660   479   390 1733     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   572    0   753     0  660   479   390 1733     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   572    0   753     0  660   479   390 1733     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0    0     0   572    0   753     0  660   479   390 1733     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.85  0.85  0.95 0.91  1.00
Lanes:       0.00 0.00  0.00  1.43 0.00  1.57  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:     0    0     0  2031    0  2225     0 3240  1620  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.28 0.00  0.34  0.00 0.20  0.30  0.22 0.33  0.00
Crit Moves:                              ****              ****  ****
Green/Cycle: 0.00 0.00  0.00  0.40 0.00  0.40  0.00 0.35  0.35  0.25 0.60  0.00
Volume/Cap:  0.00 0.00  0.00  0.71 0.00  0.85  0.00 0.58  0.85  0.85 0.55  0.00
Delay/Veh:    0.0  0.0   0.0  26.6  0.0  32.3   0.0 27.1  35.4  49.2 12.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  26.6  0.0  32.3   0.0 27.1  35.4  49.2 12.0   0.0
HCM2kAvg:       0    0     0    14    0    19     0    9    16    15   11     0
********************************************************************************
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
Lane Group:  xxxx xxxx  xxxx   LTR  LTR   LTR  xxxx  RT     RT    L    T   xxxx
#LnsInGrps:     0    0     0     2    1     2     0    3     3     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:     < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:      Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     5 xxxx     5  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Area Adj:    xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      xxxx xxxx xxxxx  0.92 xxxx  0.92  xxxx 0.94  0.94  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.82 xxxx  0.82  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.94  0.94  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  1.00 0.91  1.00
Fnl Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.85  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx     100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx   35.66   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx   39.66   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx    0.00   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx       0   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx       2   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx     572   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx    0.43   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx    1.00   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx   15.89   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx       0   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx    0.00   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx    1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx    0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx    0.06   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx    1.00   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx    0.00   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx   39.60   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx    0.00   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx    0.00   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx  xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx    0.96   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx    1.40   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx    1.00   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx    0.10   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx    0.72   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx    0.82   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.00  0.00  0.40 0.00  0.40  0.00 0.35  0.35  0.25 0.60  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  0.0   0.0  11.4  0.0  14.9   0.0  7.5  12.3  10.8  9.6   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           0.0  0.0   0.0   2.2  0.0   4.3   0.0  1.3   4.1   3.9  1.2   0.0
HCM2KQueue:   0.0  0.0   0.0  13.7  0.0  19.2   0.0  8.8  16.4  14.8 10.8   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.20  1.20  1.17 1.20  1.16  1.20 1.18  1.17  1.17 1.18  1.20
70th%HCM2kQ:  0.0  0.0   0.0  16.0  0.0  22.4   0.0 10.4  19.1  17.2 12.7   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.60  1.60  1.49 1.60  1.46  1.60 1.52  1.47  1.48 1.51  1.60
85th%HCM2kQ:  0.0  0.0   0.0  20.4  0.0  28.1   0.0 13.5  24.1  21.9 16.3   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.80  1.80  1.60 1.80  1.55  1.80 1.66  1.58  1.59 1.63  1.80
90th%HCM2kQ:  0.0  0.0   0.0  21.9  0.0  29.9   0.0 14.7  25.8  23.5 17.6   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 2.10  2.10  1.78 2.10  1.71  2.10 1.87  1.74  1.76 1.83  2.10
95th%HCM2kQ:  0.0  0.0   0.0  24.3  0.0  32.8   0.0 16.5  28.5  26.0 19.7   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.70  2.70  2.05 2.70  1.93  2.70 2.21  1.98  2.02 2.14  2.70
98th%HCM2kQ:  0.0  0.0   0.0  28.0  0.0  37.1   0.0 19.5  32.5  29.8 23.0   0.0
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.890
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        29.2
Optimal Cycle:      169                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted       Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     862    0   303    0    0     0    0  999   230  154 1269     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  862    0   303    0    0     0    0  999   230  154 1269     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   862    0   303    0    0     0    0  999   230  154 1269     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  862    0   303    0    0     0    0  999   230  154 1269     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:   862    0   303    0    0     0    0  999   230  154 1269     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.72 1.00  0.74 1.00 1.00  1.00 1.00 0.95  0.85 0.95 0.91  1.00
Lanes:       1.59 0.00  0.41 0.00 0.00  0.00 0.00 2.00  1.00 1.00 3.00  0.00
Final Sat.:  2193    0   574    0    0     0    0 3610  1615 1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.39 0.00  0.53 0.00 0.00  0.00 0.00 0.28  0.14 0.09 0.24  0.00
Crit Moves:             ****                        ****        ****
Green/Cycle: 0.59 0.00  0.59 0.00 0.00  0.00 0.00 0.31  0.31 0.10 0.41  0.00
Volume/Cap:  0.66 0.00  0.89 0.00 0.00  0.00 0.00 0.89  0.46 0.89 0.60  0.00
Delay/Veh:   14.6  0.0  25.5  0.0  0.0   0.0  0.0 41.8  28.3 83.5 23.8   0.0
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  14.6  0.0  25.5  0.0  0.0   0.0  0.0 41.8  28.3 83.5 23.8   0.0
HCM2kAvg:      15    0    29    0    0     0    0   18     6    8   11     0
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
Lane Group:   LTR  LTR   LTR  xxxx xxxx  xxxx  xxxx   T     R     L    T   xxxx
#LnsInGrps:     2    1     1     0    0     0     0    2     1     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     5 xxxx     5  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Area Adj:    1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      0.96 xxxx  0.96  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.75 xxxx  0.77  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.72 1.00  0.74  1.00 1.00  1.00  1.00 1.00  0.85  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.95  1.00  1.00 0.91  1.00
Fnl Sat Adj: 0.72 1.00  0.74  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                        North    South    East     West
Cycle Length, C:                                   100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:             55.30   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:          59.30   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:                0.00   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                        0   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                    2   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                 862   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:      0.74   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:       1.00   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                       23.94   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                     0   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:           0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                      1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                          0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:       0.01   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                        1.00   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:            0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:        59.29   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:       0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:      0.00   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:      1.68   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                     1.40   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:         1.00   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:        0.09   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:      0.60   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                 0.75   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.59 0.00  0.59  0.00 0.00  0.00  0.00 0.31  0.31  0.10 0.41  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          13.4  0.0  23.1   0.0  0.0   0.0   0.0 13.2   5.1   4.5  9.2   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           1.9  0.0   5.8   0.0  0.0   0.0   0.0  4.9   0.8   3.4  1.4   0.0
HCM2KQueue:  15.3  0.0  28.9   0.0  0.0   0.0   0.0 18.1   6.0   7.9 10.7   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.20  1.15  1.20 1.20  1.20  1.20 1.16  1.19  1.18 1.18  1.20
70th%HCM2kQ: 17.8  0.0  33.2   0.0  0.0   0.0   0.0 21.1   7.1   9.3 12.6   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.48 1.60  1.41  1.60 1.60  1.60  1.60 1.46  1.55  1.53 1.51  1.60
85th%HCM2kQ: 22.6  0.0  40.9   0.0  0.0   0.0   0.0 26.6   9.2  12.0 16.1   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.59 1.80  1.49  1.80 1.80  1.80  1.80 1.56  1.70  1.67 1.63  1.80
90th%HCM2kQ: 24.2  0.0  43.2   0.0  0.0   0.0   0.0 28.3  10.1  13.1 17.4   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.76 2.10  1.62  2.10 2.10  2.10  2.10 1.72  1.93  1.89 1.83  2.10
95th%HCM2kQ: 26.8  0.0  46.9   0.0  0.0   0.0   0.0 31.2  11.5  14.9 19.5   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.01 2.70  1.81  2.70 2.70  2.70  2.70 1.95  2.33  2.25 2.14  2.70
98th%HCM2kQ: 30.7  0.0  52.3   0.0  0.0   0.0   0.0 35.3  13.9  17.7 22.8   0.0
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.786
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        18.6
Optimal Cycle:       87                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        2  0  2  0  0   0  0  2  0  1   0  0  0  0  0   1  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     489 1193     0     0  965   747     0    0     0   149    1   405
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  489 1193     0     0  965   747     0    0     0   149    1   405
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   489 1193     0     0  965   747     0    0     0   149    1   405
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  489 1193     0     0  965   747     0    0     0   149    1   405
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   489 1193     0     0  965   747     0    0     0   149    1   405
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.79 0.79  0.79
Lanes:       2.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.26 0.01  1.73
Final Sat.:  3502 3610     0     0 3610  1615     0    0     0  1913    5  2607
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.14 0.33  0.00  0.00 0.27  0.46  0.00 0.00  0.00  0.08 0.18  0.16
Crit Moves:  ****                        ****                        ****
Green/Cycle: 0.18 0.77  0.00  0.00 0.59  0.59  0.00 0.00  0.00  0.23 0.23  0.23
Volume/Cap:  0.79 0.43  0.00  0.00 0.45  0.79  0.00 0.00  0.00  0.33 0.79  0.66
Delay/Veh:   45.9  4.2   0.0   0.0 11.7  20.2   0.0  0.0   0.0  31.9 41.8  36.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  45.9  4.2   0.0   0.0 11.7  20.2   0.0  0.0   0.0  31.9 41.8  36.7
HCM2kAvg:      10    7     0     0    8    19     0    0     0     4   11     8
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
Lane Group:     L    T   xxxx  xxxx   T     R   xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:      2    2     0     0    2     1     0    0     0     2    1     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:     Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx  0.89 0.89  0.89
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.89 0.89  0.89
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  1.00 1.00  1.00  0.79 0.79  0.79
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 0.97 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.79 0.79  0.79
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.18 0.77  0.00  0.00 0.59  0.59  0.00 0.00  0.00  0.23 0.23  0.23
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           6.8  5.8   0.0   0.0  7.5  15.9   0.0  0.0   0.0   3.0  8.1   6.6
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           2.8  0.8   0.0   0.0  0.8   3.3   0.0  0.0   0.0   0.5  2.9   1.8
HCM2KQueue:   9.6  6.6   0.0   0.0  8.4  19.2   0.0  0.0   0.0   3.5 11.0   8.4
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.20  1.20 1.18  1.16  1.20 1.20  1.20  1.19 1.18  1.18
70th%HCM2kQ: 11.3  7.8   0.0   0.0  9.9  22.3   0.0  0.0   0.0   4.2 13.0   9.9
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.54  1.60  1.60 1.53  1.46  1.60 1.60  1.60  1.57 1.51  1.53
85th%HCM2kQ: 14.6 10.1   0.0   0.0 12.8  28.0   0.0  0.0   0.0   5.5 16.6  12.8
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.65 1.69  1.80  1.80 1.66  1.55  1.80 1.80  1.80  1.74 1.63  1.66
90th%HCM2kQ: 15.9 11.1   0.0   0.0 13.9  29.8   0.0  0.0   0.0   6.1 18.0  14.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.85 1.92  2.10  2.10 1.88  1.71  2.10 2.10  2.10  1.99 1.83  1.88
95th%HCM2kQ: 17.8 12.6   0.0   0.0 15.7  32.7   0.0  0.0   0.0   7.0 20.1  15.8
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.18 2.30  2.70  2.70 2.23  1.93  2.70 2.70  2.70  2.46 2.13  2.22
98th%HCM2kQ: 20.9 15.1   0.0   0.0 18.6  37.0   0.0  0.0   0.0   8.7 23.5  18.7
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.805
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        27.0
Optimal Cycle:       96                 Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:           Permitted       Protected         Permitted        Permitted
Rights:             Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  871   326   528  593     0   801   20   717     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  871   326   528  593     0   801   20   717     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  871   326   528  593     0   801   20   717     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  871   326   528  593     0   801   20   717     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  871   326   528  593     0   801   20   717     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.86 0.86  0.86  1.00 1.00  1.00
Lanes:       0.00 2.91  1.09  2.00 2.00  0.00  1.51 0.03  1.46  0.00 0.00  0.00
Final Sat.:     0 4826  1806  3502 3610     0  2488   42  2400     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.18  0.18  0.15 0.16  0.00  0.32 0.47  0.30  0.00 0.00  0.00
Crit Moves:       ****        ****                  ****
Green/Cycle: 0.00 0.22  0.22  0.19 0.41  0.00  0.59 0.59  0.59  0.00 0.00  0.00
Volume/Cap:  0.00 0.81  0.81  0.81 0.40  0.00  0.55 0.81  0.51  0.00 0.00  0.00
Delay/Veh:    0.0 40.1  40.1  46.1 20.9   0.0  12.7 18.7  12.2   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 40.1  40.1  46.1 20.9   0.0  12.7 18.7  12.2   0.0  0.0   0.0
HCM2kAvg:      0   11    11    10    6     0    11   22    10     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
Lane Group:  xxxx  RT     RT    L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    4     4    2    2     0     2    1     2    0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                 8                8
% Hev Veh:           0                0                 0                0
Grade:              0%               0%                0%               0%
Parking/Hr:         No               No                No               No
Bus Stp/Hr:          0                0                 0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                 0                0
ExclusiveRT:      Include          Include           Include          Include
% RT Prtct:          0                0                 0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx 0.96  0.96  xxxx xxxx xxxxx  0.93 0.93  0.93  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.93 0.93  0.93  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.96  0.96  0.95 1.00  1.00  0.86 0.86  0.86  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  0.97 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.92 0.95  1.00  0.86 0.86  0.86  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.22  0.22  0.19 0.41  0.00  0.59 0.59  0.59  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  7.9   7.9   7.4  5.8   0.0   9.6 18.2   8.6   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  3.1   3.1   3.0  0.7   0.0   1.2  3.6   1.0   0.0  0.0   0.0
HCM2KQueue:   0.0 11.0  11.0  10.4  6.5   0.0  10.8 21.8   9.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.18 1.19  1.20  1.18 1.16  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 12.9  12.9  12.3  7.7   0.0  12.7 25.3  11.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.51  1.51 1.54  1.60  1.51 1.44  1.52  1.60 1.60  1.60
85th%HCM2kQ:  0.0 16.5  16.5  15.8 10.0   0.0  16.3 31.5  14.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.63  1.63  1.64 1.69  1.80  1.63 1.53  1.65  1.80 1.80  1.80
90th%HCM2kQ:  0.0 17.9  17.9  17.1 10.9   0.0  17.6 33.5  15.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.83  1.83  1.84 1.92  2.10  1.83 1.68  1.85  2.10 2.10  2.10
95th%HCM2kQ:  0.0 20.0  20.0  19.1 12.4   0.0  19.7 36.6  17.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.13  2.13  2.15 2.31  2.70  2.14 1.89  2.18  2.70 2.70  2.70
98th%HCM2kQ:  0.0 23.3  23.3  22.4 14.9   0.0  23.0 41.2  20.9   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        1.006
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        45.8
Optimal Cycle:      180                Level Of Service:                  D
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     437  966     0     0  996   490   445     0   788     0     0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  437  966     0     0  996   490   445     0   788     0     0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   437  966     0     0  996   490   445     0   788     0     0     0
Reduct Vol:     0    0     0     0    0     0     0     0     0     0     0     0
Reduced Vol:  437  966     0     0  996   490   445     0   788     0     0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   437  966     0     0  996   490   445     0   788     0     0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
Lanes:       1.00 3.00  0.00  0.00 2.00  2.00  1.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:  1805 5187     0     0 3610  2842  1463     0  1615     0     0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.24 0.19  0.00  0.00 0.28  0.17  0.30 0.00  0.49  0.00 0.00  0.00
Crit Moves:  ****                  ****                   ****
Green/Cycle: 0.24 0.52  0.00  0.00 0.27  0.27  0.49 0.00  0.49  0.00 0.00  0.00
Volume/Cap:  1.01 0.36  0.00  0.00 1.01  0.63  0.63 0.00  1.01  0.00 0.00  0.00
Delay/Veh:   82.6 14.5   0.0   0.0 66.3  33.5  20.8  0.0  59.4   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  82.6 14.5   0.0   0.0 66.3  33.5  20.8  0.0  59.4   0.0  0.0   0.0
HCM2kAvg:      21    6     0     0   22     8    14    0    32     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
Lane Group:    L    T   xxxx  xxxx   T     R     L  xxxx    R   xxxx xxxx  xxxx
#LnsInGrps:     1    3     0     0    2     2     1    0     1     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx     2 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  0.77 xxxx xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  0.77 1.00  0.85  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.95  0.88  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:                                        North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx      100   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx    44.50   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx    48.50   xxxxxx
Opposing Effective Green Time, go:             xxxxxx   xxxxxx     0.00   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx        0   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx        1   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx      445   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx     1.00   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx     1.00   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx    12.36   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx        0   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx     0.00   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx     1.00   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx     0.21   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx     1.00   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx    48.29   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx     0.00   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx     0.00   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx     1.00   xxxxxx
Through-car Equivalents, el1:                  xxxxxx   xxxxxx     1.30   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx     1.00   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx     0.08   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx     0.77   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx     0.77   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.24 0.52  0.00  0.00 0.27  0.27  0.49 0.00  0.49  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          12.8  5.3   0.0   0.0 13.8   6.0  11.9  0.0  21.9   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Q2:           7.8  0.6   0.0   0.0  8.1   1.6   1.6  0.0  10.2   0.0  0.0   0.0
HCM2KQueue:  20.5  5.9   0.0   0.0 21.9   7.5  13.5  0.0  32.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.16 1.19  1.20  1.20 1.16  1.18  1.17 1.20  1.14  1.20 1.20  1.20
70th%HCM2kQ: 23.8  7.0   0.0   0.0 25.4   8.9  15.8  0.0  36.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.45 1.55  1.60  1.60 1.44  1.53  1.49 1.60  1.40  1.60 1.60  1.60
85th%HCM2kQ: 29.8  9.1   0.0   0.0 31.6  11.5  20.1  0.0  45.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.54 1.70  1.80  1.80 1.53  1.67  1.60 1.80  1.48  1.80 1.80  1.80
90th%HCM2kQ: 31.7 10.0   0.0   0.0 33.6  12.6  21.7  0.0  47.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.69 1.93  2.10  2.10 1.68  1.89  1.78 2.10  1.60  2.10 2.10  2.10
95th%HCM2kQ: 34.7 11.4   0.0   0.0 36.8  14.3  24.1  0.0  51.4   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 1.91 2.34  2.70  2.70 1.89  2.26  2.05 2.70  1.78  2.70 2.70  2.70
98th%HCM2kQ: 39.1 13.8   0.0   0.0 41.3  17.0  27.7  0.0  57.3   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.666
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        24.6
Optimal Cycle:       56                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L - T - R        L - T - R        L - T - R        L - T - R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     262  508     0     0  879   288     0    0     0   720  357   360
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  262  508     0     0  879   288     0    0     0   720  357   360
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   262  508     0     0  879   288     0    0     0   720  357   360
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  262  508     0     0  879   288     0    0     0   720  357   360
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   262  508     0     0  879   288     0    0     0   720  357   360
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.88  0.88  1.00 1.00  1.00  0.88 0.88  0.88
Lanes:       1.00 2.00  0.00  0.00 2.26  0.74  0.00 0.00  0.00  1.50 0.75  0.75
Final Sat.:  1805 3610     0     0 3762  1233     0    0     0  2511 1245  1255
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.15 0.14  0.00  0.00 0.23  0.23  0.00 0.00  0.00  0.29 0.29  0.29
Crit Moves:  ****                  ****                              ****
Green/Cycle: 0.22 0.57  0.00  0.00 0.35  0.35  0.00 0.00  0.00  0.43 0.43  0.43
Volume/Cap:  0.67 0.25  0.00  0.00 0.67  0.67  0.00 0.00  0.00  0.67 0.67  0.67
Delay/Veh:   40.0 10.9   0.0   0.0 28.5  28.5   0.0  0.0   0.0  23.5 23.5  23.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  40.0 10.9   0.0   0.0 28.5  28.5   0.0  0.0   0.0  23.5 23.5  23.5
HCM2kAvg:      9    4     0     0   11    11     0    0     0    13   13    13
********************************************************************************
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
Lane Group:     L    T   xxxx  xxxx  RT     RT  xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:      1    2     0     0    3     3     0    0     0     3    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:      1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 0.96  0.96  xxxx xxxx xxxxx  0.96 0.96  0.96
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.96 0.96  0.96
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 0.96  0.96  1.00 1.00  1.00  0.93 0.93  0.93
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.95 0.95  0.95
Fnl Sat Adj: 0.95 0.95  1.00  1.00 0.88  0.88  1.00 1.00  1.00  0.88 0.88  0.88
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.22 0.57  0.00  0.00 0.35  0.35  0.00 0.00  0.00  0.43 0.43  0.43
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           7.0  3.5   0.0   0.0  9.2   9.2   0.0  0.0   0.0  11.0 11.0  11.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           1.8  0.3   0.0   0.0  1.9   1.9   0.0  0.0   0.0   1.9  1.9   1.9
HCM2KQueue:   8.8  3.9   0.0   0.0 11.0  11.0   0.0  0.0   0.0  12.9 12.9  12.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.19  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.17 1.17  1.17
70th%HCM2kQ: 10.4  4.6   0.0   0.0 12.9  12.9   0.0  0.0   0.0  15.1 15.1  15.1
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.56  1.60  1.60 1.51  1.51  1.60 1.60  1.60  1.50 1.50  1.50
85th%HCM2kQ: 13.4  6.0   0.0   0.0 16.6  16.6   0.0  0.0   0.0  19.3 19.3  19.3
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.66 1.73  1.80  1.80 1.63  1.63  1.80 1.80  1.80  1.61 1.61  1.61
90th%HCM2kQ: 14.6  6.7   0.0   0.0 17.9  17.9   0.0  0.0   0.0  20.8 20.8  20.8
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.87 1.98  2.10  2.10 1.83  1.83  2.10 2.10  2.10  1.79 1.79  1.79
95th%HCM2kQ: 16.5  7.7   0.0   0.0 20.1  20.1   0.0  0.0   0.0  23.2 23.2  23.2
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.21 2.44  2.70  2.70 2.13  2.13  2.70 2.70  2.70  2.07 2.07  2.07
98th%HCM2kQ: 19.4  9.4   0.0   0.0 23.4  23.4   0.0  0.0   0.0  26.7 26.7  26.7
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.625
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       25.9
Optimal Cycle:       73               Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Protected         Permitted        Permitted
Rights:          Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  441   382   527 1068     0   327   89   500     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  441   382   527 1068     0   327   89   500     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  441   382   527 1068     0   327   89   500     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  441   382   527 1068     0   327   89   500     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  441   382   527 1068     0   327   89   500     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.75  0.92 0.95  1.00  0.80 0.80  0.80  1.00 1.00  1.00
Lanes:       0.00 2.00  2.00  2.00 2.00  0.00  1.57 0.43  1.00  0.00 0.00  0.00
Final Sat.:     0 3610  2842  3502 3610     0  2391  651  1521     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.12  0.13  0.15 0.30  0.00  0.14 0.14  0.33  0.00 0.00  0.00
Crit Moves:                        ****                     ****
Green/Cycle: 0.00 0.16  0.16  0.40 0.56  0.00  0.44 0.44  0.44  0.00 0.00  0.00
Volume/Cap:  0.00 0.75  0.82  0.38 0.53  0.00  0.31 0.31  0.75  0.00 0.00  0.00
Delay/Veh:    0.0 45.0  51.6  21.6 14.0   0.0  18.2 18.2  25.9   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 45.0  51.6  21.6 14.0   0.0  18.2 18.2  25.9   0.0  0.0   0.0
HCM2kAvg:       0    8     8     6   10     0     5    5    15     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
Lane Group:  xxxx   T     R     L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    2     2     2    2     0     3    3     3     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx  0.85  xxxx xxxx xxxxx  0.92 0.92  0.92  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.92 0.92  0.92  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  0.85  0.95 1.00  1.00  0.84 0.84  0.84  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  0.88  0.97 0.95  1.00  0.95 0.95  0.95  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.95  0.75  0.92 0.95  1.00  0.80 0.80  0.80  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.16  0.16  0.40 0.56  0.00  0.44 0.44  0.44  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  5.8   5.1   5.5  9.3   0.0   4.1  4.1  12.6   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.4   2.9   0.6  1.1   0.0   0.4  0.4   2.6   0.0  0.0   0.0
HCM2KQueue:   0.0  8.2   8.1   6.1 10.4   0.0   4.5  4.5  15.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.18  1.20  1.19 1.19  1.17  1.20 1.20  1.20
70th%HCM2kQ:  0.0  9.7   9.5   7.2 12.2   0.0   5.4  5.4  17.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.53  1.53  1.54 1.51  1.60  1.56 1.56  1.48  1.60 1.60  1.60
85th%HCM2kQ:  0.0 12.5  12.3   9.4 15.7   0.0   7.1  7.1  22.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.67  1.67  1.70 1.64  1.80  1.72 1.72  1.59  1.80 1.80  1.80
90th%HCM2kQ:  0.0 13.6  13.4  10.3 17.0   0.0   7.8  7.8  24.2   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.88  1.88  1.93 1.84  2.10  1.97 1.97  1.76  2.10 2.10  2.10
95th%HCM2kQ:  0.0 15.4  15.2  11.7 19.1   0.0   8.9  8.9  26.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.23  2.24  2.33 2.15  2.70  2.41 2.41  2.01  2.70 2.70  2.70
98th%HCM2kQ:  0.0 18.3  18.0  14.1 22.3   0.0  10.9 10.9  30.7   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.730
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        29.3
Optimal Cycle:       85                 Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected         Protected
Rights:           Include          Include          Include           Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      792    3   190    13   71    45    48  861   560   926 1197    26
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  792    3   190    13   71    45    48  861   560   926 1197    26
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   792    3   190    13   71    45    48  861   560   926 1197    26
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  792    3   190    13   71    45    48  861   560   926 1197    26
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   792    3   190    13   71    45    48  861   560   926 1197    26
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.86  0.86  0.92 0.91  0.91
Lanes:       1.99 0.01  1.00  0.10 0.55  0.35  1.00 3.03  1.97  2.00 2.94  0.06
Final Sat.:  3608   14  1615   182  992   628  1805 4929  3206  3502 5061   110
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.22 0.22  0.12  0.07 0.07  0.07  0.03 0.17  0.17  0.26 0.24  0.24
Crit Moves:       ****              ****              ****  ****
Green/Cycle: 0.30 0.30  0.30  0.10 0.10  0.10  0.06 0.24  0.24  0.36 0.54  0.54
Volume/Cap:  0.73 0.73  0.39  0.73 0.73  0.73  0.44 0.73  0.73  0.73 0.44  0.44
Delay/Veh:   33.9 33.9  28.2  58.2 58.2  58.2  48.1 36.5  36.5  29.9 13.9  13.9
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  33.9 33.9  28.2  58.2 58.2  58.2  48.1 36.5  36.5  29.9 13.9  13.9
HCM2kAvg:      13   13     5     6    6     6     2   10    10    14    8     8
********************************************************************************
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
Lane Group:   LT   LT     R    LTR  LTR   LTR    L   RT     RT    L   RT     RT
#LnsInGrps:     2    2     1     1    1     1     1    5     5     2    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     4    4  xxxx     4    4     4     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  0.95 0.95  0.95  xxxx 0.94  0.94  xxxx 1.00  1.00
LT Adj:      0.95 0.95 xxxxx  1.00 1.00  1.00  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.94  0.94  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  0.97 0.91  0.91
Fnl Sat Adj: 0.95 0.95  0.85  0.95 0.95  0.95  0.95 0.86  0.86  0.92 0.91  0.91
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.30 0.30  0.30  0.10 0.10  0.10  0.06 0.24  0.24  0.36 0.54  0.54
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          10.4 10.4   4.2   3.5  3.5   3.5   1.4  7.3   7.3  11.7  6.8   6.8
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q2:           2.4  2.4   0.6   2.0  2.0   2.0   0.7  2.3   2.3   2.4  0.8   0.8
HCM2KQueue:  12.8 12.8   4.8   5.5  5.5   5.5   2.1  9.6   9.6  14.2  7.6   7.6
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.17  1.19  1.19 1.19  1.19  1.19 1.18  1.18  1.17 1.18  1.18
70th%HCM2kQ: 15.0 15.0   5.7   6.6  6.6   6.6   2.5 11.3  11.3  16.6  9.0   9.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.50 1.50  1.56  1.55 1.55  1.55  1.58 1.52  1.52  1.49 1.53  1.53
85th%HCM2kQ: 19.1 19.1   7.5   8.6  8.6   8.6   3.3 14.5  14.5  21.1 11.6  11.6
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.61 1.61  1.71  1.70 1.70  1.70  1.76 1.65  1.65  1.60 1.67  1.67
90th%HCM2kQ: 20.6 20.6   8.3   9.4  9.4   9.4   3.6 15.8  15.8  22.6 12.7  12.7
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.79 1.79  1.96  1.94 1.94  1.94  2.03 1.85  1.85  1.77 1.89  1.89
95th%HCM2kQ: 23.0 23.0   9.4  10.7 10.7  10.7   4.2 17.7  17.7  25.1 14.4  14.4
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.07 2.07  2.39  2.35 2.35  2.35  2.55 2.18  2.18  2.04 2.26  2.26
98th%HCM2kQ: 26.5 26.5  11.5  13.0 13.0  13.0   5.3 20.9  20.9  28.9 17.1  17.1
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap. (X):        0.488
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):        15.9
Optimal Cycle:        36                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted       Split Phase      Split Phase
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       5 1288     0     0 1334    10     0    0     5   208   13   719
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    5 1288     0     0 1334    10     0    0     5   208   13   719
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     5 1288     0     0 1334    10     0    0     5   208   13   719
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    5 1288     0     0 1334    10     0    0     5   208   13   719
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     5 1288     0     0 1334    10     0    0     5   208   13   719
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.13 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
Lanes:       1.00 3.00  0.00  0.00 2.98  0.02  0.00 0.00  1.00  1.00 0.04  1.96
Final Sat.:   243 5187     0     0 5143    39     0    0  1644  1805   58  3184
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.25  0.00  0.00 0.26  0.26  0.00 0.00  0.00  0.12 0.23  0.23
Crit Moves:                        ****                    ****              ****
Green/Cycle: 0.53 0.53  0.00  0.00 0.53  0.53  0.00 0.00  0.01  0.46 0.46  0.46
Volume/Cap:  0.04 0.47  0.00  0.00 0.49  0.49  0.00 0.00  0.49  0.25 0.49  0.49
Delay/Veh:   11.3 14.7   0.0   0.0 15.0  15.0   0.0  0.0  81.9  16.5 18.9  18.9
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  11.3 14.7   0.0   0.0 15.0  15.0   0.0  0.0  81.9  16.5 18.9  18.9
HCM2kAvg:       1    8     0     0    9     9     0    0     1     4    8     8
********************************************************************************
```

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-------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
-------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                        2000 HCM Operations Method
                          Base Volume Alternative
*******************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx    R     L   RT     RT
#LnsInGrps:     1    3     0     0    3     3     0    0     1     1    2     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:      Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:      2 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 1.00  1.00  xxxx xxxx  0.87  xxxx 0.85  0.85
LT Adj:      0.13 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.13 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.87  0.95 0.85  0.85
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.91  0.91  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.13 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
*******************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            49.12   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         53.12   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:              53.12   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       3   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   1   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                  5   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     1.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                       0.14   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                 1344   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:         13.68   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       0.47   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:          17.65   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       35.47   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                 0.04   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.00   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    5.23   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.08   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.13   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.13   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.53 0.53  0.00  0.00 0.53  0.53  0.00 0.00  0.01  0.46 0.46  0.46
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.5  7.4   0.0   0.0  7.9   7.9   0.0  0.0   0.1   3.7  7.1   7.1
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
Q2:           0.0  0.9   0.0   0.0  0.9   0.9   0.0  0.0   0.5   0.3  0.9   0.9
HCM2KQueue:   0.6  8.3   0.0   0.0  8.8   8.8   0.0  0.0   0.7   4.0  8.0   8.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.19 1.18  1.18
70th%HCM2kQ:  0.7  9.8   0.0   0.0 10.4  10.4   0.0  0.0   0.8   4.8  9.4   9.4
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.59 1.53  1.60  1.60 1.52  1.52  1.60 1.60  1.59  1.56 1.53  1.53
85th%HCM2kQ:  0.9 12.7   0.0   0.0 13.4  13.4   0.0  0.0   1.1   6.3 12.2  12.2
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.79 1.66  1.80  1.80 1.66  1.66  1.80 1.80  1.79  1.73 1.67  1.67
90th%HCM2kQ:  1.0 13.8   0.0   0.0 14.6  14.6   0.0  0.0   1.2   7.0 13.3  13.3
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.08 1.88  2.10  2.10 1.87  1.87  2.10 2.10  2.08  1.98 1.88  1.88
95th%HCM2kQ:  1.2 15.6   0.0   0.0 16.5  16.5   0.0  0.0   1.4   8.0 15.1  15.1
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.66 2.23  2.70  2.70 2.21  2.21  2.70 2.70  2.65  2.43 2.24  2.24
98th%HCM2kQ:  1.5 18.5   0.0   0.0 19.5  19.5   0.0  0.0   1.8   9.8 17.9  17.9
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap. (X):        0.591
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       16.3
Optimal Cycle:       45              Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1096   559    26  548     0   698    2   396     0    0     8
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1096   559    26  548     0   698    2   396     0    0     8
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1096   559    26  548     0   698    2   396     0    0     8
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1096   559    26  548     0   698    2   396     0    0     8
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0 1096   559    26  548     0   698    2   396     0    0     8
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.86  0.86  0.10 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Lanes:       0.00 2.00  1.00  1.00 2.00  0.00  1.99 0.01  1.00  0.00 0.00  1.00
Final Sat.:     0 3282  1641   182 3610     0  3611   10  1615     0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.33  0.34  0.14 0.15  0.00  0.19 0.19  0.25  0.00 0.00  0.00
Crit Moves:             ****                              ****              ****
Green/Cycle: 0.00 0.58  0.58  0.58 0.58  0.00  0.42 0.42  0.42  0.00 0.00  0.01
Volume/Cap:  0.00 0.58  0.59  0.25 0.26  0.00  0.47 0.47  0.59  0.00 0.00  0.59
Delay/Veh:    0.0 13.8  13.9  11.7 10.6   0.0  21.4 21.4  24.1   0.0  0.0 103.6
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 13.8  13.9  11.7 10.6   0.0  21.4 21.4  24.1   0.0  0.0 103.6
HCM2kAvg:       0   11    11     4    4     0     8    8    10     0    0     1
********************************************************************************
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-------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
-------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
*******************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
Lane Group:  xxxx  RT     RT    L    T   xxxx   LT   LT     R   xxxx xxxx    R
#LnsInGrps:     0    3     3     1    2     0     2    2     1     0    0     1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:     < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:     Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     2 xxxx  xxxx     4    4  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
RT Adj:      xxxx 0.95  0.95  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.87
LT Adj:      xxxx xxxx xxxxx  0.10 xxxx xxxxx  0.95 0.95 xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.95  0.95  0.10 1.00  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.86  0.86  0.10 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
*******************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:                                        North    South    East     West
Cycle Length, C:                                xxxxxx     100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            xxxxxx   53.67   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         xxxxxx   57.67   xxxxxx   xxxxxx
Opposing Effective Green Time, go:              xxxxxx   57.67   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                   xxxxxx       3   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:               xxxxxx       1   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:              xxxxxx      26   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:    xxxxxx    1.00   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:     xxxxxx  xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                      xxxxxx    0.72   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                xxxxxx    1655   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:         xxxxxx   16.13   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                    xxxxxx    1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                        xxxxxx    0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:     xxxxxx    0.00   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                      xxxxxx    0.42   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:          xxxxxx   20.16   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       xxxxxx   37.51   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:     xxxxxx  xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:    xxxxxx  xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                xxxxxx    0.00   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:    xxxxxx    1.00   xxxxxx   xxxxxx
Through-car Equivalents, el1:                   xxxxxx    6.75   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:       xxxxxx  xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:      xxxxxx    0.07   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:    xxxxxx    0.10   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:               xxxxxx    0.10   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.58  0.58  0.58 0.58  0.00  0.42 0.42  0.42  0.00 0.00  0.01
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  9.7  10.0   3.7  3.8   0.0   7.4  7.4   8.5   0.0  0.0   0.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Q2:           0.0  1.3   1.4   0.3  0.4   0.0   0.9  0.9   1.4   0.0  0.0   0.7
HCM2KQueue:   0.0 11.0  11.4   4.0  4.2   0.0   8.3  8.3   9.9   0.0  0.0   0.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.19 1.19  1.20  1.18 1.18  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 13.0  13.4   4.8  4.9   0.0   9.8  9.8  11.7   0.0  0.0   1.1
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.51  1.56 1.56  1.60  1.53 1.53  1.52  1.60 1.60  1.59
85th%HCM2kQ:  0.0 16.6  17.1   6.3  6.5   0.0  12.6 12.6  15.0   0.0  0.0   1.5
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.63  1.63  1.73 1.72  1.80  1.66 1.66  1.64  1.80 1.80  1.78
90th%HCM2kQ:  0.0 18.0  18.5   7.0  7.2   0.0  13.7 13.7  16.3   0.0  0.0   1.7
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.83  1.82  1.98 1.98  2.10  1.88 1.88  1.85  2.10 2.10  2.07
95th%HCM2kQ:  0.0 20.1  20.7   8.0  8.2   0.0  15.5 15.5  18.3   0.0  0.0   1.9
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.13  2.12  2.43 2.43  2.70  2.23 2.23  2.17  2.70 2.70  2.63
98th%HCM2kQ:  0.0 23.4  24.1   9.8 10.1   0.0  18.4 18.4  21.5   0.0  0.0   2.5
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.709
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        19.0
Optimal Cycle:       64                 Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted       Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   392    0   390     0 1341   602   238 1062     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   392    0   390     0 1341   602   238 1062     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   392    0   390     0 1341   602   238 1062     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   392    0   390     0 1341   602   238 1062     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0    0     0   392    0   390     0 1341   602   238 1062     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.87  0.87  0.95 0.91  1.00
Lanes:       0.00 0.00  0.00  1.50 0.00  1.50  0.00 2.07  0.93  1.00 3.00  0.00
Final Sat.:     0    0     0  2127    0  2123     0 3415  1533  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.18 0.00  0.18  0.00 0.39  0.39  0.13 0.20  0.00
Crit Moves:                   ****                  ****        ****
Green/Cycle: 0.00 0.00  0.00  0.26 0.00  0.26  0.00 0.56  0.56  0.19 0.74  0.00
Volume/Cap:  0.00 0.00  0.00  0.72 0.00  0.71  0.00 0.71  0.71  0.71 0.28  0.00
Delay/Veh:    0.0  0.0   0.0  36.1  0.0  36.0   0.0 17.1  17.1  44.8  4.2   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  36.1  0.0  36.0   0.0 17.1  17.1  44.8  4.2   0.0
HCM2kAvg:      0    0     0    10    0    10     0   15    15     9    4     0
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  0  0  0    1  0  1! 0  1    0  0  2  1  0    1  0  3  0  0
Lane Group:  xxxx xxxx  xxxx   LTR  LTR   LTR  xxxx  RT     RT    L    T   xxxx
#LnsInGrps:     0    0     0     2    1     2     0    3     3     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:     Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     5 xxxx     5  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00 xxxxx
Area Adj:    xxxx xxxx xxxxx  1.00 xxxx  1.00  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      xxxx xxxx xxxxx  0.93 xxxx  0.93  xxxx 0.95  0.95  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.81 xxxx  0.81  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.95  0.95  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  1.00 0.91  1.00
Fnl Sat Adj: 1.00 1.00  1.00  0.75 1.00  0.75  1.00 0.87  0.87  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx     100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx   21.77   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx   25.77   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx    0.00   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx       0   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx       2   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx     392   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx    0.50   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx    1.00   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx   10.89   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx       0   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx    0.00   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx    1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx    0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx    0.16   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx    1.00   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx    0.00   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx   25.61   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx    0.00   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx    0.00   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx  xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx    1.07   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx    1.40   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx    1.00   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx    0.16   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx    0.70   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx    0.81   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #1 I-110 SB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.00  0.00  0.26 0.00  0.26  0.00 0.56  0.56  0.19 0.74  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  0.0   0.0   8.2  0.0   8.2   0.0 13.2  13.2   6.5  3.2   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 0.00  0.00  1.00 0.00  1.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           0.0  0.0   0.0   2.2  0.0   2.2   0.0  2.3   2.3   2.1  0.4   0.0
HCM2KQueue:   0.0  0.0   0.0  10.4  0.0  10.3   0.0 15.4  15.4   8.6  3.6   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.20  1.20  1.18 1.20  1.18  1.20 1.17  1.17  1.18 1.19  1.20
70th%HCM2kQ:  0.0  0.0   0.0  12.2  0.0  12.2   0.0 18.0  18.0  10.2  4.2   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.60  1.60  1.51 1.60  1.51  1.60 1.48  1.48  1.53 1.57  1.60
85th%HCM2kQ:  0.0  0.0   0.0  15.7  0.0  15.6   0.0 22.8  22.8  13.1  5.6   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.80  1.80  1.64 1.80  1.64  1.80 1.59  1.59  1.66 1.73  1.80
90th%HCM2kQ:  0.0  0.0   0.0  17.0  0.0  16.9   0.0 24.4  24.4  14.3  6.2   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 2.10  2.10  1.84 2.10  1.84  2.10 1.75  1.75  1.87 1.99  2.10
95th%HCM2kQ:  0.0  0.0   0.0  19.1  0.0  19.0   0.0 27.1  27.1  16.1  7.1   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.70  2.70  2.15 2.70  2.15  2.70 2.01  2.01  2.22 2.46  2.70
98th%HCM2kQ:  0.0  0.0   0.0  22.4  0.0  22.3   0.0 30.9  30.9  19.1  8.8   0.0
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.966
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        37.2
Optimal Cycle:      180                Level Of Service:                  D
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted       Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     486    0   321     0    0     0     0 1318   412   369  816     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  486    0   321     0    0     0     0 1318   412   369  816     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   486    0   321     0    0     0     0 1318   412   369  816     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  486    0   321     0    0     0     0 1318   412   369  816     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   486    0   321     0    0     0     0 1318   412   369  816     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.73 1.00  0.76  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
Lanes:       1.44 0.00  0.56  0.00 0.00  0.00  0.00 2.00  1.00  1.00 3.00  0.00
Final Sat.:  2007    0   809     0    0     0     0 3610  1615  1805 5187     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.24 0.00  0.40  0.00 0.00  0.00  0.00 0.37  0.26  0.20 0.16  0.00
Crit Moves:             ****                        ****        ****
Green/Cycle: 0.41 0.00  0.41  0.00 0.00  0.00  0.00 0.38  0.38  0.21 0.59  0.00
Volume/Cap:  0.59 0.00  0.97  0.00 0.00  0.00  0.00 0.97  0.67  0.97 0.27  0.00
Delay/Veh:   23.7  0.0  52.4   0.0  0.0   0.0   0.0 47.2  28.9  75.9 10.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  23.7  0.0  52.4   0.0  0.0   0.0   0.0 47.2  28.9  75.9 10.0   0.0
HCM2kAvg:      11    0    27     0    0     0     0   26    11    17    4     0
********************************************************************************
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1! 0  0    0  0  0  0  0    0  0  2  0  1    1  0  3  0  0
Lane Group:   LTR  LTR   LTR  xxxx xxxx  xxxx  xxxx   T     R     L    T   xxxx
#LnsInGrps:     2    1     1     0    0     0     0    2     1     1    3     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     5 xxxx     5  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Hev Veh Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Grade Adj:   1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
Parking Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Bus Stp Adj: 1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx xxxx  1.00  xxxx 1.00 xxxxx
Area Adj:    1.00 xxxx  1.00  xxxx xxxx xxxxx  xxxx 1.00  1.00  1.00 1.00 xxxxx
RT Adj:      0.94 xxxx  0.94  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.78 xxxx  0.81  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.73 1.00  0.76  1.00 1.00  1.00  1.00 1.00  0.85  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.95  1.00  1.00 0.91  1.00
Fnl Sat Adj: 0.73 1.00  0.76  1.00 1.00  1.00  1.00 0.95  0.85  0.95 0.91  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            37.00   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         41.00   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:               0.00   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       0   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   2   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                486   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     0.60   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:      1.00   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                      13.50   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                    0   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:          0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.12   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       1.00   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:           0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       40.88   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:      0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:     0.00   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.34   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    1.40   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:        1.00   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.11   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.65   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.78   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                        2000 HCM Operations Method
                          Base Volume Alternative
********************************************************************************
Intersection #2 I-110 NB RAMPS & EL SEGUNDO BL
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.41 0.00  0.41  0.00 0.00  0.00  0.00 0.38  0.38  0.21 0.59  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           9.4  0.0  19.3   0.0  0.0   0.0   0.0 17.9   9.6  10.7  3.7   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Q2:           1.4  0.0   8.1   0.0  0.0   0.0   0.0  7.7   1.9   6.1  0.4   0.0
HCM2KQueue:  10.7  0.0  27.3   0.0  0.0   0.0   0.0 25.6  11.5  16.8  4.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.20  1.15  1.20 1.20  1.20  1.20 1.15  1.18  1.17 1.19  1.20
70th%HCM2kQ: 12.6  0.0  31.4   0.0  0.0   0.0   0.0 29.6  13.5  19.6  4.8   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.51 1.60  1.42  1.60 1.60  1.60  1.60 1.43  1.50  1.47 1.56  1.60
85th%HCM2kQ: 16.2  0.0  38.8   0.0  0.0   0.0   0.0 36.6  17.3  24.8  6.3   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.63 1.80  1.50  1.80 1.80  1.80  1.80 1.51  1.63  1.57 1.73  1.80
90th%HCM2kQ: 17.6  0.0  41.1   0.0  0.0   0.0   0.0 38.7  18.7  26.5  7.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.83 2.10  1.63  2.10 2.10  2.10  2.10 1.64  1.82  1.74 1.98  2.10
95th%HCM2kQ: 19.7  0.0  44.6   0.0  0.0   0.0   0.0 42.2  20.9  29.2  8.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.14 2.70  1.82  2.70 2.70  2.70  2.70 1.84  2.11  1.97 2.43  2.70
98th%HCM2kQ: 23.0  0.0  49.8   0.0  0.0   0.0   0.0 47.2  24.3  33.2  9.8   0.0
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.734
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        21.9
Optimal Cycle:       70                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     553 1050     0     0 1075   588     0    0     0   327    0   485
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  553 1050     0     0 1075   588     0    0     0   327    0   485
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   553 1050     0     0 1075   588     0    0     0   327    0   485
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  553 1050     0     0 1075   588     0    0     0   327    0   485
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   553 1050     0     0 1075   588     0    0     0   327    0   485
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.75 1.00  0.75
Lanes:       2.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.40 0.00  1.60
Final Sat.:  3502 3610     0     0 3610  1615     0    0     0  2006    0  2284
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.16 0.29  0.00  0.00 0.30  0.36  0.00 0.00  0.00  0.16 0.00  0.21
Crit Moves:  ****                        ****                              ****
Green/Cycle: 0.22 0.71  0.00  0.00 0.50  0.50  0.00 0.00  0.00  0.29 0.00  0.29
Volume/Cap:  0.73 0.41  0.00  0.00 0.60  0.73  0.00 0.00  0.00  0.57 0.00  0.74
Delay/Veh:   40.2  5.9   0.0   0.0 18.6  23.4   0.0  0.0   0.0  30.9  0.0  34.9
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  40.2  5.9   0.0   0.0 18.6  23.4   0.0  0.0   0.0  30.9  0.0  34.9
HCM2kAvg:     10    7     0     0   12    15     0    0     0     8    0    12
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:         2  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  0  1! 0  1
Lane Group:     L    T   xxxx  xxxx   T     R   xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     2    2     0     0    2     1     0    0     0     2    1     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                 8                 8                 8
% Hev Veh:           0                 0                 0                 0
Grade:              0%                0%                0%                0%
Parking/Hr:         No                No                No                No
Bus Stp/Hr:          0                 0                 0                 0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                 0                 0                 0
ExclusiveRT:     Include           Include           Include           Include
% RT Prtct:          0                 0                 0                 0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     5 xxxx     5
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 xxxx  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx xxxxx  0.91 xxxx  0.91
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.83 xxxx  0.83
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  1.00 1.00  1.00  0.75 1.00  0.75
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 0.97 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.92 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.75 1.00  0.75
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx   xxxxxx      100
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx   xxxxxx    24.74
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx   xxxxxx    28.74
Opposing Effective Green Time, go:             xxxxxx   xxxxxx   xxxxxx     0.00
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx   xxxxxx        0
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx   xxxxxx        2
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx   xxxxxx      327
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx   xxxxxx     0.40
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx     1.00
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx   xxxxxx     9.08
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx   xxxxxx        0
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx   xxxxxx     0.00
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx   xxxxxx     1.00
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx   xxxxxx     0.00
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx   xxxxxx     0.34
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx   xxxxxx     1.00
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx   xxxxxx     0.00
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx   xxxxxx    28.40
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx     0.00
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx     0.00
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx   xxxxxx     0.87
Through-car Equivalents, el1:                  xxxxxx   xxxxxx   xxxxxx     1.40
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx     1.00
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx   xxxxxx     0.13
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx   xxxxxx     0.74
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx   xxxxxx     0.83
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #16 CENTRAL AVE & I-105 WB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.22 0.71  0.00  0.00 0.50  0.50  0.00 0.00  0.00  0.29 0.00  0.29
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           7.5  5.9   0.0   0.0 10.7  12.9   0.0  0.0   0.0   6.7  0.0   9.2
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
Q2:           2.3  0.7   0.0   0.0  1.4   2.5   0.0  0.0   0.0   1.3  0.0   2.5
HCM2KQueue:   9.9  6.6   0.0   0.0 12.1  15.4   0.0  0.0   0.0   7.9  0.0  11.7
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.18 1.18  1.20  1.20 1.17  1.17  1.20 1.20  1.20  1.18 1.20  1.17
70th%HCM2kQ: 11.6  7.8   0.0   0.0 14.3  18.0   0.0  0.0   0.0   9.4  0.0  13.7
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.52 1.54  1.60  1.60 1.50  1.48  1.60 1.60  1.60  1.53 1.60  1.50
85th%HCM2kQ: 14.9 10.2   0.0   0.0 18.2  22.8   0.0  0.0   0.0  12.1  0.0  17.6
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.64 1.69  1.80  1.80 1.62  1.58  1.80 1.80  1.80  1.67 1.80  1.62
90th%HCM2kQ: 16.2 11.1   0.0   0.0 19.6  24.4   0.0  0.0   0.0  13.2  0.0  19.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.85 1.92  2.10  2.10 1.81  1.75  2.10 2.10  2.10  1.89 2.10  1.81
95th%HCM2kQ: 18.2 12.6   0.0   0.0 21.9  27.1   0.0  0.0   0.0  14.9  0.0  21.2
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.17 2.30  2.70  2.70 2.09  2.01  2.70 2.70  2.70  2.24 2.70  2.11
98th%HCM2kQ: 21.4 15.2   0.0   0.0 25.4  30.9   0.0  0.0   0.0  17.8  0.0  24.6
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.765
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        26.6
Optimal Cycle:       79                 Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Protected         Permitted         Permitted
Rights:           Include          Include           Include           Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  2  1  1   2  0  2  0  0   1  0  1! 0  1   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0 1058   399   518  881     0   538  165   468     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0 1058   399   518  881     0   538  165   468     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      0 1058   399   518  881     0   538  165   468     0    0     0
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:     0 1058   399   518  881     0   538  165   468     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:      0 1058   399   518  881     0   538  165   468     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.88 0.88  0.88  1.00 1.00  1.00
Lanes:       0.00 2.90  1.10  2.00 2.00  0.00  1.40 0.25  1.35  0.00 0.00  0.00
Final Sat.:      0 4816  1816  3502 3610     0  2355  415  2267     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.22  0.22  0.15 0.24  0.00  0.23 0.40  0.21  0.00 0.00  0.00
Crit Moves:       ****        ****                  ****
Green/Cycle: 0.00 0.29  0.29  0.19 0.48  0.00  0.52 0.52  0.52  0.00 0.00  0.00
Volume/Cap:  0.00 0.77  0.77  0.77 0.51  0.00  0.44 0.77  0.40  0.00 0.00  0.00
Delay/Veh:    0.0 34.5  34.5  43.4 18.1   0.0  15.1 21.5  14.6   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 34.5  34.5  43.4 18.1   0.0  15.1 21.5  14.6   0.0  0.0   0.0
HCM2kAvg:       0   12    12    10    9     0     8   19     7     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  1    2  0  2  0  0    1  0  1! 0  1    0  0  0  0  0
Lane Group:  xxxx  RT     RT    L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    4     4     2    2     0     2    1     2     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx 0.96  0.96  xxxx xxxx xxxxx  0.94 0.94  0.94  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.94 0.94  0.94  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.96  0.96  0.95 1.00  1.00  0.88 0.88  0.88  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  0.97 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.92 0.95  1.00  0.88 0.88  0.88  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #17 CENTRAL AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.29  0.29  0.19 0.48  0.00  0.52 0.52  0.52  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  9.2   9.2   7.2  8.4   0.0   7.1 15.7   6.2   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  2.7   2.7   2.6  1.0   0.0   0.8  2.9   0.7   0.0  0.0   0.0
HCM2KQueue:   0.0 12.0  12.0   9.8  9.4   0.0   7.8 18.7   6.9   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.17  1.17  1.18 1.18  1.20  1.18 1.16  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 14.1  14.1  11.5 11.1   0.0   9.3 21.7   8.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.50  1.50  1.52 1.52  1.60  1.53 1.46  1.54  1.60 1.60  1.60
85th%HCM2kQ:  0.0 18.0  18.0  14.8 14.3   0.0  12.0 27.3  10.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.62  1.62  1.65 1.65  1.80  1.67 1.56  1.68  1.80 1.80  1.80
90th%HCM2kQ:  0.0 19.4  19.4  16.1 15.6   0.0  13.1 29.1  11.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.81  1.81  1.85 1.86  2.10  1.89 1.71  1.91  2.10 2.10  2.10
95th%HCM2kQ:  0.0 21.7  21.7  18.1 17.5   0.0  14.8 32.0  13.1   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.10  2.10  2.17 2.18  2.70  2.25 1.94  2.29  2.70 2.70  2.70
98th%HCM2kQ:  0.0 25.1  25.1  21.2 20.6   0.0  17.6 36.2  15.7   0.0  0.0   0.0
```

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-------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap. (X):        0.895
Loss Time (sec):        0 (Y+R =  4 sec) Average Delay (sec/veh):        29.4
Optimal Cycle:        178                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     625 1481     0     0  982   401   406    0   367     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  625 1481     0     0  982   401   406    0   367     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   625 1481     0     0  982   401   406    0   367     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  625 1481     0     0  982   401   406    0   367     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   625 1481     0     0  982   401   406    0   367     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
Lanes:       1.00 3.00  0.00  0.00 2.00  2.00  1.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:  1805 5187     0     0 3610  2842  1465    0  1615     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.35 0.29  0.00  0.00 0.27  0.14  0.28 0.00  0.23  0.00 0.00  0.00
Crit Moves:  ****                  ****        ****
Green/Cycle: 0.39 0.69  0.00  0.00 0.30  0.30  0.31 0.00  0.31  0.00 0.00  0.00
Volume/Cap:  0.90 0.41  0.00  0.00 0.90  0.46  0.89 0.00  0.73  0.00 0.00  0.00
Delay/Veh:   43.0  6.8   0.0   0.0 43.0  28.6  52.7  0.0  36.4   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  43.0  6.8   0.0   0.0 43.0  28.6  52.7  0.0  36.4   0.0  0.0   0.0
HCM2kAvg:      23    7     0     0   18     5    19    0    12     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  0  2    1  0  0  0  1    0  0  0  0  0
Lane Group:    L    T   xxxx  xxxx   T     R     L  xxxx    R   xxxx xxxx  xxxx
#LnsInGrps:     1    3     0     0    2     2     1    0     1     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx     2 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx xxxx xxxxx
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  1.00 xxxx  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx xxxx xxxxx
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  0.77 xxxx xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 1.00  0.85  0.77 1.00  0.85  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.95  0.88  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.95 0.91  1.00  1.00 0.95  0.75  0.77 1.00  0.85  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx   xxxxxx      100   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx   xxxxxx    26.98   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx   xxxxxx    30.98   xxxxxx
Opposing Effective Green Time, go:             xxxxxx   xxxxxx     0.00   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx   xxxxxx        0   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx   xxxxxx        1   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx   xxxxxx      406   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx   xxxxxx     1.00   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx     1.00   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx   xxxxxx    11.28   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx   xxxxxx        0   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx   xxxxxx     0.00   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx   xxxxxx     1.00   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx   xxxxxx     0.18   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx   xxxxxx     1.00   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx   xxxxxx     0.00   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx   xxxxxx    30.80   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx     0.00   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx     0.00   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx   xxxxxx     1.00   xxxxxx
Through-car Equivalents, el1:                  xxxxxx   xxxxxx     1.30   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx     1.00   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx   xxxxxx     0.13   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx   xxxxxx     0.77   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx   xxxxxx     0.77   xxxxxx
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #34 WILMINGTON AVE & I-105 EB ON/OFF RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.39 0.69  0.00  0.00 0.30  0.30  0.31 0.00  0.31  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          17.1  5.9   0.0   0.0 13.0   4.5  14.0  0.0   9.1   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Q2:           5.5  0.7   0.0   0.0  5.0   0.8   5.1  0.0   2.4   0.0  0.0   0.0
HCM2KQueue:  22.6  6.6   0.0   0.0 18.1   5.4  19.1  0.0  11.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.16 1.18  1.20  1.20 1.16  1.19  1.16 1.20  1.17  1.20 1.20  1.20
70th%HCM2kQ: 26.2  7.9   0.0   0.0 21.0   6.4  22.2  0.0  13.5   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.44 1.54  1.60  1.60 1.46  1.55  1.46 1.60  1.50  1.60 1.60  1.60
85th%HCM2kQ: 32.6 10.2   0.0   0.0 26.5   8.3  27.8  0.0  17.3   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.53 1.69  1.80  1.80 1.56  1.71  1.55 1.80  1.62  1.80 1.80  1.80
90th%HCM2kQ: 34.6 11.2   0.0   0.0 28.2   9.1  29.7  0.0  18.7   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.67 1.91  2.10  2.10 1.72  1.95  1.71 2.10  1.82  2.10 2.10  2.10
95th%HCM2kQ: 37.8 12.7   0.0   0.0 31.1  10.4  32.6  0.0  20.9   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 1.88 2.30  2.70  2.70 1.95  2.36  1.93 2.70  2.11  2.70 2.70  2.70
98th%HCM2kQ: 42.4 15.3   0.0   0.0 35.2  12.7  36.8  0.0  24.3   0.0  0.0   0.0
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.703
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        25.4
Optimal Cycle:       63                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     506  762     0     0  629   283     0    0     0   462  180   383
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  506  762     0     0  629   283     0    0     0   462  180   383
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   506  762     0     0  629   283     0    0     0   462  180   383
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  506  762     0     0  629   283     0    0     0   462  180   383
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   506  762     0     0  629   283     0    0     0   462  180   383
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.87  0.87  1.00 1.00  1.00  0.85 0.85  0.85
Lanes:       1.00 2.00  0.00  0.00 2.07  0.93  0.00 0.00  0.00  1.44 0.56  1.00
Final Sat.:  1805 3610     0     0 3413  1536     0    0     0  2315  902  1609
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.28 0.21  0.00  0.00 0.18  0.18  0.00 0.00  0.00  0.20 0.20  0.24
Crit Moves:  ****                  ****                                    ****
Green/Cycle: 0.40 0.66  0.00  0.00 0.26  0.26  0.00 0.00  0.00  0.34 0.34  0.34
Volume/Cap:  0.70 0.32  0.00  0.00 0.70  0.70  0.00 0.00  0.00  0.59 0.59  0.70
Delay/Veh:   28.2  7.4   0.0   0.0 35.1  35.1   0.0  0.0   0.0  27.8 27.8  30.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  28.2  7.4   0.0   0.0 35.1  35.1   0.0  0.0   0.0  27.8 27.8  30.3
HCM2kAvg:      15    5     0     0   10    10     0    0     0     9    9    12
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  2  0  0    0  0  2  1  0    0  0  0  0  0    1  1  0  1  0
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx  xxxx   LTR  LTR   LTR
#LnsInGrps:     1    2     0     0    3     3     0    0     0     3    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     1 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx    5r   5r    5r
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx xxxxx  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 0.95  0.95  xxxx xxxx xxxxx  0.94 0.94  0.94
LT Adj:      0.95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.94 0.94  0.94
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 1.00  1.00  1.00 0.95  0.95  1.00 1.00  1.00  0.89 0.89  0.89
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.95 0.95  0.95
Fnl Sat Adj: 0.95 0.95  1.00  1.00 0.87  0.87  1.00 1.00  1.00  0.85 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                         2000 HCM Operations Method
                           Base Volume Alternative
********************************************************************************
Intersection #44 WILMINGTON BL & ARTESIA BL(N)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.40 0.66  0.00  0.00 0.26  0.26  0.00 0.00  0.00  0.34 0.34  0.34
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          12.4  4.5   0.0   0.0  7.6   7.6   0.0  0.0   0.0   7.8  7.8   9.8
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Q2:           2.2  0.5   0.0   0.0  2.1   2.1   0.0  0.0   0.0   1.4  1.4   2.1
HCM2KQueue:  14.6  5.0   0.0   0.0  9.7   9.7   0.0  0.0   0.0   9.2  9.2  11.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.19  1.20  1.20 1.18  1.18  1.20 1.20  1.20  1.18 1.18  1.17
70th%HCM2kQ: 17.0  6.0   0.0   0.0 11.5  11.5   0.0  0.0   0.0  10.8 10.8  14.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.48 1.55  1.60  1.60 1.52  1.52  1.60 1.60  1.60  1.52 1.52  1.50
85th%HCM2kQ: 21.6  7.8   0.0   0.0 14.8  14.8   0.0  0.0   0.0  14.0 14.0  17.9
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.59 1.71  1.80  1.80 1.65  1.65  1.80 1.80  1.80  1.65 1.65  1.62
90th%HCM2kQ: 23.2  8.6   0.0   0.0 16.0  16.0   0.0  0.0   0.0  15.2 15.2  19.3
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.77 1.95  2.10  2.10 1.85  1.85  2.10 2.10  2.10  1.86 1.86  1.81
95th%HCM2kQ: 25.7  9.8   0.0   0.0 18.0  18.0   0.0  0.0   0.0  17.1 17.1  21.6
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.03 2.38  2.70  2.70 2.17  2.17  2.70 2.70  2.70  2.19 2.19  2.10
98th%HCM2kQ: 29.5 11.9   0.0   0.0 21.1  21.1   0.0  0.0   0.0  20.1 20.1  25.0
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            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.641
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       22.6
Optimal Cycle:       52                 Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted       Protected         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  946   802   376  705     0   316  561   282     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  946   802   376  705     0   316  561   282     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  946   802   376  705     0   316  561   282     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  946   802   376  705     0   316  561   282     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  946   802   376  705     0   316  561   282     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.75  0.92 0.95  1.00  0.88 0.88  0.88  1.00 1.00  1.00
Lanes:       0.00 2.00  2.00  2.00 2.00  0.00  1.00 1.33  0.67  0.00 0.00  0.00
Final Sat.:     0 3610  2842  3502 3610     0  1677 2233  1122     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.26  0.28  0.11 0.20  0.00  0.19 0.25  0.25  0.00 0.00  0.00
Crit Moves:             ****  ****                  ****
Green/Cycle: 0.00 0.44  0.44  0.17 0.61  0.00  0.39 0.39  0.39  0.00 0.00  0.00
Volume/Cap:  0.00 0.60  0.64  0.64 0.32  0.00  0.48 0.64  0.64  0.00 0.00  0.00
Delay/Veh:    0.0 21.8  23.0  41.2  9.6   0.0  22.9 25.5  25.5   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 21.8  23.0  41.2  9.6   0.0  22.9 25.5  25.5   0.0  0.0   0.0
HCM2kAvg:      0   11    10     7    5     0     8   12    12     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  0  2    2  0  2  0  0    1  1  0  1  0    0  0  0  0  0
Lane Group:  xxxx   T     R     L    T   xxxx   LTR  LTR   LTR  xxxx xxxx  xxxx
#LnsInGrps:     0    2     2     2    2     0     3    3     3     0    0     0
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12  12   12   12  12   12   12  12   12   12  12   12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     1 xxxx  xxxx    5r   5r    5r  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Parking Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Bus Stp Adj: xxxx xxxx  1.00  xxxx 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx xxxxx
RT Adj:      xxxx xxxx  0.85  xxxx xxxx xxxxx  0.96 0.96  0.96  xxxx xxxx xxxxx
LT Adj:      xxxx xxxx xxxxx  0.95 xxxx xxxxx  0.96 0.96  0.96  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 1.00  0.85  0.95 1.00  1.00  0.93 0.93  0.93  1.00 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.95  0.88  0.97 0.95  1.00  0.95 0.95  0.95  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.95  0.75  0.92 0.95  1.00  0.88 0.88  0.88  1.00 1.00  1.00
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #45 WILMINGTON BL & ARTESIA BL(S)
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.44  0.44  0.17 0.61  0.00  0.39 0.39  0.39  0.00 0.00  0.00
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0 10.0   8.7   5.1  4.8   0.0   6.8  9.9   9.9   0.0  0.0   0.0
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Q2:           0.0  1.4   1.7   1.6  0.5   0.0   0.9  1.7   1.7   0.0  0.0   0.0
HCM2KQueue:   0.0 11.4  10.4   6.7  5.2   0.0   7.7 11.6  11.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.18 1.19  1.20  1.18 1.17  1.17  1.20 1.20  1.20
70th%HCM2kQ:  0.0 13.4  12.2   8.0  6.2   0.0   9.1 13.6  13.6   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.51  1.51  1.54 1.55  1.60  1.53 1.50  1.50  1.60 1.60  1.60
85th%HCM2kQ:  0.0 17.1  15.7  10.4  8.1   0.0  11.8 17.4  17.4   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.63  1.64  1.69 1.71  1.80  1.67 1.62  1.62  1.80 1.80  1.80
90th%HCM2kQ:  0.0 18.5  17.0  11.3  9.0   0.0  12.9 18.8  18.8   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.82  1.84  1.91 1.95  2.10  1.89 1.82  1.82  2.10 2.10  2.10
95th%HCM2kQ:  0.0 20.7  19.0  12.9 10.2   0.0  14.6 21.0  21.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.12  2.15  2.30 2.37  2.70  2.25 2.11  2.11  2.70 2.70  2.70
98th%HCM2kQ:  0.0 24.1  22.3  15.4 12.4   0.0  17.4 24.4  24.4   0.0  0.0   0.0
```

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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.704
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        26.9
Optimal Cycle:       77               Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase        Protected         Protected
Rights:           Include          Include          Include           Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     756   19   277    18   29    28    29 1794   491   612  865    14
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  756   19   277    18   29    28    29 1794   491   612  865    14
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   756   19   277    18   29    28    29 1794   491   612  865    14
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  756   19   277    18   29    28    29 1794   491   612  865    14
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   756   19   277    18   29    28    29 1794   491   612  865    14
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.88  0.88  0.92 0.91  0.91
Lanes:       1.95 0.05  1.00  0.24 0.39  0.37  1.00 3.93  1.07  2.00 2.95  0.05
Final Sat.:  3536   89  1615   428  690   666  1805 6570  1798  3502 5094    82
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.21  0.17  0.04 0.04  0.04  0.02 0.27  0.27  0.17 0.17  0.17
Crit Moves:       ****             ****             ****        ****
Green/Cycle: 0.30 0.30  0.30  0.06 0.06  0.06  0.06 0.39  0.39  0.25 0.58  0.58
Volume/Cap:  0.70 0.70  0.56  0.70 0.70  0.70  0.29 0.70  0.70  0.70 0.29  0.29
Delay/Veh:   32.9 32.9  30.8  65.3 65.3  65.3  47.0 26.5  26.5  36.9 10.6  10.6
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  32.9 32.9  30.8  65.3 65.3  65.3  47.0 26.5  26.5  36.9 10.6  10.6
HCM2kAvg:      12   12     8     4    4     4     1   13    13    10    5     5
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  1  0  0  1    0  0  1! 0  0    1  0  3  1  1    2  0  2  1  0
Lane Group:   LT   LT     R    LTR  LTR   LTR    L   RT     RT    L   RT     RT
#LnsInGrps:     2    2     1     1    1     1     1    5     5     2    3     3
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     4    4  xxxx     4    4     4     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  1.00 1.00  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  0.95 0.95  0.95  xxxx 0.97  0.97  xxxx 1.00  1.00
LT Adj:      0.95 0.95 xxxxx  0.99 0.99  0.99  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.97  0.97  0.95 1.00  1.00
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 0.91  0.91  0.97 0.91  0.91
Fnl Sat Adj: 0.95 0.95  0.85  0.94 0.94  0.94  0.95 0.88  0.88  0.92 0.91  0.91
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #49 I-105 WB ON/OFF RAMPS & IMPERIAL HIGHWAY
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.30 0.30  0.30  0.06 0.06  0.06  0.06 0.39  0.39  0.25 0.58  0.58
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:          10.0 10.0   6.5   2.1  2.1   2.1   0.8 10.7  10.7   8.1  4.1   4.1
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q2:           2.2  2.2   1.2   1.7  1.7   1.7   0.4  2.2   2.2   2.1  0.4   0.4
HCM2KQueue:  12.1 12.1   7.7   3.7  3.7   3.7   1.2 12.9  12.9  10.3  4.5   4.5
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.17 1.17  1.18  1.19 1.19  1.19  1.20 1.17  1.17  1.18 1.19  1.19
70th%HCM2kQ: 14.3 14.3   9.1   4.5  4.5   4.5   1.4 15.1  15.1  12.1  5.4   5.4
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.50 1.50  1.53  1.56 1.56  1.56  1.59 1.50  1.50  1.51 1.56  1.56
85th%HCM2kQ: 18.2 18.2  11.8   5.9  5.9   5.9   1.9 19.2  19.2  15.5  7.0   7.0
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.62 1.62  1.67  1.73 1.73  1.73  1.78 1.61  1.61  1.64 1.72  1.72
90th%HCM2kQ: 19.7 19.7  12.9   6.5  6.5   6.5   2.1 20.7  20.7  16.8  7.8   7.8
------------|---------------||---------------||---------------||---------------|
95th%Factor: 1.81 1.81  1.89  1.99 1.99  1.99  2.06 1.79  1.79  1.84 1.97  1.97
95th%HCM2kQ: 21.9 21.9  14.6   7.4  7.4   7.4   2.5 23.1  23.1  18.9  8.9   8.9
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.09 2.09  2.25  2.45 2.45  2.45  2.61 2.07  2.07  2.15 2.41  2.41
98th%HCM2kQ: 25.4 25.4  17.4   9.2  9.2   9.2   3.2 26.7  26.7  22.1 10.9  10.9
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.625
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        19.2
Optimal Cycle:       50                 Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3 1228     0     0 1479     8     0     0    13   479    12  1056
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3 1228     0     0 1479     8     0     0    13   479    12  1056
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     3 1228     0     0 1479     8     0     0    13   479    12  1056
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    3 1228     0     0 1479     8     0     0    13   479    12  1056
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     3 1228     0     0 1479     8     0     0    13   479    12  1056
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.09 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
Lanes:       1.00 3.00  0.00  0.00 2.98  0.02  0.00 0.00  1.00  1.00 0.02  1.98
Final Sat.:   165 5187     0     0 5154    28     0     0  1644  1805    36  3201
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.24  0.00  0.00 0.29  0.29  0.00 0.00  0.01  0.27 0.33  0.33
Crit Moves:                        ****                    ****              ****
Green/Cycle: 0.46 0.46  0.00  0.00 0.46  0.46  0.00 0.00  0.01  0.53 0.53  0.53
Volume/Cap:  0.04 0.52  0.00  0.00 0.62  0.62  0.00 0.00  0.62  0.50 0.62  0.62
Delay/Veh:   15.1 19.3   0.0   0.0 21.0  21.0   0.0  0.0  96.4  15.6 17.4  17.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  15.1 19.3   0.0   0.0 21.0  21.0   0.0  0.0  96.4  15.6 17.4  17.4
HCM2kAvg:       1    9     0     0   12    12     0    0     1    10   12    12
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound        East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  3  0  0    0  0  2  1  0    0  0  0  0  1    1  0  0  1  1
Lane Group:    L    T   xxxx  xxxx  RT     RT  xxxx xxxx    R     L   RT     RT
#LnsInGrps:     1    3     0     0    3     3     0    0     1     1    2     2
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:     2 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Hev Veh Adj: 1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Grade Adj:   1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
Parking Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00 xxxxx  xxxx 1.00  1.00  xxxx xxxx  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx xxxxx  xxxx 1.00  1.00  xxxx xxxx  0.87  xxxx 0.85  0.85
LT Adj:      0.09 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.09 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.87  0.95 0.85  0.85
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  1.00  1.00 0.91  0.91  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.09 0.91  1.00  1.00 0.91  0.91  1.00 1.00  0.87  0.95 0.85  0.85
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
********************************************************************************
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--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                                  100   xxxxxx   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:            41.93   xxxxxx   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:         45.93   xxxxxx   xxxxxx   xxxxxx
Opposing Effective Green Time, go:              45.93   xxxxxx   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                       3   xxxxxx   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:                   1   xxxxxx   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:                  3   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:     1.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Pltho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                       0.08   xxxxxx   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:                 1487   xxxxxx   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:         15.13   xxxxxx   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                     1.00   xxxxxx   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                         0.00   xxxxxx   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:      0.00   xxxxxx   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                       0.54   xxxxxx   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:          23.46   xxxxxx   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:       22.47   xxxxxx   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:                 0.00   xxxxxx   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:     1.00   xxxxxx   xxxxxx   xxxxxx
Through-car Equivalents, el1:                    6.08   xxxxxx   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:       0.09   xxxxxx   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:     0.09   xxxxxx   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:                0.09   xxxxxx   xxxxxx   xxxxxx
********************************************************************************
```

```
--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #59 LONG BEACH BL & I-105 WB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.46 0.46  0.00  0.00 0.46  0.46  0.00 0.00  0.01  0.53 0.53  0.53
ArrivalType:         3                3                 3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.5  8.1   0.0   0.0 10.4  10.4   0.0  0.0   0.4   9.0 10.4  10.4
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  1.00  1.00 1.00  1.00
Q2:           0.0  1.0   0.0   0.0  1.6   1.6   0.0  0.0   0.9   1.0  1.6   1.6
HCM2KQueue:   0.6  9.1   0.0   0.0 12.0  12.0   0.0  0.0   1.2  10.0 12.0  12.0
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.20  1.20 1.17  1.17  1.20 1.20  1.20  1.18 1.17  1.17
70th%HCM2kQ:  0.7 10.7   0.0   0.0 14.1  14.1   0.0  0.0   1.5  11.8 14.1  14.1
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.59 1.52  1.60  1.60 1.50  1.50  1.60 1.60  1.59  1.52 1.50  1.50
85th%HCM2kQ:  0.9 13.8   0.0   0.0 18.1  18.1   0.0  0.0   2.0  15.1 18.1  18.1
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.79 1.65  1.80  1.80 1.62  1.62  1.80 1.80  1.78  1.64 1.62  1.62
90th%HCM2kQ:  1.0 15.0   0.0   0.0 19.5  19.5   0.0  0.0   2.2  16.4 19.5  19.5
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.08 1.86  2.10  2.10 1.81  1.81  2.10 2.10  2.06  1.84 1.81  1.81
95th%HCM2kQ:  1.2 16.9   0.0   0.0 21.8  21.8   0.0  0.0   2.5  18.4 21.8  21.8
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.66 2.20  2.70  2.70 2.10  2.10  2.70 2.70  2.61  2.16 2.10  2.10
98th%HCM2kQ:  1.5 20.0   0.0   0.0 25.2  25.2   0.0  0.0   3.2  21.6 25.3  25.3
```

```
--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.507
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        13.6
Optimal Cycle:       38                 Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1094   492    16 1141     0   497    8   291     0    0    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1094   492    16 1141     0   497    8   291     0    0    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1094   492    16 1141     0   497    8   291     0    0    10
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1094   492    16 1141     0   497    8   291     0    0    10
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0 1094   492    16 1141     0   497    8   291     0    0    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.12 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Lanes:       0.00 2.07  0.93  1.00 2.00  0.00  1.97 0.03  1.00  0.00 0.00  1.00
Final Sat.:     0 3413  1535   224 3610     0  3564   57  1615     0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.32  0.32  0.07 0.32  0.00  0.14 0.14  0.18  0.00 0.00  0.01
Crit Moves:       ****                                    ****              ****
Green/Cycle: 0.00 0.63  0.63  0.63 0.63  0.00  0.36 0.36  0.36  0.00 0.00  0.01
Volume/Cap:  0.00 0.51  0.51  0.11 0.50  0.00  0.39 0.39  0.51  0.00 0.00  0.51
Delay/Veh:    0.0 10.1  10.1   7.6 10.0   0.0  24.3 24.3  26.1   0.0  0.0  69.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 10.1  10.1   7.6 10.0   0.0  24.3 24.3  26.1   0.0  0.0  69.0
HCM2kAvg:      0    9     9     2   10     0     6    6     7     0    0     1
********************************************************************************
```

```
--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
                 Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        0  0  2  1  0    1  0  2  0  0    1  1  0  0  1    0  0  0  0  1
Lane Group:  xxxx  RT     RT    L    T   xxxx   LT   LT     R   xxxx xxxx    R
#LnsInGrps:     0    3     3     1    2     0     2    2     1     0    0     1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12    12    12   12    12    12   12    12    12   12    12
CrosswalkWid         8                8                8                8
% Hev Veh:           0                0                0                0
Grade:              0%               0%               0%               0%
Parking/Hr:         No               No               No               No
Bus Stp/Hr:          0                0                0                0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:         0                0                0                0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:          0                0                0                0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:  xxxx xxxx  xxxx     2 xxxx  xxxx     4    4  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Hev Veh Adj: xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Grade Adj:   xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
Parking Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Bus Stp Adj: xxxx 1.00  1.00  xxxx 1.00 xxxxx  xxxx xxxx  1.00  xxxx xxxx  1.00
Area Adj:    xxxx 1.00  1.00  1.00 1.00 xxxxx  1.00 1.00  1.00  xxxx xxxx  1.00
RT Adj:      xxxx 0.95  0.95  xxxx xxxx xxxxx  xxxx xxxx  0.85  xxxx xxxx  0.87
LT Adj:      xxxx xxxx xxxxx  0.12 xxxx xxxxx  0.95 0.95 xxxxx  xxxx xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 1.00 0.95  0.95  0.12 1.00  1.00  0.95 0.95  0.85  1.00 1.00  0.87
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 0.91  0.91  1.00 0.95  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 1.00 0.87  0.87  0.12 0.95  1.00  0.95 0.95  0.85  1.00 1.00  0.87
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
********************************************************************************
```

```
--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
  Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:                                       North    South    East     West
Cycle Length, C:                               xxxxxx      100   xxxxxx   xxxxxx
Actual Green Time Per Lane Group, G:           xxxxxx    59.24   xxxxxx   xxxxxx
Effective Green Time Per Lane Group, g:        xxxxxx    63.24   xxxxxx   xxxxxx
Opposing Effective Green Time, go:             xxxxxx    63.24   xxxxxx   xxxxxx
Number Of Opposing Lanes, No:                  xxxxxx        3   xxxxxx   xxxxxx
Number Of Lanes In Lane Group, N:              xxxxxx        1   xxxxxx   xxxxxx
Adjusted Left-Turn Flow Rate, Vlt:             xxxxxx       16   xxxxxx   xxxxxx
Proportion of Left Turns in Lane Group, Plt:   xxxxxx     1.00   xxxxxx   xxxxxx
Proportion of Left Turns in Opp Flow, Plto:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left Turns Per Cycle, LTC:                     xxxxxx     0.44   xxxxxx   xxxxxx
Adjusted Opposing Flow Rate, Vo:               xxxxxx     1586   xxxxxx   xxxxxx
Opposing Flow Per Lane Per Cycle, Volc:        xxxxxx    15.46   xxxxxx   xxxxxx
Opposing Platoon Ratio, Rpo:                   xxxxxx     1.00   xxxxxx   xxxxxx
Lost Time Per Phase, tl:                       xxxxxx     0.00   xxxxxx   xxxxxx
Eff grn until arrival of left-turn car, gf:    xxxxxx     0.00   xxxxxx   xxxxxx
Opposing Queue Ratio, qro:                     xxxxxx     0.37   xxxxxx   xxxxxx
Eff grn blocked by opposing queue, gq:         xxxxxx    16.45   xxxxxx   xxxxxx
Eff grn while left turns filter thru, gu:      xxxxxx    46.79   xxxxxx   xxxxxx
Max opposing cars arriving during gq-gf, n:    xxxxxx   xxxxxx   xxxxxx   xxxxxx
Proportion of Opposing Thru & RT cars, ptho:   xxxxxx   xxxxxx   xxxxxx   xxxxxx
Left-turn Saturation Factor, fs:               xxxxxx     0.00   xxxxxx   xxxxxx
Proportion of Left Turns in Shared Lane, pl:   xxxxxx     1.00   xxxxxx   xxxxxx
Through-car Equivalents, el1:                  xxxxxx     6.29   xxxxxx   xxxxxx
Single Lane Through-car Equivalents, el2:      xxxxxx   xxxxxx   xxxxxx   xxxxxx
Minimum Left Turn Adjustment Factor, fmin:     xxxxxx     0.06   xxxxxx   xxxxxx
Single Lane Left Turn Adjustment Factor, fm:   xxxxxx     0.12   xxxxxx   xxxxxx
Left Turn Adjustment Factor, flt:              xxxxxx     0.12   xxxxxx   xxxxxx
********************************************************************************
```

```
--------------------------------------------------------------------------------
            CUMULATIVE (2020) PLUS TIER I AND II PROJECT CONDITIONS
--------------------------------------------------------------------------------
      Level Of Service Detailed Computation Report (HCM2000 Queue Method)
                          2000 HCM Operations Method
                            Base Volume Alternative
********************************************************************************
Intersection #60 LONG BEACH BL & I-105 EB RAMPS
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Green/Cycle: 0.00 0.63  0.63  0.63 0.63  0.00  0.36 0.36  0.36  0.00 0.00  0.01
ArrivalType:         3                3                3                3
ProgFactor:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Q1:           0.0  7.9   7.9   1.5  8.5   0.0   5.5  5.5   6.4   0.0  0.0   0.3
UpstreamVC:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
UpstreamAdj: 0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
EarlyArrAdj: 0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Q2:           0.0  1.0   1.0   0.1  1.0   0.0   0.6  0.6   1.0   0.0  0.0   0.7
HCM2KQueue:   0.0  9.0   9.0   1.6  9.5   0.0   6.1  6.1   7.4   0.0  0.0   0.9
------------|---------------||---------------||---------------||---------------|
70th%Factor: 1.20 1.18  1.18  1.20 1.18  1.20  1.19 1.19  1.18  1.20 1.20  1.20
70th%HCM2kQ:  0.0 10.6  10.6   1.9 11.2   0.0   7.3  7.3   8.7   0.0  0.0   1.1
------------|---------------||---------------||---------------||---------------|
85th%Factor: 1.60 1.52  1.52  1.58 1.52  1.60  1.54 1.54  1.53  1.60 1.60  1.59
85th%HCM2kQ:  0.0 13.6  13.6   2.6 14.4   0.0   9.5  9.5  11.3   0.0  0.0   1.5
------------|---------------||---------------||---------------||---------------|
90th%Factor: 1.80 1.66  1.66  1.77 1.65  1.80  1.69 1.69  1.68  1.80 1.80  1.78
90th%HCM2kQ:  0.0 14.8  14.8   2.9 15.7   0.0  10.4 10.4  12.3   0.0  0.0   1.7
------------|---------------||---------------||---------------||---------------|
95th%Factor: 2.10 1.86  1.86  2.05 1.85  2.10  1.93 1.93  1.90  2.10 2.10  2.07
95th%HCM2kQ:  0.0 16.7  16.7   3.3 17.6   0.0  11.8 11.8  14.0   0.0  0.0   1.9
------------|---------------||---------------||---------------||---------------|
98th%Factor: 2.70 2.20  2.20  2.58 2.18  2.70  2.32 2.32  2.27  2.70 2.70  2.63
98th%HCM2kQ:  0.0 19.7  19.7   4.2 20.7   0.0  14.3 14.3  16.7   0.0  0.0   2.5
```

APPENDIX I
WATER SUPPLY ASSESSMENT

Preliminary Water Supply Assessment

Martin Luther King, Jr. Medical Center Campus Redevelopment Project

12021 Wilmington Avenue
County of Los Angeles

August 2010

Prepared For
The County of Los Angeles

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Section 1
Introduction

The proposed Martin Luther King Jr. Medical Center Campus Redevelopment Project (project) would make renovations and improvements to the existing Martin Luther King Jr. Medical Center Campus (MLK), allowing the County of Los Angeles (LA County) to regain the hospital license for the facility and meet inpatient needs for the local community. Completion of the proposed project would allow LA County to reopen a medical campus that would more accurately reflect and serve community needs.

Planning and environmental issues associated with the project are being assessed by the Los Angeles County Chief Executive Office (LACCEO). As part of its assessment, LACCEO requested completion of a Water Supply Assessment (WSA) for the project. California Senate Bill 610 (SB 610) requires that a WSA be completed for development projects subject to review under the California Environmental Quality Act (CEQA) Guidelines Section 15155. A project is subject to CEQA requirements if it meets the definition of “project” under California Water Code Section 10912(a). Sapphos Environmental, Inc. (Sapphos) completed an Initial Study of the Martin Luther King, Jr. Medical Center Campus Redevelopment Project in March 2010 (Sapphos Environmental, Inc., 2010), which found that water supply would be evaluated in the project Environmental Impact Report (EIR). A brief description of the proposed project is provided below.

The Tier I Phase of the proposed project would involve the development of a new Multi-service Ambulatory Care Center (MACC) and Ancillary Building, in addition to improvements for several of the existing buildings onsite and the potential relocation of the Magnetic Resonance Imaging (MRI) Building. The development of the two new buildings would total 156,700 square-feet. It is anticipated that the Tier I phase of the proposed project does not meet the definition of “project” under CEQA and would not be subject to a WSA.

The Tier II Phase is proposed to develop approximately 1,814,696 square-feet of mixed-use space at the existing MLK Campus. Mixed uses would include medical office, commercial, retail, office space, recreation, and other development in support of the MLK Campus. Up to 100 residential units would also be included as part of the Tier II Phase. Due to the size and scope of the proposed project, the Tier II Phase meets the criteria for being a project under CEQA as “a mixed use project that includes one or more of the projects specified in this subdivision.” The project would be subject to complete a WSA under CEQA and SB 610 requirements. Though the Tier I phase is not subject to WSA analyses, both Tier I and Tier II phases of the proposed project were evaluated in this study

This WSA follows SB 610 guidelines. SB 610 requires an assessment of whether available water supplies are sufficient to serve the demand required by the Tier II Phase of the proposed project, including the reasonably foreseeable cumulative demand of the project region over the next 20 years, under average normal year, single dry year, and multiple dry year conditions.

This document provides an assessment of available water supplies to serve the proposed project's Tier II Phase, based on California Water Code Sections 10910 through 10915, as amended by SB 610 in 2002 (Water Code). As part of the SB 610 process, a determination must be made as to whether there is a current Urban Water Management Plan (UWMP) that considered the projected water demand for the project area. The Water Code requires that all urban water suppliers develop a UWMP every five years.

The project area is serviced by the Park Water Company (PWC), a public water utility. PWC's most recent UWMP, written in 2005, was reviewed during preparation of this WSA. PWC receives most of its water from the Metropolitan Water District (MWD) via the Central Basin Municipal Water District (CBMWD). Therefore, MWD's most recent UWMP, also written in 2005, was reviewed as well. This WSA incorporates information from the UWMPs completed by PWC and MWD.

Section 2
Project Description

2.1 Project Description

The project consists of two phases: Tier I Phase and Tier II Phase. The Tier I Phase would involve developing a new 132,000-square-foot MACC Building and a new 24,700-square-foot Ancillary Building, improving existing buildings on site, improving general site features, and potentially relocating the MRI Building. Tier I is the specific project component of the Martin Luther King, Jr. Medical Center Campus Redevelopment Project.

The Tier II Phase would involve developing an overall master plan to potentially develop up to 1,814,696 square-feet for mixed uses. Details for the development of Tier II are not complete and Tier II components are only conceptual at this time. Tier II would possibly involve developing medical offices, retail space, recreational areas, office space, other development in support of the MLK facility, and up to 100 single-family residential units. Tier II would also include reusing or replacing the existing MACC Building, Emergency Room, Storage Buildings, and Cooling Towers.

Tier II has been analyzed only on a program level and will therefore be discussed on a programmatic level within this WSA, in conjunction with the project's Tier II programmatic analysis in the Martin Luther King, Jr. Medical Center Campus Redevelopment Project Environmental Impact Report (EIR), as permitted under CEQA. Once the detailed future development plans for Tier II components are prepared, consistent with the guidelines for programmatic EIRs under CEQA, the projects will be examined in light of the program EIR analysis, to determine whether a revised WSA is required.

2.2 Project Location

The proposed project site is at the existing MLK facility, located at 12021 Wilmington Avenue in the unincorporated community of Willowbrook, County of Los Angeles, California (Figure 2-1, Project Location Map).

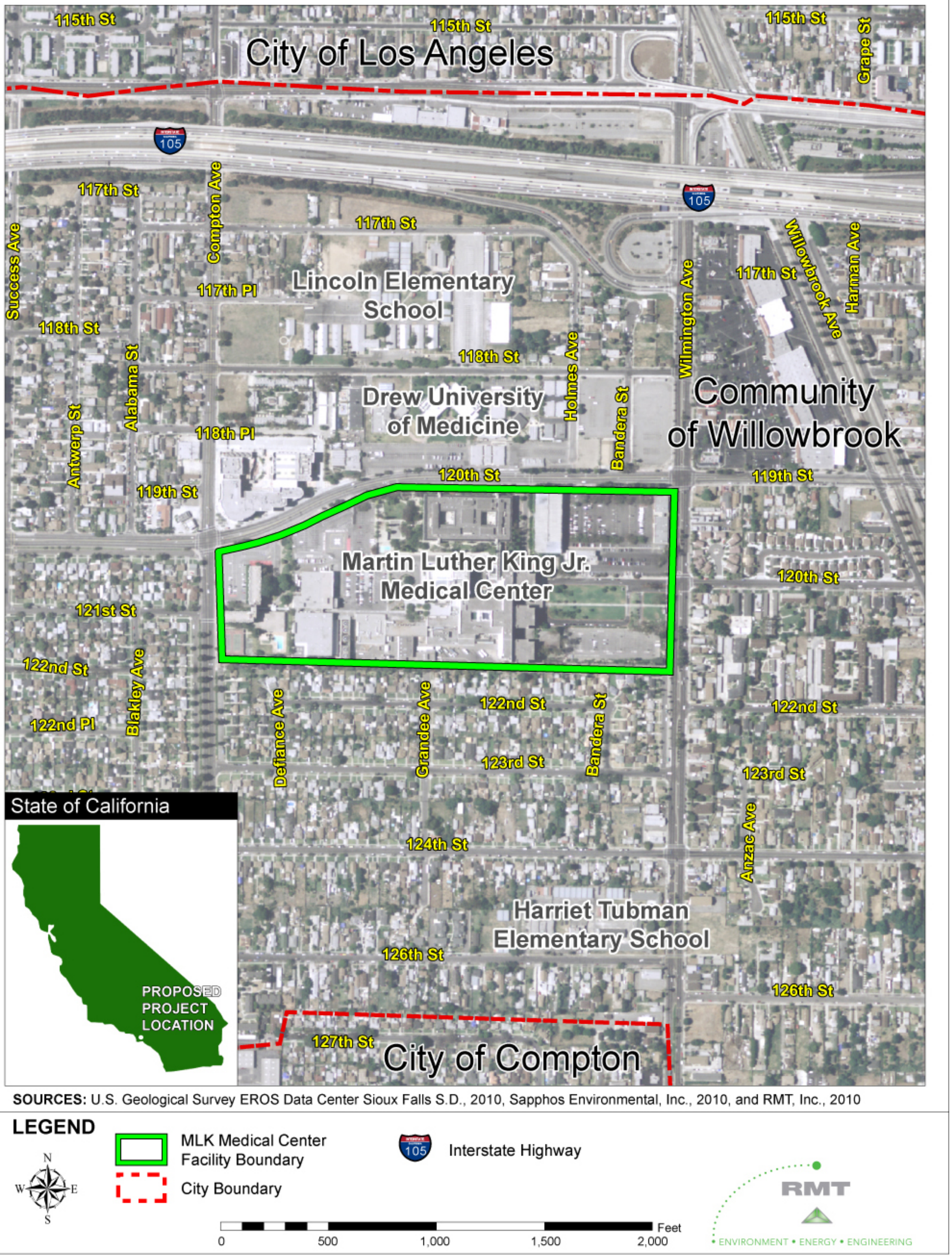
The approximately 38-acre project site consists of Assessor's Parcel Numbers 6140-028-902, 6140-028-907, and 6140-028-903 and is located in a developed urban area. Residential neighborhoods are located south, east, and west of the project site. The site is less than 1 mile from Compton on the south, Lynwood on the east, and Los Angeles on the north (Figure 2-2, Project Vicinity Map).

Site topography generally is flat. Elevations at the project site range from 86 feet above mean sea level (MSL) to 88 feet above MSL. The project area generally slopes to the south-southeast at less than 1 percent grade. Regional topography is shown on Figure 2-3, Regional Topographic Map.

Figure 2-1: Project Location Map

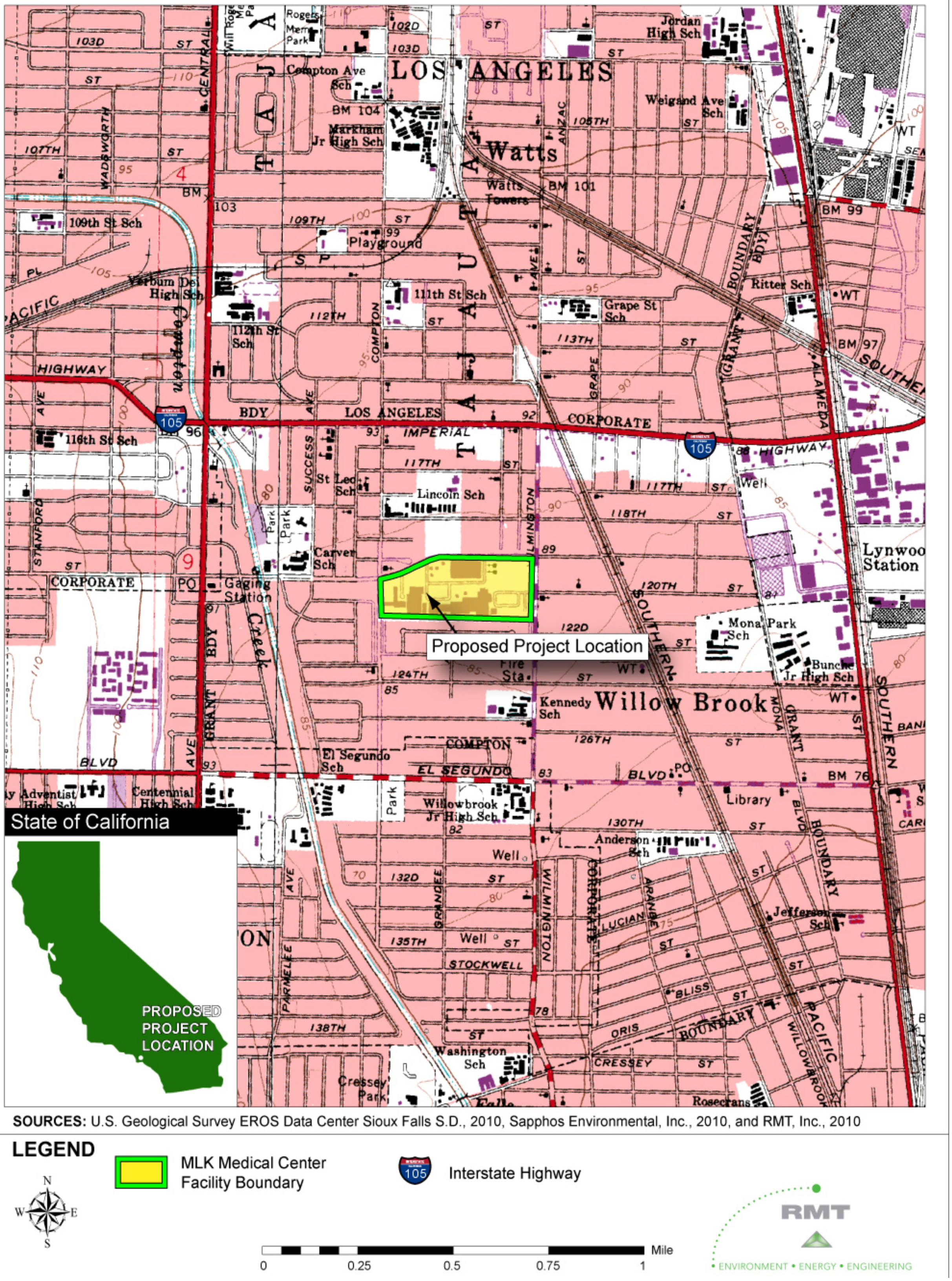
SOURCES: ESRI 2010 and RMT, Inc., 2010

Figure 2-2: Project Vicinity Map



SOURCES: U.S. Geological Survey EROS Data Center Sioux Falls S.D., 2010, Sapphos Environmental, Inc., 2010, and RMT, Inc., 2010

Figure 2-3: Regional Topographic Map



SOURCES: U.S. Geological Survey EROS Data Center Sioux Falls S.D., 2010, Sapphos Environmental, Inc., 2010, and RMT, Inc., 2010

2.3 Existing Land Use Summary

2.3.1 Project Land Use

The Los Angeles County General Plan land use designation for the project property is "Public and Semipublic Facilities." This designation provides for activities by public and semipublic entities and allows for establishing facilities, infrastructure, and related operations in these areas that are public or semipublic in nature, including hospitals. The current use of the proposed project site as a medical facility conforms to the land use designation. The existing campus currently provides urgent care and outpatient clinic services. There are 70 outpatient clinics operating at the site.

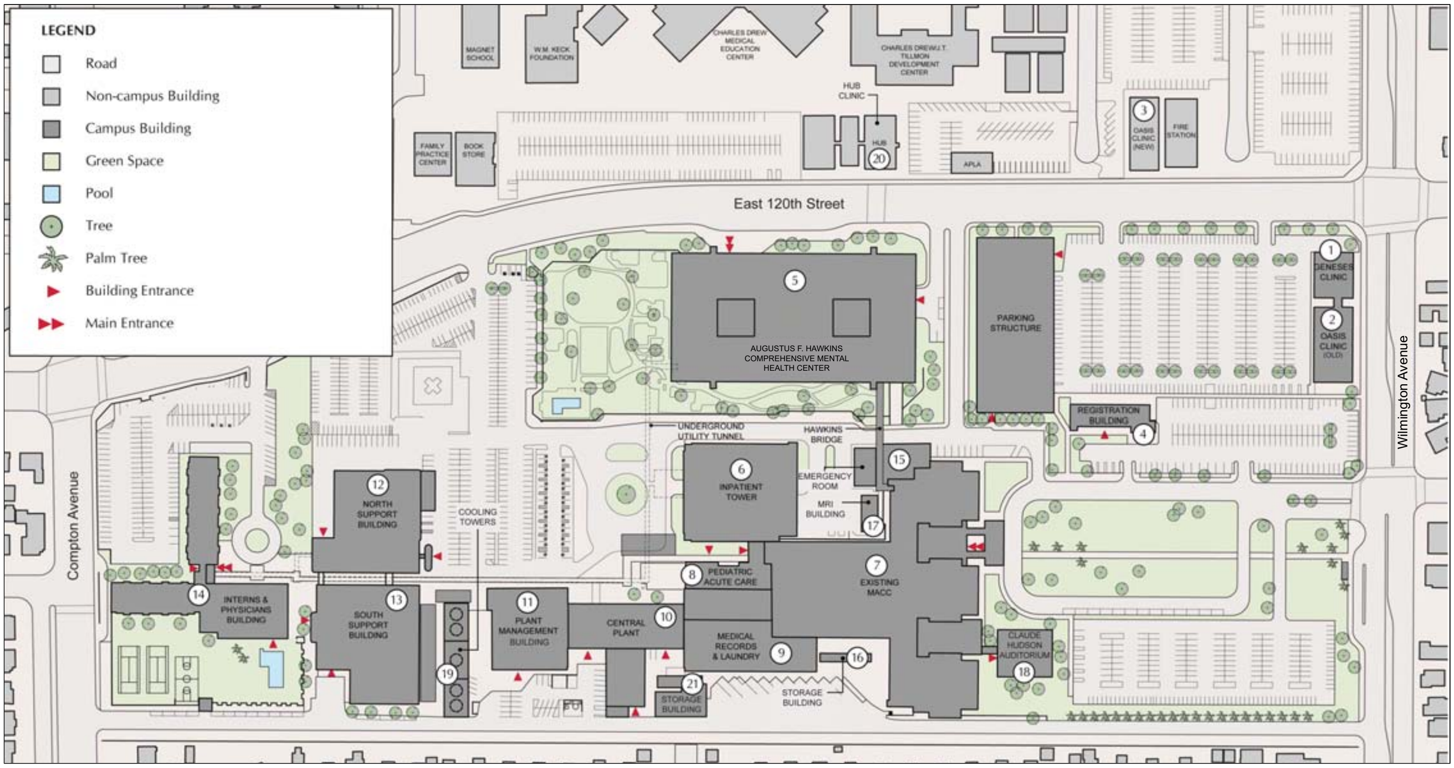
The proposed project site consists of 15 main facility buildings, a multilevel parking structure, and several support and ancillary buildings. Figure 2-4, Site Map, provides the layout of the project site. Table 2-1 below lists the existing structures at the site, along with their size, use, and current status.

Table 2-1
Existing Buildings

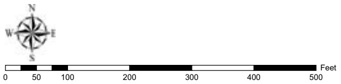
Building No. on Figure 2-4	Building Name	Floor Area (square feet)	Floors	Building Footprint (square feet)	Past/Current Use	Currently Operational?
1	Geneses Clinic	2,100	1	2,100	Outpatient clinic	No
2	Oasis Clinic (old)	2,580	1	2,580	HIV/AIDS clinic	Yes
3	Oasis Clinic (new)	1,850	1	1,850	HIV/AIDS clinic	No
4	Registration Building	10,950	2	5,475	Administration and offices	Yes
5	Augustus F Hawkins Comprehensive Mental Health Center	226,818	4	75,606	Inpatient and outpatient mental health care services	Yes
6	Inpatient Tower	187,676	5	37,535	Inpatient and outpatient services, helipad location	Yes
7	Existing MACC Building	495,335	5	99,067	Inpatient, outpatient, and emergency services	Yes (partially)

Building No. on Figure 2-4	Building Name	Floor Area (square feet)	Floors	Building Footprint (square feet)	Past/Current Use	Currently Operational?
8	Pediatric Acute Care	7,878	1	7,878	Pediatric care services	Yes
9	Medical Records & Laundry	26,355	1	26,355	Administrative and laundry services	Yes
10	Central Plant	24,103	1	24,103	Facility maintenance and water cooling operations	Yes
11	Plant Management Building	15,648	1	15,648	Administrative and operational support	Yes
12	North Support Building	52,276	2	26,138	Administrative support	Yes
13	South Support Building	34,762	2	17,381	Administrative support	Yes
14	Interns & Physicians Building	124,391	6	20,731	Intern and physician housing	Yes (partially)
15	Emergency Room	3,300	1	3,300	Waiting room for emergency services	Yes
16	Storage Building	1,060	1	1,060	Storage of support materials	Yes
17	MRI Building	1,100	1	1,100	MRI system housing	Yes
18	Claude Hudson Auditorium	3,922	1	3,922	Auditorium	Yes
19	Cooling Towers	6,790	1	6,790	Cooling towers	Yes
20	Hub Clinic	12,265	1	12,265	Foster care services	Yes
21	Storage Building	2,533	1	2,533	Storage	Yes
	TOTAL EXISTING AREA	**1,243,692**		**393,417**		

Figure 2-4: Site Map



SOURCES: Sapphos Environmental, Inc., 2010 and RMT Inc., 2010



2.3.2 Surrounding Land Use

Areas surrounding the project site consist of commercial, residential, retail, transit, and institutional land uses. The Charles Drew University of Medicine and Science, the Rosa Parks Transit Station, and the Kenneth Hahn Plaza and Village are located in the project vicinity. Residential neighborhoods, commercial businesses, and some open spaces also are within the project vicinity.

2.4 Tier I Proposed Project Land Use Summar

The Tier I phase of the proposed project includes developing two new buildings: a new MACC Building and an Ancillary Building. Consistent with the "Public and Semipublic Facilities," General Plan land use designation for the property and consistent with existing on-site development, the proposed Tier I uses would consist of medical facilities and related services. Improvements would be made at the site and to some of the other existing buildings on the campus, but all improvements would remain consistent with the land use designation of the existing site.

In the proposed Tier I, all existing buildings, with the exception of the existing MACC Building, the emergency room, both storage buildings, and the cooling towers would remain in place and operational. The existing MACC Building, the emergency room, both storage buildings, and the cooling towers would be vacated during Tier I of the propose project and may be reused, replaced, or removed during Tier II of the proposed project. Table 2-2 below summarizes the proposed structures that would be on site (and operational) following completion of Tier I of the project and their proposed size and use.

Table 2 2
Proposed Buildings for Tier I

Building No. on Figure 2-5	Building Name	Proposed Floor Area (square feet)	Floors	Proposed Building Footprint (square feet)	Use
1	Geneses Clinic	2,100	1	2,100	Outpatient clinic
2	Oasis Clinic (old)	2,580	1	2,580	HIV/AIDS clinic
3	Oasis Clinic (new)	1,850	1	1,850	HIV/AIDS clinic
4	Registration Building	10,950	2	5,475	Administration and offices
5	Augustus F Hawkins Comprehensive Mental Health Center	226,818	3	75,606	Inpatient and outpatient mental health care services

Building No. on Figure 2-5	Building Name	Proposed Floor Area (square feet)	Floors	Proposed Building Footprint (square feet)	Use
6	Inpatient Tower	187,676	5	37,535	Inpatient and outpatient services and helipad location
8	Pediatric Acute Care	7,878	1	7,878	Pediatric care services
9	Medical Records & Laundry	26,355	1	26,355	Administrative and laundry services
10	Central Plant I and II	24,103	1	24,103	Facility maintenance and water cooling operations
11	Plant Management Building	15,648	1	15,648	Administrative and operational support
12	North Support Building	52,276	2	26,138	Administrative support
13	South Support Building	34,762	2	17,381	Main warehouse for MACC Building and central distribution for County of Los Angeles health care facilities
14	Interns & Physicians Building	124,391	6	20,732	Intern and physician housing
17	MRI Building	1,100	1	1,100	MRI system housing
18	Claude Hudson Auditorium	3,922	1	3,922	Auditorium
20	Hub Clinic	12,265	1	12,265	Foster care services
--	New MACC Building	132,000	4	33,000	Inpatient, outpatient, walk-in clinic, and emergency services
--	New Ancillary Building	24,700	2	12,350	Support services for MACC Building (cafeteria and administrative offices)
---	Emergency Generator	4,223	1	4,223	Location of new emergency generator
---	Central Plant III	9,409	1	9,409	Facility maintenance and water cooling operations
	TOTAL TIER I PROPOSED AREA	**905,006**		**339,650**	

Tier I would result in a reduction in operational floor area, from the existing 1,243,692 square feet (Table 2-1) to 905,006 square feet (Table 2-2).

2.5 Tier II Proposed Project Land Use Summar

It is anticipated that proposed development described in the Tier II Master Plan would prepare the proposed project site for future mixed-use development, providing the health services necessary to respond to and address the community's needs. The medical facility and related services would remain consistent with the current land use designation of the existing site. The proposed 100 residential units would be developed at a multi-family density, consistent with the surrounding residential area multi-family development densities.

The County would further seek to ensure compatibility of the proposed project with the existing campus and its surroundings but reserves the right to exempt elements of the proposed project from the zoning designation. It is anticipated that the future campus development and master plan will provide land use designations, recommended capital improvements, and design guidelines to provide consistent and compatible development of the campus with the existing buildings in a manner that meets the needs of the community that is consistent with the County's General Plan and zoning regulations.

Although non-medical mixed-uses would be provided under Tier II, the proposed project site falls within one of the Southern California Association of Governments' (SCAG) Compass Blueprint 2% Strategy Opportunity Areas. The 2% Strategy Opportunity Areas are areas where development is encouraged to be focused around transit corridors and concentrated areas of existing urbanization as an implementation strategy for SCAG's Compass Growth Vision Report.[1], This implementation strategy guides development in the six-county SCAG region. The concept of the 2% Strategy Opportunity Areas is that by encouraging relatively modest changes to current land use and transportation trends, on only two percent of the land area of the region, a more resource-efficient land use pattern would be developed consistent with the Compass Blueprint Growth principles of mobility, livability, prosperity and sustainability.[2] The Martin Luther King Jr. Medical Center is within the 2% Strategy Opportunities Area (City of Los Angeles South Map), where mixed-use (e.g., housing near jobs and shopping opportunities), infill, transit oriented urban development is encouraged.

The Tier II Phase of the project has the potential to develop approximately 1,814,696 square feet of mixed-use development on the proposed project site. Table 2-3 below summarizes the proposed types of uses, their proposed size and percentage of the total Tier II development area. While some variation in the distribution of these uses (i.e., percentage of the total) may occur when the project is implemented, the data in Table 2-3 is a reasonable projection at this time of the land use distribution for the purposes of environmental impact assessment.

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[1] *Adopted by SCAG's Regional Council in June 2004.*

[2] *Southern California Association of Governments (SCAG), Compass Blueprint, 2% Strategy, accessed at http://www.compassblueprint.org/about/strategy on June 18, 2010.*

Table 2 3
Proposed Tier II Campus Development Matrix

Land Use Description	**Proposed Square-Feet**	**Percentage of Tier II Development**
Commercial/Retail	80,000	4.41
Residential	150,000	8.27
Medical Office	300,000	16.53
General Office	150,000	8.27
Additional Campus Support Buildings	1,134,696	62.53
Total	**1,814,696**	**100.00**

2.6 Infrastructure and Conveyance

All existing buildings on the MLK campus are connected to public utilities (i.e., water, gas, and sewer) through a system of underground piping, valves, and access points. Water supplies for the project would be conveyed using the existing piping infrastructure available on site with some additional improvements, as needed, to support the proposed project. Constructing new structures would require relocating existing piping to accommodate new buildings, structures and improvements. The project is expected to add additional water connections to the local public utility beyond the existing water connections. The number of new connections would depend on the final site design for Tier II, which has not been determined at this time.

Section 3
Existing Water Sources and Water Rights

The project site is located in an unincorporated area of the County of Los Angeles. Potable water supplies for the project site have been and are currently provided by PWC, Central Basin Division. PWC obtains its water supplies from groundwater, imported sources, and recycled water. MLK does not currently own water rights or have any drinking water wells on site.

The PWC is an investor-owned public water utility. PWC's Central Basin Division consists of three service areas: Bellflower/Norwalk, Lynwood/Rancho Dominguez (Compton East), and Compton/Willowbrook (Compton West). The proposed project is located within PWC's Compton West service area.

3.1 Groundwater

Groundwater comprises approximately 11 percent of PWC's water supply and is extracted from the Central Coast Groundwater Basin (Central Basin). The Central Basin occupies a large portion of the southeastern part of the Los Angeles County Coastal Plain and has a storage capacity of approximately 13,800,000 acre-feet (DWR, Bulletin No. 118, 2004). The Central Basin is bounded by geologic structures La Brea High to the north and the Elysian, Repetto, Merced, and Puente Hills to the east. The Newport-Inglewood fault system forms the southwestern boundary. Coyote Creek runs between the Central Basin's southeastern boundary and the adjacent Orange County Groundwater Basin. The Pacific Ocean is to the west of the basin.

PWC currently owns rights to extract 1.29 acre-feet of groundwater per year (AFY) from the Central Basin -. PWC also leases approximately 1,500 AFY of additional groundwater rights from the City of Bellflower, the City of Commerce, and the Candlewood Country Club. PWC has 13 operating wells to supply its consumers with approximately 1,500 AFY of groundwater. Six of their wells are in active mode and seven are on standby. Three of these 13 wells serve the Compton West Service Area. Of the three wells that service the Compton West Service Area, one groundwater well is active and two are on standby status for emergency and non-routine uses (such as fire protection). Table 3-1 summarizes well depth and pumping status for PWC's Compton West service area groundwater production wells.

Table 3 1
PWC Compton West Service Area Wells

Well No.	Well Depth (feet)	Status
12B	270	Active
13B[1]	881	Standby
13C[1]	495	Standby

1) Wells 13B and 13C currently are on standby and are used for fire protection and emergency uses only.

3.2 Imported Water

PWC obtains approximately 86 percent of its water supply from imported water purchased through CBMWD. CBMWD serves as a wholesaler of water received from MWD to PWC. CBMWD is one of the largest MWD member agencies.

MWD is a contractor for water received from the California State Water Project (SWP). MWD also owns and operates the Colorado River Aqueduct (CRA).

The California SWP is a water storage and delivery system of reservoirs, aqueducts, power plants, and pumping plants that provides water to various water suppliers that have contracted with SWP. Seventy percent of SWP water is contracted for urban use and thirty percent is used for agricultural purposes. SWP's main water source is Lake Oroville and runoff flows from the Delta watershed.

The CRA is a 242-mile-long water conveyance system that brings water from the Colorado River to the Los Angeles area. The CRA is one of the primary sources of drinking water for southern California. It is composed of two reservoirs: Lake Havasu at Parker Dam and Lake Mathews.

The Colorado River is regulated by the federal government, which has divided its water rights among seven states: California, Wyoming, Utah, New Mexico, Colorado, Nevada, and Arizona. California receives the largest share of the river's water, which is divided between the southern and southeastern regions of the state.

3.3 Rec cled Water

Recycled water comprises approximately 3 percent of PWC's water supply. The Los Angeles County Sanitation District (LACSD) operates nine reclamation plants to produce approximately

190 million gallons per day of recycled/reclaimed water. CBMWD purchases recycled water from LACSD's Los Coyotes and San Jose Creek Water reclamation plants. PWC then purchases recycled water from CBMWD for non-potable purposes, mainly irrigation. Most of PWC's purchased recycled water is generated at the Los Coyotes Water Reclamation Plant and conveyed by the Ibbetson Century Project.

Section 4
Existing Water Quality

Several laws and regulations are in place to ensure water quality is maintained. Water utilities that provide potable water are held to these regulations and standards, requiring them to provide their consumers with clean water. Primary laws governing water quality are listed below:

- Clean Water Act (federal)
- Porter-Cologne Water Quality Control Act (California)
- Safe Drinking Water Act (federal)
- California Safe Drinking Water Act

All potable water supplied by PWC is subject to state drinking water regulations. Recycled water is for non-potable use only (e.g., urban landscaping and industrial processes).

4.1 Imported Water Quality

Water received from MWD is treated at the Joseph Jensen Filtration Plant and the Robert B. Diemer Filtration Plant before being delivered to PWC. Water from MWD is tested and treated for microbial, organic, inorganic, pesticide, herbicide, and radioactive contaminants. In addition to testing its water, MWD has created a contingency plan to ensure water quality security, in coordination with the Department of Homeland Security.

The PWC obtains its recycled water from the CBMWD. Recycled water is obtained from the Los Coyotes Reclamation Plant and the San Jose Creek Water Reclamation Plant where it is also treated to ensure water quality. Recycled water is purified through primary, secondary and tertiary treatment. Recycled water is for non-potable uses and is not treated to drinking water standards.

4.2 Groundwater Quality

Groundwater of the Central Basin is actively monitored for water quality issues by the CBMWD and the Water Replenishment District of Southern California (WRD). Drinking water standards for groundwater pumped from the basin must meet the standards under the Cooperative Basin-Wide Title 22 Groundwater Quality Program. This program is overseen by the CBMWD and requires wellhead testing, reservoir sample collecting, water quality testing, and reporting. In addition, the CBMWD and the WRD support and are involved with many programs that address water quality for the Central Basin. Some of these programs include the following:

- WRD’s Safe Drinking Water Program
- CBMWD’s Water Quality Protection Project
- WRD’s Groundwater Quality Program
- WRD’s Water Augmentation Study

Section 5
Historical and Projected Water Suppl

5.1 Historical and Projected Water Supplies

The project site is located in an unincorporated urban area of the County of Los Angeles and, thus, its water supplies are provided by PWC, the local public utility. PWC would continue providing water service to the proposed project. PWC's Compton West service area water system imports 95 percent of its water supply. PWC has a direct connection to MWD's water supply system for its Compton West service area, with a flow capacity of12.5 cubic feet per second (approximately 8,978 AFY). The remaining 5 percent of PWC's water supply for the Compton West service area is provided by groundwater pumped from the Central Basin.

Table 5-1 shows the amount of groundwater pumped by PWC from its Compton West service area wells for 2000 through 2004.

Table 5 1
Historical Groundwater Pumped for PWC Compton West Service Area
Acre feet per Year

Well No.	2000	2001	2002	2003	2004
12B	2.63	14.08	2.53	2.92	1.41
13B	0.00	0.00	0.00	0.00	0.00
13C	101.14	310.59	136.78	120.44	147.02

Source: Park Water Company, Urban Water Management Plan, 2005
Well volumes are shown for the calendar year.
Wells 13B and 13C currently are on standby and are used for fire protection and emergency uses only.

PWC's 2005 water supply and projected water supplies for 2010 through 2030, at 5-year intervals, are shown in Table 5-2 for each water source type.

Table 5 2
PWC Current and Projected Water Supplies
Acre feet per Year

Water Supply Source	2005	2010	2015	2020	2025	2030
Groundwater	1,500	1,500	1,500	1,500	1,500	1,500
Imported Water	11,654	15,630	15,470	16,650	16,000	15,360
Recycled Water	470	470	470	470	470	470
TOTAL WATER SUPPLY	**13,624**	**17,600**	**17,440**	**18,620**	**17,970**	**17,330**

Source: Park Water Company, Urban Water Management Plan, 2005

5.2 Water Supply Reliability

Water supply reliability for the project would depend on PWC’s ability to meet consumer demand based on its contractual agreements with its water suppliers, as well as the reliability of its supplier’s water sources. If PWC’s water suppliers are unable to meet their full delivery obligations due to unforeseen circumstances (e.g., earthquake or other natural disaster), PWC would not have direct access to anticipated supplies.

In PWC’s UWMP, measures that would minimize service interruption in emergency situations were identified. For added reliability, PWC has at least two different sources of water for each of its supply systems. Each system also has at least one interconnection with adjacent water agencies to be used during emergency situations. Four emergency generators are available on standby so that PWC’s water system can remain operational during a power outage. Imported water supplies from the MWD would be delivered by gravity to PWC from the Diamond Valley Lake Reservoir. The reservoir is designed to meet demands within the MWD’s service area for up to six months during a catastrophic event.

5.2.1 Groundwater Supply Reliability

Groundwater within the Central Basin was adjudicated in 1966 at 271,650 AFY to protect the water supply within the basin. However, the adjudicated pumping allowance was higher than the Central Basin’s natural recharge rate, creating annual overdrafts of groundwater within the basin. Currently, the amount of water that member agencies are allowed to pump is set annually by the WRD. WRD works with the Watermaster, established under the California Department of Water Resources (DWR), to monitor groundwater extraction from the Central and West Coast Basins.

Another method for controlling overdraft is through recharge management programs implemented by WRD. Because the majority of the land overlying the Central Basin is developed, the basin cannot fully recharge naturally from precipitation. Artificial recharge has been implemented to supplement the significant decrease in natural recharge of the Central Basin. Artificial recharge is achieved by surface spreading, injecting water into the basin, and offsetting groundwater extraction by use of imported water. WRD, in conjunction with other regional agencies, is implementing programs to increase the volume of artificial recharge in the Central Basin, thus improving future groundwater availability and reliability.

Proper management of groundwater in the Central Basin allows for consistent water availability from this source. Furthermore, more stringent enforcement of regulations regarding cleanup efforts and pollution prevention help protect groundwater from becoming contaminated so it can continue to be a source of potable water.

5.2.2 Imported Water Supply Reliability

In addition to government water use restrictions associated with environmental issues, primary water supply sources for MWD are subject to droughts and competing water needs of other consumers. During wet years, MWD's CRA and SWP supplies can total over 3 million acre-feet, whereas deliveries in very dry years can be much less (i.e., as low as 1.2 million acre-feet). To help ensure reliable deliveries of imported water, MWD has implemented a variety of storage projects and water transfer programs. Examples include Diamond Valley Lake, an 800,000-acre-foot reservoir completed in 2002, and groundwater banking programs in the Central Valley that can produce almost 200,000 acre-feet of supply in a dry year. According to MWD's Integrated Resources Plan, MWD identified the region's water supplies for the coming decades so that it is well positioned to supplement southern California's water supply needs.

MWD recognizes its vulnerability related to the reliability of water supplies received from its imported sources. In response, MWD has implemented water management programs to address water supply reliability (see Section 5.3 for more detail). In 2003, MWD stated in its report, *Metropolitan's Water Supplies, A Blueprint for Water Reliability*, that its current practices would meet all of its member agencies' water demands through 2023. The report indicated MWD would meet water demands under the following conditions: (1) average and wet year conditions for 15 years (through 2018), (2) multiple dry year conditions with additional reserve capacity, and (3) single dry year conditions with additional reserve capacity for 15 years (through 2018).

In MWD's 2005 UWMP, water quality was identified as a possible risk to MWD's future water supply reliability. Existing supplies could be threatened from contamination, stringent water quality regulations, or discovery of an unknown contaminant within its water supplies. In response to these potential threats, MWD identified water management strategies to minimize the impact on its water supplies. MWD also became involved in many programs that address water quality concerns related to SWP and CRA supplies. In its 2005 UWMP, PWC stated that it does not anticipate any significant changes in its available water supplies related to water quality issues as a result of the mitigation actions implemented by MWD.

Colorado River Aqueduct

In 1999, the Colorado River Board developed California's Colorado River Water Use Plan. This plan defined the framework that specifies how California will use its apportionment of Colorado River water. Based on the plan, MWD has fourth priority right to 550,000 AFY instead of CRA's maximum capacity of 1.3 million AFY. In 2003, the Quantification Settlement Agreement (QSA) was authorized to facilitate water transfers from the Colorado River. The QSA was developed to guide reasonable and fair use of Colorado River water through 2037. The QSA supports MWD's development plans for CRA deliveries and, as a result, increases the reliability of water supplied from CRA.

State Water Project

The reliability of SWP water impacts its agency members' abilities to plan for future growth and supply. Each SWP contractor (including MWD) requests an amount of SWP's water supply on an annual basis. DWR assesses the amount of water supply available to each contractor based on several factors, including contractor need, annual precipitation, snowpack levels, water storage volumes, and Sacramento-San Joaquin Bay Delta regulatory requirements. Because of water supply uncertainties from year to year, contractors are not always granted their full requested amount. For example, in 2007, the amount of water delivered to MWD was 1,711,560 acre-feet, approximately 200,000 acre-feet less than its allowed/requested 1,911,500 acre-feet.

5.2.3 Recycled Water Supply Reliability

The Central Basin Water Recycling Project delivers 3,800 AFY of recycled water to various consumers in southern California, including CBMWD. CBMWD has developed a regional water recycling program and PWC purchases a portion of its recycled water.

Recycled water has not been supplied to the MLK facility in the past and is not currently used by the facility. However, PWC is making plans to increase its recycled water supply. The source of recycled water is expected to remain readily available.

In addition to recycled water available for purchase, the Los Angeles County Department of Public Works is increasing the amount of recycled water injected into the groundwater barriers used to prevent sea water intrusion into Central Basin aquifers. This recycled water is replacing potable water previously used for groundwater barrier injection, thus increasing the amount of potable water available in the basin for other uses.

5.3 Water Shortage

Water supply for much of southern California relies heavily on wet winters to replenish its water reserves. During droughts, new water supplies are scarce and the region must draw on its reserves to supplement impacted supplies. When multiple drought years are experienced consecutively, water supplies can become strained. Prior to the winter 2009-2010 water year, the region experienced three years of drought and MWD reserves were below half capacity. In addition to drought conditions, new federal regulations led to pumping restrictions in the Sacramento-San Joaquin Delta during the same period, which prevented more water supplies from being granted to MWD from SWP.

In response to the growing concern over water shortages, MWD has adopted a water supply allocation plan to equitably distribute its available water in the event of lowered imported water supplies. This plan accounts for such factors as changes and losses in local supplies, impacts on the economy, conservation achievements, and investment and development of local water resources. The plan works in conjunction with MWD's *Water Surplus and Drought Management Plan*, which was developed in 1999.

MWD also has implemented its Accelerated Public Sector Water Efficiency Partnership Demonstration Program to help address water conservation. This program encourages public agencies to install water-saving measures at facilities that use more than 50 AFY.

MWD also has several water storage programs in place that involve agreements with other water agencies. The majority of these agreements allow MWD to store water in another agency's groundwater basin, within that agency's jurisdiction, and draw water from it as allotted in the agreement. Water storage programs include the Arvin-Edison Water Management Program, the Semitropic/Metropolitan Water Banking and Exchange Program, the San Bernardino/Metropolitan Coordinated Operating Agreement, the Kern Delta/Metropolitan Water Management Program, and the Mojave/Metropolitan Demonstration Water Exchange Program.

In addition, MWD has identified seawater desalination as a resource to address water supply needs. Unlike water from CRA and SWP, water from desalination is not subject to drought. In 2000, MWD created a Seawater Desalination Program that is estimated to generate 142,000 AFY once fully implemented. In 2004, MWD adopted a goal to provide 150,000 AFY of desalinated water by 2025. The addition of this water supply would help address water demands during years of shortage.

Section 6
Historical and Projected Demands

6.1 Historical Water Demand

6.1.1 Historical MLK Facility Water Demand

Water demands of the existing MLK facility depend on the capacity of the facility's services. The original scope of the 38.5-acre MLK facility was to provide medical services with a capacity of 537 hospital beds. Later, the facility was resized to service only 233 inpatient beds and, by 2005, was resized to 120 beds. In 2007, the facility's inpatient services and license were suspended and only outpatient services continued. Despite the decreased services that could be provided, the MLK facility's 2008-2009 workload handled 177,207 patient visits. Historical water usage for the MLK facility from 2002 to 2009 is summarized in Table 6-1.

Table 6-1
MLK Facility Historical Water Use
Acre-feet

Fiscal Year	Water Use
2002-2003	240
2003-2004	271
2004-2005	239
2005-2006	238
4-year average	**247**

Source: Los Angeles County, 2009

Average annual water usage for the existing MLK facility from 2002 through 2006 was approximately 247 AFY. It is important to note that MLK's facility license was suspended in August 2007, and the facility has not been fully operational since that time. Therefore, water usage in 2007, 2008, and 2009 does not accurately reflect water usage under conditions when the facility was fully operational.

6.1.2 Local Public Utility Water Demand

PWC's historical water demand for 2000 through 2004 is summarized in Table 6-2. Climatologic data and CBMWD single dry year and multiple dry year data are included. The year 2002 represents the CBMWD single dry year and the years 2002 through 2004 reflect multiple dry years. The table shows that water demand increased during the drier rainfall years (2002 and 2003) following a normal year (2001).

Table 6 2
PWC Historical Water Production Climatologic Data and CBMWD Data
2000 2004

	2000	**2001**	**2002**	**2003**	**2004**	**Average**
Groundwater (AFY)	1,797	1,663	1,551	1,518	1,598	1,625
Imported Water (AFY)	11,295	11,488	12,480	11,844	12,408	11,903
Recycled Water (AFY)	461	418	503	468	424	455
TOTAL WATER DEMAND	**13,553**	**13,569**	**14,534**	**13,830**	**14,430**	**13,983**
Water Year (July-June) Rainfall (inches)	9.21	14.98	3.77	8.61	9.25	14.47[1]
Climatologic Classification	Below Average	Average	Very Dry	Dry	Dry	---
CBMWD Single Dry Year (% of a normal year, excluding replenishment water)	---	---	106%	---	---	---
CBMWD Multiple Dry Year (% of a normal year, excluding replenishment water)	---	---	106%	106%	106%	---

Source: Park Water Company, Urban Water Management Plan, 2005

1) Average is a 100 year average.

6.2 Projected Water Demand

6.2.1 Projected Tier I Water Demands

Projected Tier I water demands were forecasted to the year 2030 under varying conditions. Demand projections are based on proposed Tier I activities. In all scenarios, the maximum capacities of proposed site services under the Tier I Phase are assumed. Currently, Tier I project plans include operations providing services to 160,000 patients annually.

In 2009, the County initiated improvements to the existing campus to provide community-based inpatient hospital functions and support spaces that would be seismically compliant beyond the 2030 seismic standards established by the Office of Statewide Health and Planning Development (OSHPD). These improvements to the existing campus would be an adjacent and ongoing project.

The ongoing project will operate with the capacity of up to 120 licensed beds; the 120 beds will be located on the first through fifth floors of the Inpatient Tower. Although these adjacent and ongoing improvements to the campus are not part of Tier I or Tier II of the proposed project, they serve as existing conditions and a related project for the proposed project. The number of beds that are anticipated as part of these improvements were used as a baseline for the water supply analysis in this report. This WSA conservatively assessed the water supply for the proposed project at the site using an assumption of water use for up to 138 beds.

Projected water use at the site for 2010 is based on 2009 water usage. Completion of Tier I is not expected until 2014, so water use projections that incorporate the new MACC and Ancillary buildings tenant improvements, site improvements, and potential relocation of the MRI Building are not accounted for until 2015 in the table below. Future Tier I projections assume that the new buildings would be operating at full capacity under a new operating license. Projected water demands for Tier I are summarized in Table 6-3.

Table 6 3
Tier I Water Demand Projections
Acre feet per Year

Water Demand Scenario	2010	2015	2020	2025	2030
Normal Water Year	10	173	173	173	173
Single Dry Water Year	10.7	185.3	185.3	185.3	185.3

Tier I water demand is assumed to remain fairly constant through normal water years, at 173 AFY. The projected Tier I water demand is based on full service capacity of the facility and water demand is not expected to increase in the next 20 years, under normal water years. There are no plans to increase the service capacity of the new buildings under Tier I once they are developed. During a single dry water year, demand is projected to be 185.3 AFY.

Water uses at the medical facility would not be affected by weather conditions, with the exception of landscape irrigation and cooling uses. In determining multiple dry year demand projections for a three-year dry period, the following factors above normal demand were applied: 107.1 percent for the first year, 101.2 percent for the second year, and 106.3 percent for the third year. These factors were based on the same factors used by PWC for noted water usage behaviors during multiple dry years. Tables 6-4.1 and 6-4.2 summarize projected Tier I water demands for the project under multiple dry year conditions, which would range up to 185.3 AFY.

Table 6 4.1
Tier I Water Demand Projections Multiple Dr Years 2010 2018
Acre feet

Multiple Dry Yrs	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Dry Year Period	1	2	3	1	2	3	1	2	3	1	2
Acre-feet per Year	10.7	10.1	10.6	185.3	175.1	183.9	185.3	175.1	183.9	185.3	175.1

Table 6 4.2
Tier I Water Demand Projections Multiple Dr Years 2021 2030
Acre feet

Multiple Dry Yrs	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Dry Year Period	3	1	2	3	1	2	3	1	2	3
Acre-feet per Year	183.9	185.3	175.1	183.9	185.3	175.1	183.9	185.3	175.1	183.9

6.2.2 Projected Tier II Water Demands

Projected Tier II water demands were forecasted to the year 2030 under varying conditions. Demand projections are based on proposed Tier II activities. In all scenarios, the maximum capacities of proposed site services under the Tier II Phase are assumed. Currently, Tier II project plans include commercial, retail, office, residential and other campus support uses. Details for the Tier II phase have not been finalized and general assumptions were made based on planned square footage for each type of planned use, as specified in the Project Description for the site (Sapphos, 2010). Table 6-5 shows projected water demand for each type of use category under normal conditions. Water demand for commercial/retail, medical office, general office, and campus support type buildings was estimated based on assumed number of employees, which was based on proposed square footage for each type of building use category. Residential demand was based on average water usage per proposed number of units. A water demand of 442 AFY is projected for Tier II. This demand does not account for potential water use savings associated with implementing water efficiency and conservation methods.

Table 6 5
Tier II Projected Water Demand b Use T pe

Use Category	Proposed Tier II Square Footage	Projected Daily Water Use (GPD)	Projected Water Use (AFY)
Commercial/Retail	80,000	6,000	7
Residential	150,000	45,000	50
Medical Office	300,000	120,000	134
General Office	150,000	19,286	22
Additional Campus Support Buildings	1,134,695	204,245	229
Total	**1,814,695**	**394,531**	**442**

Projected water demands for Tier II, under normal and single dry year conditions, are summarized in Table 6-6. Maximum capacity, with regards to the allocated square footage for each type of use, was assumed for conservative purposes. Projected growth rate factors were not taken into account because maximum capacity was assumed for each year. Water demand for each year is not expected to increase under normal (442 AFY) and single dry year conditions (473.4). It is anticipated that Tier II construction could begin in 2010, and would be competed in 2020. It is anticipated that development of Tier II would require up to eight phases. Therefore, it is assumed that associated water demand would be zero in 2010 and 50 percent of the total in 2015.

Table 6 6
Tier II Water Demand Projections
Acre feet per Year

Water Demand Scenario	2010	2015	2020	2025	2030
Normal Water Year	0	221	442	442	442
Single Dry Water Year	473.4	473.4	473.4	473.4	473.4

Tier II water uses would not be affected by weather conditions, with the exception of landscape irrigation and cooling uses. In determining multiple dry year demand projections for a three-year dry period, the following factors above normal demand were applied: 107.1 percent for the first year, 101.2 percent for the second year, and 106.3 percent for the third year. These factors were based on the same factors used by PWC for noted water usage behaviors during multiple dry years.

Tables 6-7.1 and 6-7.2 summarize Tier II projected water demands under multiple dry year conditions, which would range up to 473.4 AFY. Tier II is anticipated to be completed in eight phases of construction during 2010 through 2020, and it is assumed that approximately ten percent of Tier II would be completed per year for the purposes of this evaluation. It is assumed that water usage would directly correlate to the percentage of construction completed, where 2010 is 0 percent of projected total Tier II water demand and 2020 reflects 100 of projected total Tier II water demand under multiple dry year conditions.

Table 6 7.1
Tier II Water Demand Projections Multiple Dry Years 2010 2020

Multiple Dry Yrs	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Dry Year Period	1	2	3	1	2	3	1	2	3	1	2
Acre-feet per Year	0	44.7	94.0	142.02	178.9	234.9	284.04	313.1	375.8	426.06	447.3

Table 6 7.2
Tier II Water Demand Projections Multiple Dry Years 2021 2030

Multiple Dry Yrs	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Dry Year Period	3	1	2	3	1	2	3	1	2	3
Acre-feet per Year	469.8	473.4	447.3	469.8	473.4	447.3	469.8	473.4	447.3	469.8

6.2.3 Projected Local Public Utility Demands

Future water demands may depend on a variety of factors. PWC considered population growth, climate, density, and type of customers in its 2005 UWMP to assess future demand. A growth rate of 0.7 percent per year was used to project future population for PWC's Central Basin Division service area through 2030.

PWC's 2005 UWMP provided projections of groundwater extraction from the Central Basin, in 5-year increments, from 2005 through 2030. PWC projected continuously pumping 1,500 AFY through 2030, the limit of its water rights to the Central Basin (including leased rights). PWC did not provide individual projections for each service area. Table 6-8 provides PWC's projected water demand data for 2010 through 2030, under single normal year and single dry year conditions.

Table 6 8
PWC Projected Water Demand
Acre feet per Year

Year Condition	Water Source	2010	2015	2020	2025	2030
Single Normal Year	Groundwater	1,500	1,500	1,500	1,500	1,500
	Imported	11,950	12,220	12,480	12,750	13,020
	Recycled	470	470	470	470	470
Single Dry Year	Groundwater	1,500	1,500	1,500	1,500	1,500
	Imported	12,910	13,200	13,480	13,770	14,050
	Recycled	500	500	500	500	500

Source: Park Water Company, Urban Water Management Plan, 2005

In determining multiple dry year demand projections for a three-year dry period, PWC used the following factors above a normal year: 107.1 percent for the first year, 101.2 percent for the second year, and 106.3 percent for the third year. PWC bases these factors on patterns observed in historical data (see Table 6-2). It is assumed that water demand increases in the first year, using more water for irrigation and other weather-dependent uses. Demand then drops slightly in the second year as water conservation increases when drought conditions are recognized. In the third year, demand increases again as drought conditions continue, and the demand for water to irrigate plants increases. Tables 6-9.1 and 6-9.2 summarize PWC's projected water demands during multiple dry years through 2030.

Table 6 9.1
PWC Projected Water Demand for Multiple Dr Years 2010 2020
Acre feet

Water Source	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Groundwater	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Imported	12,800	12,000	12,060	13,080	12,330	13,080	12,270	12,320	13,370	12,590	13,360
Recycled	500	470	470	500	480	500	470	470	500	480	500
TOTAL DEMAND	**14,800**	**13,970**	**14,030**	**15,080**	**14,310**	**15,080**	**14,240**	**14,290**	**15,370**	**14,570**	**15,360**

Source: Park Water Company, Urban Water Management Plan, 2005

Table 6 9.2
PWC Projected Water Demand for Multiple Dr Years 2021 2030
Acre feet

Water Source	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Groundwater	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Imported	12,530	12,590	13,650	12,870	13,650	12,800	12,860	13,940	13,140	13,930
Recycled	470	470	500	480	500	470	470	500	480	500
TOTAL DEMAND	**14,500**	**14,560**	**15,650**	**14,850**	**15,650**	**14,770**	**14,830**	**15,940**	**15,120**	**15,930**

Source: Park Water Company, Urban Water Management Plan, 2005

Future demand based on each customer class (sector) also was presented by PWC in its 2005 UWMP. The residential sector is the largest sector and primary water user in PWC's service area. Other sectors evaluated for water use included commercial, industrial, and public authority, which includes local government, schools, parks, and hospitals. Table 6-10 summarizes water use data by sector.

Table 6 10
Past Current and Projected Water Use b Sector
Acre feet per Year

Customer Sector	2000	2005	2010	2015	2020	2025	2030
Residential	9,253	9,414	9,632	9,849	10,067	10,285	10,502
Commercial	3,185	2,933	2,967	3,001	3,036	3,070	3,104
Industrial	85	42	42	42	42	42	42
Public Authority	704	584	625	641	658	674	691
Other	254	181	181	181	181	181	181
Recycled	462	470	470	470	470	470	470
TOTAL	**13,943**	**13,624**	**13,917**	**14,184**	**14,454**	**14,722**	**14,990**

Source: Park Water Company, Urban Water Management Plan, 2005

Section 7
Comparison of Projected Water Supplies and Demands

7.1 PWC Projected Supply and Demand Comparison

In its 2005 UWMP, PWC indicated that it expects to meet all water demands through the year 2030 for all average, single dry year, and multiple dry year scenarios. These projections include an incremental increase in demand. Information supporting PWC's conclusion was discussed in Sections 5 and 6 of this assessment. Table 7-1 compares PWC's water supply and demand for single normal and single dry years.

Table 7-1
PWC Projected Water Supply and Demand Comparison
Acre-feet per Year

Year Condition	Comparison	2010	2015	2020	2025	2030
Single Normal Year	Supply	17,600	17,440	18,620	17,970	17,330
	Demand	13,920	14,190	14,450	14,720	14,990
Single Dry Year	Supply	16,810	18,110	18,760	18,010	17,530
	Demand	14,910	15,200	15,480	15,770	16,050

Source: Park Water Company, Urban Water Management Plan, 2005

PWC's projected water demands, under multiple dry year conditions through 2030 (Tables 6-9.1 and 6-9.2), are all well below the lowest projected water supply of 17,330 AFY (Table 7-1, year 2030). The highest projected water demand under multiple dry year conditions is 15,940 AFY (Table 6-9.2, year 2028), which indicates that PWC anticipates sufficient water supply to accommodate a 9 percent increase in water demand during the lowest annual water supply projected.

7.2 MWD Projected Supply and Demand Comparison

In its 2005 UWMP, during the 20-year period from 2010 through 2030, MWD projected a 0.5 percent decrease in available supply during an average year. In addition, the UWMP anticipated a 4.5 percent increase in available supply during a single dry year and a 3.8 percent increase during the third year of a multiple dry year period. The projected increase of available supplies, even during dry years, is based on increased contract allocations of in-basin storage and additional planned supplies currently under development.

An increase in demand also was projected for 2010 through 2030. MWD projected a 10.2 percent increase in average demand over the same 20-year period, an 8.5 percent increase during a single dry year scenario, and an 8.9 percent increase during a multiple dry year period. Table 7-2 summarizes MWD's imported water supply, compared with demand projections for average (normal) single year, single dry year, and the third year of a multiple dry year period.

Table 7 2
MWD Imported Water Suppl and Demand Projections
Acre feet per Year

Year Condition	Comparison	2010	2015	2020	2025	2030
Single Normal Year	Supply	2,688,000	2,600,000	2,654,000	2,654,000	2,654,000
	Demand	2,040,000	2,053,000	1,989,000	2,115,000	2,249,000
Single Dry Year	Supply	2,842,000	3,033,000	3,002,000	2,970,000	2,970,000
	Demand	2,293,000	2,301,000	2,234,000	2,636,000	2,489,000
Third Year of a Multiple Dry Year Period	Supply	2,619,000	2,776,600	2,741,000	2,719,000	2,719,000
	Demand	2,376,000	2,389,000	2,317,000	2,454,000	2,587,000

Source: Metropolitan Water District of Southern California, Urban Water Management Plan, September 2005

In all scenarios, the projected increase in demand by MWD's member agencies is offset by available surpluses in MWD's supply. MWD secures surplus supplies from its many different sources. MWD has implemented a variety of storage projects and water transfer programs, among other contingency plans, to store surplus water supplies. The difference in supply and demand accounts for MWD's projected surplus. Based on its projections, MWD would be able to meet all of its projected demands through 2030 with available surplus water.

Section 8
Findings and Conclusions

8.1 Project Water Supply Findings

Projected future water use at the MLK facility, associated with Tier I, was estimated and compared to past water usage at the site. Based on data provided by the County of Los Angeles and PWC, it appears that Tier I improvements would not substantially change water usage at MLK. Incorporating water conservation into the project design for Tier I may result in decreased water consumption from historical usage and would not take from projected surplus water supplies of PWC. Tier I would likely not impact the water supply needs for the Tier II Phase of the proposed project.

The area is developed and new major developments that could have a significant impact on PWC's demand are considered unlikely in the near term. Forty near-term projects were included in the Draft EIR for cumulative analysis. The exact scope of these projects, including details of their estimated future water requirements and existing water use at those locations is not known. Any analyses of water demand changes for these projects are beyond the scope of this WSA. While some projects could increase per capita water use demands (e.g., higher density residential), other projects could substantially decrease per capita water demands by changing existing land use (e.g., residential conversion to commercial). Therefore it is unlikely that this project would contribute to a significantly cumulative impact when considered with these projects.

The estimated Tier II project water demand is 442 AFY during a single normal year condition. The highest demand estimated for Tier II is 473.4 AFY, which would be during a single dry year or the first dry year of multiple dry year conditions. These values do not account for possible water savings associated with implementing efficiency and conservation methods. Estimated Tier II water demands would constitute approximately 2.7 percent of PWC's projected demand for 2030.

PWC projected that its water supply would be greater than projected demands in all years through 2030 by at least 8 percent above demand. By the year 2030, PWC estimates that it would have at least 2,340 acre-feet, 1,480 acre-feet and 1,400 acre-feet of water available over demand during a normal, single dry year, and multiple dry years, respectively.

MWD also predicted sufficient supplies would be available through 2030. MWD anticipates over 130,000 AFY of surplus water by 2030. The estimated future water demand of the Tier II

Phase only reflects approximately 0.3 percent of the surplus water that could be allocated to PWC to meet the demands of the project.

Based on an evaluation of PWC's 2005 UWMP and MWD's 2005 UWMP, as well as the analysis conducted for this water supply assessment, a sufficient water supply would be available to meet the water demands of the proposed Tier II Phase of the project through the 20-year planning period ending in 2030. With only a 2.7 percent projected increase to the PWC's overall projected demand, this analysis indicates that there would be sufficient supply to satisfy the proposed project's water demands, in addition to other existing and planned future uses in the service territory. Uncertainties as to the exact nature of the Tier II development might require that water use associated with the various development options are carefully evaluated, so that the estimated water use is not exceeded. Water saving measures can be highly effective in reducing the water demand of new development.

Water supply projections in PWC's 2005 UWMP indicate that the PWC would be able to provide sufficient water supplies for the Tier II Phase of the proposed project under varying conditions, including single dry water year and multiple dry water year conditions.

8.2 Future Actions

This WSA would need to be included as part of the environmental review for the proposed project, including the findings above. Pursuant to California Code of Regulations Section 15205 and 15206, Environmental Impact Reports and Negative Declarations that contain a water supply assessment also must be provided to the State Clearinghouse in the Governor's Office of Planning and Research.

Section 9
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MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

FINDINGS OF FACT AND STATEMENT OF OVERRIDING CONSIDERATIONS

(SCH #2010031040)

PREPARED FOR:

COUNTY OF LOS ANGELES
CHIEF EXECUTIVE OFFICE
KENNETH HAHN HALL OF ADMINISTRATION
500 WEST TEMPLE STREET, ROOM 754
LOS ANGELES, CALIFORNIA 90012

PREPARED BY:

SAPPHOS ENVIRONMENTAL, INC.
430 NORTH HALSTEAD STREET
PASADENA, CALIFORNIA 91107

FEBRUARY 2011

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SECTION I
INTRODUCTION

I.A CERTIFICATION

FINDINGS OF FACT AND STATEMENT OF OVERRIDING CONSIDERATIONS REGARDING THE FINAL ENVIRONMENTAL IMPACT REPORT FOR THE MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT (STATE CLEARINGHOUSE NUMBER 2010031040)

The County of Los Angeles (County) hereby certifies the Final Environmental Impact Report (EIR) for the Martin Luther King, Jr. Medical Center Campus Redevelopment project, located at 12021 Wilmington Avenue, in the unincorporated area of Willowbrook, County of Los Angeles, California, State Clearinghouse Number 2010031040. The EIR consists of Volume I: Draft EIR, dated August 31, 2010; Volume II: Technical Appendices to the Draft EIR, dated August 31, 2010; and Volume III: Clarifications and Revisions to the Draft EIR, Comment Letters on the Draft EIR, and Response to Comments, dated December 13, 2010. The EIR has been completed in compliance with the California Environmental Quality Act (CEQA), the State CEQA Guidelines, the County General Plan, and all applicable federal, state, and local statutes and regulations that govern the management of environmental resources. The County Board of Supervisors has received, reviewed, and considered the information contained in the Final EIR, all hearings, and submissions of testimony from officials representing the County, as well as from other agencies, organizations, and private individuals with a particular vested interest in the project.

Having received, reviewed, and considered the foregoing information, recommendations of the County, as well as any and all other information in the record, and Section I herein, the County Board of Supervisors hereby makes findings pursuant to and in accordance with Section 21081 of the Public Resources Code as presented in Sections II through X of these Findings of Fact and Statement of Overriding Considerations.

I.B PROJECT LOCATION

The Martin Luther King, Jr. Medical Center Campus Redevelopment project (project) site is located on the existing 38-acre Martin Luther King, Jr. Medical Center Campus, at 12021 Wilmington Avenue, in the unincorporated area of Willowbrook, County of Los Angeles, California.

The project site is located approximately 3 miles north of State Route 91 (SR-91; Artesia Freeway), approximately 3 miles northeast of Interstate 710 (I-710; Long Beach Freeway), approximately 2 miles east of I-110 (Harbor Freeway), less than 1 mile south of East Imperial Highway, and less than 1 mile south of I-105 (Glen Anderson Freeway). The project site can be accessed from East 120th Street or from Wilmington Avenue.

The project site is bounded on the north by East 120th Street, on the east by Wilmington Avenue, on the south by a narrow alley separating the project site from the residential neighborhood that is largely located north of East 122nd Street, and on the west by Compton Avenue of Los Angeles. The project site is less than 1 mile north of the City of Compton, less than 1 mile south of the City of Los Angeles, and less than 1 mile west of the City of Lynwood.

The project site appears on the U.S. Geological Survey (USGS) 7.5-minute series South Gate topographic quadrangle.[1] Elevations at the project site range from 86 feet above mean sea level (MSL) to 88 feet above MSL.[2] The topography of the site can be generally characterized as flat.

I.C PROJECT GOAL AND OBJECTIVES

The goal of the project is to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care.

The County seeks to establish the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development. The campus provides an opportunity to develop up to an additional 1,814,696 square feet for a mix of uses, including space for medical offices; commercial, retail, residential, recreation, and general offices; and any other development that will improve the community-based health program facility with a net new increase of 1,476,010 square feet.

Tier I Project Objectives

The County identified and prioritized the basic objectives that are important in achieving the project goals for Tier I:

- Revitalize the Martin Luther King, Jr. Medical Center Campus through the provision of comprehensive medical care
- Demonstrate leadership in sustainable planning and design
- Create a campus environment that encourages pedestrian movement and optimizes connectivity, staff interaction, and links to the community
- Develop a campus that is contextually integrated with the County and respects the surrounding communities
- Improve the efficiency and quality of staff and tenant services
- Maintain the 2,100-square-foot Genesis Clinic; 2,580-square-foot Oasis Clinic (old); 1,850-square-foot Oasis Clinic (new); 10,950-square-foot Registration Building; 226,818-square-foot Augustus F. Hawkins Comprehensive Mental Health Center; 187,676-square-foot Inpatient Tower; 7,878-square-foot Pediatric Acute Care; 26,355-square-foot Medical Records and Laundry; 24,103-square-foot Central Plant; 15,648-square-foot Plant Management; 52,276-square-foot North Support Building; 34,762-square-foot South Support Building; 124,391-square-foot Interns and Physicians Buildings; 3,922-square-foot Claude Hudson Auditorium; 1,100-square-foot MRI Building; and 12,265-square-foot Hub Clinic Building
- Provide a 24,700-building-gross-square-footage (BGSF) space to accommodate the Ancillary Building to house the cafeteria, administrative functions, and support services for the Multi-Service Ambulatory Care Center (MACC) and the Inpatient Tower
- Provide a 132,000-BGSF space to accommodate the MACC program

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[1] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[2] Sapphos Environmental, Inc. 2010. Geographic Information System. Pasadena, CA.

- Provide 34,000 square feet of tenant improvements to accommodate support functions in the North Support, South Support, Interns and Physicians, and Plant Management Buildings
- Connect to an upgraded central plant to service the MACC, North Support Building, South Support Building, Inpatient Tower, and Interns and Physicians Building
- Provide a parking area to allow sufficient parking for patients, client, visitors, employees, and medical staff; site work; and landscaping
- Provide for a possible relocation of the MRI Building

Tier II Master Plan Objectives

The County identified and prioritized the basic objectives that are important in achieving the project goals for Tier II:

- Provide opportunities for development of up to 1,814,696 square feet of mixed use, including medical office, commercial, retail, residential, recreational, office space, and other development in support of the campus that are appurtenant to and compatible with the primary land use of a community-based health program facility.
- Provide sufficient parking for mixed-use development.

I.D PROJECT ELEMENTS

The project entails two tiers. Tier I would involve development of the new MACC Building and the Ancillary Building. Tier I would also include tenant improvements to the following existing buildings: North Support Building, South Support Building, and the Plant Management Building; site improvements; and potential relocation of the MRI Building.

Tier II of the project would entail the reuse, replacement, or removal of the existing MACC Building (which will be vacant following construction of the new MACC Building in Tier I) and reuse, replacement, or removal of the following: Emergency Room, Storage Building, and Cooling Towers.[3] Tier II construction may entail additional master-planned mixed-use development, which may include the potential for medical offices, general offices, commercial and retail space, residential units, recreational areas, and other development that is appurtenant to and compatible with the primary land use, in support of the campus.

To establish a program of development level for the mixed-use portion of Tier II, the currently undeveloped areas of the campus (undeveloped in this case includes parking lots and structures, such as parking structures and certain storage or loading areas, but not buildings) were calculated, and adjustments were made for buildings to be reused, replaced, or removed and developed, to obtain a surface area from which to calculate allowable build-out. A maximum build-out of this remaining area was calculated using maximum build-out criteria from the Los Angeles County Zoning Code restrictions applicable to the site. Initially, this maximum build-out number was in excess of 2 million square feet and included zoning code allowances of a maximum of three stories in building height and a minimum of 10-percent open space (i.e., areas without structures). To determine a more accurate level of development for Tier II, the following assumptions were added: (1) open space site-wide would remain a minimum of 10 percent to maintain some of the current

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[3] However, the functions of these buildings would be substituted.

character of the site as an open and landscaped campus; (2) the site area to be set aside for the potential development of an up to 100-unit residential component, parking structures or parking lots, and walkways would be a maximum of 40 percent of the entire site; and (3) although a maximum of three stories would be allowed for new buildings, an average height of 2.5 stories was assumed.[4] With these assumptions added in, the maximum programmed development for Tier II could consist of up to 1,814,696 square feet.

Tier I of the project will result in a decrease of the existing square feet, as the functions of several existing buildings would be removed. Tier II of the project has the potential to result in a total floor area of up to 1,814,696 square feet (or a footprint of up to approximately 725,878 square feet) of new development. Given the net reduction in building floor area in Tier I, the net new development after completion of Tier I plus maximum build-out of Tier II is 1,476,010 square feet of floor area.

Tier I Project Development

Tier I of the proposed project would entail the development of two new buildings: the new MACC Building and the Ancillary Building, tenant improvements in existing buildings, site improvements, and potential relocation of the MRI Building. Project-level EIR analysis will be provided for Tier I.

Multi-Service Ambulatory Care Center Building

The proposed MACC Building would be a four-story building consisting of approximately 132,000 square feet of floor area. This building would house the walk-in clinic, outpatient imaging, outpatient surgery, and various other outpatient clinics that are currently operating in the existing MACC. The proposed building would most likely be of structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. Similar to the proposed Ancillary Building, the lateral-force-resisting system of the MACC Building can be any one of the following: moment frames, braced frames, or a combination of the two. The lateral-force-resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

Ancillary Building

The proposed Ancillary Building would be a two-story structure consisting of approximately 24,700 square feet of floor area. This building would house the campus kitchen and cafeteria, and administrative offices. The building would be constructed to the east of the new MACC. A new pedestrian footbridge would be provided at the east end of the building for connection to the existing Inpatient Tower for the transportation of materials and supplies. The bridge would most likely be constructed of steel, with a seismic joint at the Inpatient Tower.

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[4] An average building size of 2.5 stories was used, although it is anticipated that the Tier II buildings would vary in size and may be taller than 2.5 stories.

The new building would most likely be structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. The lateral-force-resisting system for the building can be any one of the following: moment frames, braced frames, or a combination of the two. It is anticipated that the lateral-force-resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

Tenant Improvements

The tenant improvements would be performed in the North Support Building to provide space for the MACC administrative departments. The South Support Building would be reorganized to serve as the main warehouse for the MACC. The South Support Building may also serve as a central distribution center for other Los Angeles County healthcare facilities in the area. Other tenant improvements would be performed in the Interns and Physicians and Plant Management Buildings for support functions to the MACC.

Site Improvements

The site work would consist of a new parking terrace, relocated entrance to the facility, new parking lots, restriping of existing lots, and new landscaping at the entry of the new MACC and its surrounding area. A space for an emergency generator and a service yard with technical (tech) dock positions that connect mobile radiology equipment would also be provided.

In addition, site work would include improvements at 120th Street at the northern boundary of the proposed project site. These site improvements would entail removing the existing crosswalk and traffic signal at the new Oasis Clinic; adding a new crosswalk and traffic signal at the new campus (Medical Center Drive) entry; prohibiting curbside parking on both sides of 120th Street for a distance of approximately 300 feet east and 200 west of the new Medical Center Drive entrance;[5] adding a left-turn lane westbound at the new Medical Center Drive entrance; removing and replacing approximately 500 linear feet of street at Medical Center Drive entrance and/or constructing inlets and extending the public storm drain to remedy potential drainage defects; repairing and/or replacing the curb, gutter, and sidewalk where necessary; and planting additional street trees and landscape.

Tier I would be expected to generate approximately 150 temporary construction jobs and no new permanent or operational staff positions, as Tier I would require only existing staff to be shifted into the new Tier I facilities. It is not anticipated that any existing jobs would be eliminated as a result of the Tier I development.

Tier II Master Plan Development

Tier II of the project would entail the development of a campus-wide Master Plan. It is anticipated that the development described in the Master Plan would seek to prepare the project site for future mixed-use campus support development that would provide the health services necessary to respond to and address the needs of the community. Tier II would have the potential to build out approximately 1,814,696 square feet of development on the proposed project site with mixed uses,

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[5] This would remove approximately 30 curbside parking spaces on 120th Street. Adequate off-street parking is proposed to be provided on-site at the campus to account for the removal of these curbside parking spaces.

including medical office, commercial, retail, office space, recreation, and other development in support of the campus. In addition, up to 100 residential units, to be developed at a multifamily density consistent with surrounding residential area multifamily development densities, are proposed in Tier II. Although these buildings would be vacated as a component of Tier I, the Tier II components would entail the reuse, replacement, or removal of the existing MACC Building, Emergency Room, Storage Building, and Cooling Towers.

The Tier II components, including the campus-wide Master Plan, are conceptual at this time and, therefore, will be discussed only in a programmatic level in the EIR, as permitted under CEQA. Once the detailed future development plans for Tier II components are prepared, consistent with the guidelines for programmatic EIRs under CEQA, the development projects under the campus-wide Master Plan will be examined in light of the program EIR analysis, to determine whether additional environmental document(s) must be prepared.

In accordance with §15168 of the State CEQA Guidelines, the program-level analysis that is provided in this EIR document for Tier II of the proposed project is intended to be prepared for a series of actions that can be characterized as one large project, such as a master plan. Through a programmatic EIR, the County seeks to provide the public, responsible agencies, and interested parties an opportunity for a more exhaustive consideration of the Tier II effects and alternative than would be practical in an EIR for each individual action; furthermore, the County can consider broad program-wide mitigation measures at an early time when there is greater flexibility to deal with basic problems or cumulative impacts. It is understood, however, that subsequent activities described within Tier II of the proposed project must be evaluated in light of the programmatic EIR to determine whether additional environmental document(s) must be prepared.

Although some variation in the distribution of these uses (i.e., percentage of the total) may occur when the project is implemented, the description of Tier II elements are a reasonable projection at this time of the land use distribution for the purposes of environmental impact assessment.

Tier II development would be expected to generate approximately 150 temporary construction jobs that would vary according to the development and will be determined in the future Master Plan. Tier II also has the potential to result in a range of new permanent or operational staff positions. The County has estimated a conservative number of up to 100 jobs that could be associated with Tier II of the project.[6]

I.E LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN ELEMENTS

On January 16, 2007, the County Board of Supervisors approved the Countywide Energy and Environmental Policy. The Countywide Energy and Environmental Policy consists of programs that are designed to institute energy conservation and environmental stewardship into County efforts.[7]

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[6] This estimate is a conservative assessment based upon coordination with the County. These numbers are based solely upon estimates regarding what could occur as part of this project and do not reflect known or actual trends although labor forecasts related to labor statistics in the area that were completed by the U.S. Bureau of Labor Statistics (BLS) were reviewed. The U.S. BLS, November 2009 Monthly Labor Review, which is available at http://www.bls.gov/opub/mlr/2009/11/mlr200911.pdf, projected the following for the year 2018: jobs in the health care and service assistance field will account for approximately 12% of the available non-farm jobs; retail and trade would account for 10%; professional business would account for 14%; and leisure and hospitality would account for approximately 9% of the available non-farm jobs in the U.S. in 2018.

[7] County of Los Angeles. Accessed August 2010. "Energy and Environmental Efforts." Web site. Available at: http://green.lacounty.gov/green_buildings.asp

As part of the Countywide Energy and Environmental Policy, the County has established requirements for capital construction. The County requires that all new County buildings (greater than 10,000 square feet) under the County's Capital Project Program, which includes capital improvement and development projects, be Leadership in Energy and Environmental Design (LEED) certified at the silver level.[8]

Development of the new MACC Building and the Ancillary Building under Tier I of the proposed project are currently registered with the U.S. Green Building Council under LEED for New Construction (LEED-NC).[9] The County will seek LEED silver certification for the MACC Building and the Ancillary Building.[10] In addition, any County buildings that are more than 10,000 square feet that are developed under Tier II of the proposed project will be required to seek a minimum LEED silver certification. The LEED program recognizes and promotes a project's success in five areas: (1) sustainable sites, (2) water efficiency, (3) energy and atmosphere efficiencies, (4) materials and resources, and (5) indoor environmental quality. In addition, the federal government has a program titled Green Guide for Healthcare Construction (GGHC), which is designed to help hospitals navigate through the LEED program. The proposed project would incorporate energy efficient and sustainable strategies throughout the construction, development, and operation of the proposed project.

The development of Tier I and Tier II of the proposed project would utilize and incorporate materials to ensure visual consistency and continuity at the proposed project site and within the surrounding area. The proposed project must adhere to the design goals presented in the campus planning and programming report that was prepared for the MLK Medical Center Campus by HMC Architects in 2009. The report stated that the proposed architecture should achieve the following:

- Respect the existing fabric of buildings;
- The selection of exterior material and architectural forms should make reference to the material palette of the existing campus while incorporating contemporary materials and building technologies to project the future vision of this campus;
- The juxtaposition and massing of the new buildings should be strategically located to allow visitors a pleasurable aesthetic experience; and
- The open spaces created in between the buildings are designed the variations in size, shape, and scale that are conducive to pedestrian travel through the campus.[11]

I.F EIR PROCESS

The County prepared an EIR for the project in accordance with CEQA, the State CEQA Guidelines, the County General Plan, and all applicable federal, state, and local statutes and regulations that govern the management of environmental resources.

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[8] County of Los Angeles. Accessed August 2010. "Energy and Environmental Efforts." Web site. Available at: http://green.lacounty.gov/green_buildings.asp

[9] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[10] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[11] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

The County has taken steps to encourage the public to participate in the environmental process for the project. These steps included, but were not limited to, inviting the public to community workshops prior to and during the preparation of the Initial Study (dated March 8, 2010, Volume II, Appendix A). On March 8, 2010, the County circulated a Notice of Preparation (NOP) for a Draft EIR for the project to the State Clearinghouse and to various federal, state, regional, and local government agencies. The NOP was also distributed to interested individuals who attended the community workshops that were held at the Claude Hudson Auditorium on the MLK Medical Center campus on December 2, 2009, and January 7, 2010, or expressed an interest in the project; was distributed to residents, property, and business owners within a 0.25-mile radius of the project site; and was posted in the *L.A. Watts Times* and *La Opinión* newspapers and on the County Second Supervisorial District Web site.[12] The County attracted informative and supportive public feedback and participation when they hosted a scoping meeting on March 24, 2010, to solicit input from the public on the elements of the project. The public review period closed on April 6, 2010. Eight comment letters were received in response to the NOP and Initial Study (Volume II, Appendix A), comprising six letters from agencies and two letters from individuals. The Draft EIR considered the environmental impact areas identified in the NOP. Responses to these comments were incorporated into the body of the Draft EIR.

The EIR was prepared to inform public agency decision makers and the general public about the project and its significant environmental effects, to suggest possible ways of minimizing those significant effects, and to describe a reasonable range of alternatives that could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. The Draft EIR was completed and forwarded to the State Office of Planning and Research (OPR) on August 31, 2010, for a 45-day comment period, which the County extended by one additional day to end on October 15, 2010 (as noted in the Notice of Completion).

A Notice of Completion (NOC) was posted at both OPR and the Los Angeles County Clerk's Office on August 31, 2010. A Public Notice of Availability (NOA) of the Draft EIR appeared in the *L.A. Watts Times* and *La Opinión* newspapers; was mailed directly to 1,555 interested parties (consisting of but not limited to agencies, meeting attendees, and residents, property, and business owners within a 0.25 mile of the project site); and was posted at the County Chief Executive Office, the Martin Luther King, Jr. Medical Center Campus, the Willowbrook Library, and on the County Second Supervisorial District Web site.

Copies of the Draft EIR and NOA were mailed to 38 public agency representatives. Of which, at least 17 of the NOAs were transmitted to responsible agencies.

The Final EIR was prepared based on the Draft EIR, comments provided in response to circulation of the Draft EIR for public review, and clarifications and revisions resulting from public review of the Draft EIR. A total of nine letters of comment were received on the Draft EIR; eight letters were received from public agencies and one was from an individual. Upon completion of the evaluation, this Final EIR was prepared and provided to the County Board of Supervisors for certification of compliance with CEQA and for review and consideration as part of the decision-making process for the project.

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[12] County of Los Angeles Second Supervisorial District. Web site. Available at: http://ridley-thomas.lacounty.gov/Pages/Issues/mlk_hospital.htm

I.G GENERAL FINDINGS

The County has evaluated all environmental impact areas recommended by CEQA and the State CEQA Guidelines during the environmental evaluation of the project.

Initial Study

The Initial Study (dated March 8, 2010) determined that the project would not result in significant impacts to four environmental impact areas: agriculture resources, biological resources, land use and planning, and mineral resources. The Initial Study was circulated for review with the NOP and is included as Appendix A to the EIR.

Environmental Impact Report

Tier I

The EIR determined that Tier I of the project is not expected to result in significant impacts to four environmental impact areas: population and housing, public services, recreation, and utilities and service systems.

Impacts related to aesthetics (light and glare), air quality (air quality standards, cumulative impacts, and sensitive receptors during construction only), cultural resources (paleontological resource and human remains), geology and soils (soil erosion or loss of top soil, geologic unit or unstable soil, and expansive soil), greenhouse gas emissions (operation), hazards and hazardous materials (accidental release, within 0.25 mile of an existing or proposed school, and Government Code Section 65962.5), hydrology and water quality (water quality standards, waste discharge, runoff water, and water quality during construction and limited operation), noise (mechanical noise during construction only), and transportation and traffic (circulation system and congestion during construction only) can be mitigated to below the level of significance.

Construction-related impacts to greenhouse gases (construction) and noise (construction) may remain significant following the implementation of mitigation measures. Incorporation of mitigation measures for each would reduce anticipated impacts to greenhouse gases and noise from construction; however, they would remain significant after implementation of mitigation measures.

Tier II

The EIR determined that Tier II of the project is not expected to result in significant impacts to three environmental impact areas: population and housing, public services, and recreation.

Impacts related to aesthetics (light and glare, shade and shadow, and visual character), cultural resources (paleontological resource and human remains), geology and soils (soil erosion or loss of top soil, geologic unit or unstable soil, and expansive soil), hazards and hazardous materials (accidental release, within 0.25 mile of an existing or proposed school, and Government Code Section 65962.5), hydrology and water quality (water quality standards, waste discharge, runoff water, and degrade water quality during construction and operation), noise (mechanical noise), transportation and traffic (circulation system and congestion during construction, operation, and cumulative impacts), and utilities and service systems (wastewater treatment requirements and solid waste compliance) can be mitigated to below the level of significance.

Impacts to air quality (air quality standards, cumulative impacts, sensitive receptors during construction, and limited operation), cultural resources (historical resource), greenhouse gas emissions (construction), and noise (construction and vibration) would remain significant following the implementation of mitigation measures.

Alternatives

The County explored alternatives to the project to assess their ability to meet most of the objectives of the project and reduce significant effects of the project. Five project alternatives were evaluated: Alternative 1, Reduced Project Size Alternative (900,000 square foot Tier II); Alternative 2, Re-opening the Existing MACC Alternative; Alternative 3, Public Transportation Focused Alternative; Alternative 4, 500-Beds (in Tier I) Alternative; and Alternative 5, No Tier II Alternative. In addition, the No Project Alternative, as required by CEQA, was analyzed. The No Project Alternative was determined to be the environmentally superior alternative. Following the No Project Alternative, the Reopening of the Existing MACC is the environmentally superior alternative.

In accordance with Section 21081.6 (a) (1) of CEQA, the County has prepared a mitigation monitoring program for those measures required to mitigate or avoid significant effects on the environment.

In accordance with Section 21081.6 (a) (2) of CEQA, the County has specified the location and custodian of the documents and other materials that constitute the record of decision used in the decision-making process for the project.

In accordance with Section 21082.1 (c) (1), the County, through its governing Board of Supervisors, has independently reviewed and analyzed the information contained in the reports and environmental documents required by CEQA; has circulated draft documents, which reflect its independent judgment; and finds that the Final EIR reflects the independent judgment of the County.

The County has prepared a Statement of Overriding Considerations for impacts to the two Tier I environmental impact areas that cannot be reduced to below the level of significance: greenhouse gas emissions and noise, and the four Tier II environmental impact areas that cannot be reduced to below the level of significance: air quality, cultural resources, greenhouse gas emissions, and noise.

This report constitutes the required findings and statement pursuant to Sections 15091 and 15093 of the State CEQA Guidelines.

SECTION II
POTENTIAL ENVIRONMENTAL EFFECTS THAT ARE LESS THAN SIGNIFICANT

The analysis undertaken in support of the Initial Study and Environmental Impact Report (EIR) for the Martin Luther King, Jr. Medical Center Redevelopment project (project) determined that there are four environmental issue areas related to the California Environmental Quality Act (CEQA) that are not expected to have significant impacts resulting from implementation of the project. Based on the results of the Initial Study completed, it was determined that the project (including both Tiers I and II) will not have significant impacts on four environmental issue areas: agriculture and forestry resources, biological resources, land use and planning, and mineral resources. Pursuant to Section 15128 of the State CEQA Guidelines, these issue areas were therefore not carried forward for detailed analysis in the EIR.

II.A AGRICULTURE AND FORESTRY RESOURCES

Significant Impact:

None

Finding:

Neither Tier I nor Tier II of the project is expected to result in significant impacts to agriculture and forest resources. Therefore, no mitigation is required.

Facts:

The above finding is made based on the analysis included in Section 2.0, *Environmental Checklist*, and Section 3.0, *Environmental Analysis*, of the Initial Study for the project. The California Department of Conservation (CDC) Farmland Mapping and Monitoring Program (FMMP)[1] and the County of Los Angeles General Plan (County General Plan)[2] were reviewed in this evaluation. There are no Prime Farmlands, Unique Farmlands, or Farmlands of Statewide Importance present within or near the project site. No Farmlands will be converted to nonagricultural use, and the project will not conflict with zoning for agriculture or any Williamson Act contracts. The project will not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. The project will not result in the loss of forest land or conversion of forest land to non-forest use. The project will not involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

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[1] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. 2004. *Important Farmland in California, 2002*. Sacramento, CA.

[2] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

II.B BIOLOGICAL RESOURCES

Significant Impact:

None

Finding:

Neither Tier I nor Tier II of the project is expected to result in significant impacts to biological resources. Therefore, no mitigation is required.

Facts:

The above finding is made based on the analysis included in Section 2.0 and Section 3.0 of the Initial Study for the project. The analysis considered a review of the County General Plan;[3] a query of the California Natural Diversity Database[4] for the U.S. Geological Survey (USGS) 7.5-minute series, South Gate, California, topographic quadrangle[5] where the project is located and all surrounding USGS 7.5-minute series topographic quadrangles, including Inglewood,[6] Long Beach,[7] Whittier,[8] Torrance,[9] Los Alamitos,[10] El Monte,[11] Hollywood,[12] and Los Angeles;[13] and a review of published and unpublished literature germane to the project. It was determined that implementation of the project will not result in significant impacts to any species identified as a candidate, sensitive, or special-status species; to riparian habitat or sensitive natural communities; to federally protected wetlands; to the movement of any native resident or migratory fish or wildlife species or corridors; or that impede the use of native wildlife nursery sites. The project will not conflict with any local policies or ordinances protecting biological resources, or with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan.

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[3] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[4] California Department of Fish and Game. 2009. *Rarefind 3: A Database Application for the Use of the California Department of Fish and Game Natural Diversity Data Base*. Sacramento, CA

[5] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, South Gate, California, Topographic Quadrangle. Reston, VA.

[6] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Inglewood, California, Topographic Quadrangle. Reston, VA.

[7] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Long Beach, California, Topographic Quadrangle. Reston, VA.

[8] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Whittier, California, Topographic Quadrangle. Reston, VA.

[9] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Torrance, California, Topographic Quadrangle. Reston, VA.

[10] U.S. Geological Survey. [1964] Photo revised 1981. 7.5-Minute Series, Los Alamitos, California, Topographic Quadrangle. Reston, VA.

[11] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, El Monte, California, Topographic Quadrangle. Reston, VA.

[12] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Hollywood, California, Topographic Quadrangle. Reston, VA.

[13] U.S. Geological Survey. [1965] Photo revised 1981. 7.5-Minute Series, Seal Beach, California, Topographic Quadrangle. Reston, VA.

II.C LAND USE AND PLANNING

Significant Impact:

None

Finding:

Neither Tier I nor Tier II of the project is expected to result in significant impacts to land use and planning. Therefore, no mitigation is required.

Facts:

The above finding is made based on the analysis included in Section 2.0 and Section 3.0 of the Initial Study for the project. The project will not divide an established community. Based on a review of the County General Plan,[14] adopted published maps and other adopted plans, and designations provided by the U.S. Fish and Wildlife and the California Department of Fish and Game in support of the project, it was determined that the project will not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. The project will not conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan.

II.D MINERAL RESOURCES

Significant Impact:

None

Finding:

Neither Tier I nor Tier II of the project is expected to result in significant impacts to mineral resources. Therefore, no mitigation is required.

Facts:

The above finding is made based on the analysis included in Section 2.0 and Section 3.0 of the Initial Study for the project. As a result of a review of the *Mines and Minerals Producers Active in California (1977–1998)* and Conservation element of the County General Plan, it was determined that there are no mineral resource areas of value to the region or to the residents of the state within the project area.[15,16] Further, the project will not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

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[14] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

[15] California Geological Survey. Revised 1999. *Mines and Mineral Producers Active in California (1997–1998)*. Special Publication 103. Los Angeles, CA.

[16] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

TIER I

Based on the results of the analysis in Section 3.0, *Existing Conditions, Impacts, Mitigation, and Level of Significance After Mitigation*, of the EIR for the project, it was determined that Tier I of the project will not have significant impacts on four environmental issue areas related to CEQA: population and housing, public services, recreation, and utilities and service systems.

II.E POPULATION AND HOUSING

Significant Impact:

Less than significant

Finding:

The analysis undertaken in the EIR determined that Tier I of the project will have no significant impacts related to population and housing. Therefore, no mitigation is required.

Facts:

The above finding is made based on the analysis included in Section 3.09, *Population and Housing*, of the EIR for the project. Local data and forecasts for population and housing from the County General Plan, along with the state, regional sources, were evaluated.[17] In addition, the proximity of the project to existing and planned utility infrastructure was taken into consideration. The project will not induce substantial population growth, displace substantial numbers of existing housing, or displace substantial numbers of people. Tier I of the project does not entail a residential element, will not displace any existing residents, and will not necessitate the construction of replacement housing elsewhere. Tier I will not contribute to indirect growth as the labor force required to construct Tier I of the project will be filled either by employees who live in the surrounding area or by people who will commute from their existing places of residence.

II.F PUBLIC SERVICES

Significant Impact:

Less than significant

Finding:

The analysis undertaken in the EIR determined that Tier I of the project will have no significant impacts related to public services. Therefore, no mitigation is required.

Facts:

The above finding is made based on the analysis included in Section 3.10, *Public Services*, of the EIR for the project. The potential for impacts to public services has been analyzed in

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[17] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

accordance with the methodologies and information provided by the County General Plan[18] and the Web sites of the City of Los Angeles, City of Compton,[19,20] County of Los Angeles Fire Department,[21] and the County of Los Angeles Sheriff's Department.[22] The project area is adequately served by the existing public services and will not result in substantial adverse physical impacts associated with the provision or need of new or physically altered governmental facilities related to fire protection, police protection, schools, parks, or other public facilities.

II.G RECREATION

Significant Impact:

Less than significant

Finding:

The analysis undertaken in the EIR determined that Tier I of the project will have no significant impacts related to recreation. Therefore, no mitigation is required.

Facts:

The above finding is made based on the analysis included in Section 3.11, *Recreation*, of the EIR for the project. Recreation at the project site was evaluated with regard to state, regional, and local data and forecasts for recreation, and the County General Plan.[23] The project will not increase the use of existing neighborhood and regional parks or other recreational facilities, nor will it include recreational facilities or require the construction or expansion of recreational facilities. It was determined that the project area is adequately served by existing recreational facilities, and the open space areas and walkways provided on the campus will increase available recreational facilities and open space.

II.H UTILITIES AND SERVICES SYSTEMS

Significant Impact:

Less than significant

Finding:

The analysis undertaken in the EIR determined that Tier I of the project will have no significant impacts related to utilities and service systems. Therefore, no mitigation is required.

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[18] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[19] City of Los Angeles. 2010. Web site. Available at: http://www.ci.la.ca.us/

[20] City of Compton. 2010. Web site. Available at: http://www.comptoncity.org/index.php/Parks-and-Recreation/recreation-facilities.html

[21] County of Los Angeles Fire Department. 2008. Web site. Available at: http://www.fire.lacounty.gov/default.asp

[22] County of Los Angeles Sheriff's Department. 2008. Web site. Available at: http://www.lasd.org/

[23] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

Facts:

The above finding is made based on the analysis included in Section 3.13, *Utilities and Service Systems*, of the EIR for the project. The County General Plan, the County Integrated Waste Management Plan, the Water Supply Assessment prepared for the project, and other sources for information related to utilities and service systems were reviewed.[24,25,26] It was determined that Tier I of the project will not exceed wastewater treatment requirements, require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, or require or result in construction of storm water drainage facilities or expansion of existing facilities. Sufficient water supplies will be available to serve Tier I of the project, and adequate wastewater treatment and landfill capacity will be available to serve the projected demand of the project. In addition, as a County hospital, the project will be required to demonstrate that all solid waste will be disposed of properly at the permitted facilities designated for solid waste (including medical hazardous waste), and therefore, Tier I of the project will comply with federal, state, and local statues and regulations related to solid waste.

TIER II

Based on the results of the analysis included in Section 3.0 of the EIR for the project, it was determined that Tier II of the project will not have significant impacts on three environmental issue areas related to CEQA: population and housing, public services, and recreation.

II.I POPULATION AND HOUSING

Significant Impact:

None

Finding:

The analysis undertaken in this EIR determined that Tier II will not have significant impacts related to population and housing. Therefore, no mitigation is required.

Facts:

The above finding is made based on the analysis included in Section 3.09 of the EIR for the project. Local data and forecasts for population and housing from the County General Plan, along with the state, regional sources, were evaluated. In addition, the proximity of the project to existing and planned utility infrastructure was taken into consideration.[27] In addition, the proximity of the project to existing and planned utility infrastructure was

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[24] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[25] County of Los Angeles Department of Public Works. 2001. *Los Angeles County Integrated Waste Management Plan, 2000 Annual Report on the Countywide Summary Plan and Countywide Siting Element*. Alhambra, CA.

[26] County of Los Angeles. July 2010. *Water Supply Assessment for the Martin Luther King, Jr. Project*. Prepared by RMT, Inc., Los Angeles, CA.

[27] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

reviewed for this analysis. The project will not induce substantial population growth, displace substantial numbers of existing housing, or displace substantial numbers of people. The direct growth from Tier II of the project's residential component falls within the projections of the Southern California Association of Governments (SCAG) for areas designated as Compass Blueprint 2% Strategy growth areas, and will therefore not result in a significant impact with regard to substantial or unplanned population growth. Further, Tier II of the project will not displace any existing residents or necessitate the construction of replacement housing elsewhere. It is anticipated that construction jobs for Tier II of the project will be filled by existing employees who live in the surrounding area or by people who will commute from their existing places of residence. Further, construction work will be specialized so that construction employees will remain on site only for the timeframe in which their specific skills are necessary to complete a particular phase of the construction process (i.e., site clearance, paving, painting, etc.). As such, the need for construction workers will not result in workers relocating to the project area, particularly for a temporary construction assignment of short duration.

II.J PUBLIC SERVICES

Significant Impact:

Less than significant

Finding:

The analysis undertaken in the EIR determined that Tier II will have no significant impacts related to public services. Therefore, no mitigation is required.

Facts:

The above finding is made based on the analysis included in Section 3.10, *Public Services,* of the EIR for the project. The potential for impacts to public services has been analyzed in accordance with the methodologies and information provided by the County General Plan[28] and the Web sites of the City of Los Angeles, City of Compton,[29,30] County of Los Angeles Fire Department,[31] and County of Los Angeles Sheriff's Department.[32] The project area is adequately served by the existing public services and will not result in substantial adverse physical impacts associated with the provision or need for new or physically altered governmental facilities related to fire protection, police protection, schools, parks, or other public facilities. In addition, Tier II development is consistent with the SCAG's anticipated growth projections described above and the shifts in public services that will be required in response to the anticipated growth in the community (even with the additional of the Tier II development) will continue to adequately serve the project area.

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[28] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[29] City of Los Angeles. 2010. Web site. Available at: http://www.ci.la.ca.us/

[30] City of Compton. 2010. Web site. Available at: http://www.comptoncity.org/index.php/Parks-and-Recreation/recreation-facilities.html

[31] County of Los Angeles Fire Department. 2008. Web site. Available at: http://www.fire.lacounty.gov/default.asp

[32] County of Los Angeles Sheriff's Department. 2008. Web site. Available at: http://www.lasd.org/

II.K RECREATION

Significant Impact:

Less than significant

Finding:

The analysis undertaken in the EIR determined that Tier II of the project will have no significant impacts related to recreation. Therefore, no mitigation is required.

Facts:

The above finding is made based on the analysis included in Section 3.11, *Recreation*, of the EIR for the project. Recreation at the project site was evaluated with regard to state, regional, and local data and forecasts for recreation, and the County General Plan.[33] The project will not increase the use of existing neighborhood and regional parks or other recreational facilities, nor will it include recreational facilities or require the construction or expansion of recreational facilities. It was determined that the project area is adequately served by existing recreational facilities, and the open space areas and walkways provided on the campus will increase the recreational facilities and open space available.

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[33] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

SECTION III
POTENTIAL ENVIRONMENTAL EFFECTS THAT CAN BE MITIGATED TO A LEVEL OF INSIGNIFICANCE

The analysis undertaken in support of the Environmental Impact Report (EIR) for the Martin Luther King, Jr. Medical Center Redevelopment project (project) determined that for Tier I, 7 of the 13 environmental impact areas expected to be subject to significant impacts as result of the project will be reduced to below the level of significance with the incorporation of the specified mitigation measures: aesthetics, air quality, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, and transportation and traffic. For Tier II, 5 of the 13 environmental impact areas expected to be subject to significant impacts as result of the project will be reduced to below the level of significance with the incorporation of the specified mitigation measures: aesthetics, geology and soils, hydrology and water quality, transportation and traffic, and utilities and service systems. The specific impacts associated with the issue areas that were reduced to below the level of significance are discussed in this section.

III.A AESTHETICS

Tier I

Significant Impact:

Implementation of Tier I of the project is expected to result in significant impacts to aesthetics in relation to light and glare, as a result of three primary sources of light on the proposed project site: light emanating from building interiors that passes through windows; light from the headlights of parked, and traveling vehicles and light from exterior sources.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to aesthetics.

Facts:

The recommended mitigation measure Aesthetics-1 ensures that potential impacts related to security, building, or other sources of light and glare are reduced to below the level of significance less than significant.

Measure Aesthetics-1

All exterior lighting for building and on-site security lighting shall be shielded and directed downward to minimize the impacts on the surrounding land uses. New development shall not include large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) on three facade. In addition, any glazed north-facing facade shall be set over 200 feet from the street in order to ensure that it would not be subject to direct sunlight except very early and late in the day for a few winter days.

Tier II

Significant impact:

Implementation of Tier II of the project is expected to result in significant impacts to aesthetics in relation to visual character, shade and shadow, and light and glare, as a result of three primary sources of light on the proposed project site: light emanating from building interiors that passes through windows; light from the headlights of parked, and traveling vehicles and light from exterior sources.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to aesthetics.

Facts:

Implementation of mitigation measures Aesthetics-1 and Aesthetics-4 are expected to prevent security lighting and building lighting from causing significant levels of light spillover or light trespass. Implementation of mitigation measure Aesthetics-4 is expected to prevent vehicle highlights from causing significant levels of light intrusion. Finally, implementation of mitigation measures Aesthetics-3 and Aesthetics-4 are expected to reduce impacts related to a new source of light and glare to below the level of significance.

Implementation of mitigation measures Aesthetics-2 and Aesthetics-3 are expected to prevent potential building shadows from Tier II from causing significant levels of shade to spill over onto adjacent land uses including residences. Therefore, implementation of mitigation measures Aesthetics-2 and Aesthetics-3 are expected to reduce impacts related to a new source of shadow to below the level of significance for the Tier II project components.

Implementation of mitigation measure Aesthetics-2 is expected to ensure consistency within the medical campus and with the surrounding area. As supported by project design guidelines listed in mitigation measure Aesthetics-1, the materials used to construct Tier II of the project will be consistent with existing visual quality conditions at the project site and within the surrounding area, and will reduce potential impacts to visual character to below the level of significance.

Measure Aesthetics-1

All exterior lighting for building and on-site security lighting shall be shielded and directed downward to minimize the impacts on the surrounding land uses. New development shall not include large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) on three facade. In addition, any glazed north-facing facade shall be set over 200 feet from the street in order to ensure that it would not be subject to direct sunlight except very early and late in the day for a few winter days.

Measure Aesthetics-2

The County of Los Angeles shall review all plans for the Tier II development and ensure that all contractors conform with all design features as described in the intended to incorporate materials to ensure visual consistency and continuity at the project site and within the surrounding area.

Measure Aesthetics-3

All development shall be limited to three stories in height if the structure would be located along the western or eastern edges of the property. The existing setback includes the pediatric modular building/ oasis clinic located approximately 14 feet from the property line along the eastern boundary at Wilmington Avenue, Interns and Physicians Building at approximately 20 feet from property line along the western boundary at Compton Avenue, the Hawkins Building located at approximately 30 feet from property line along the northern boundary at 120th Street, and the Cooling Tower located at 44 feet from the property line along the south. Alternatively, if a structure would exceed three stories in height along the perimeter of the property (western or eastern perimeter only), at a minimum, the County of Los Angeles shall ensure that the building would be required stay within the approximately 20-foot and 14-foot existing campus respective western and eastern boundary setbacks to reduce shade and shadow impacts to adjacent land uses along Compton Avenue and Wilmington Avenue.

Measure Aesthetics-4

All development shall be limited to three stories in height if the structure would be located along the western or eastern edge of the property. The existing setback includes the pediatric modular building/ oasis clinic located approximately 14 feet from the property line along the eastern boundary at Wilmington Avenue, Interns and Physicians Building at approximately 20 feet from property line along the western boundary at Compton Avenue, the Hawkins Building located at approximately 30 feet from property line along the northern boundary at 120th Street, and the Cooling Tower located at 44 feet from the property line along the south. Alternatively, if a structure would exceed three stories in height along the perimeter of the property (western or eastern perimeter only), at a minimum, County of Los Angeles shall ensure that the building would be required stay within the approximately 20-foot and 14-foot existing campus respective western and eastern boundary setbacks to reduce shade and shadow impacts to adjacent land uses along Compton Avenue and Wilmington Avenue.

III.B AIR QUALITY

Tier I

Significant Impact:

Implementation of Tier I of the project is expected to result in significant impacts to air quality related to air quality standards, cumulative impacts, and sensitive receptors during construction only due to construction related activities.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to air quality.

Facts:

Implementation of air quality mitigation measures Air-1 through Air-8 will reduce fugitive dust emissions associated with construction activities, which will cause daily $PM_{2.5}$ and PM_{10} emissions to remain at below the South Coast Air Quality Management District (SCAQMD) thresholds of significance

Implementation of mitigation measures Air-9 and Air-10 will ensure that criteria pollutant emissions associated with the use of construction equipment and the application of paints and coatings are reduced to the maximum extent feasible. However, volatile organic compounds (VOCs) and NO_x emissions during construction will still result in temporary significant and unavoidable impacts.

Implementation of mitigation measure Air-11 will ensure that criteria pollutant emissions associated with the use of construction equipment are reduced to the maximum extent feasible. As such, criteria pollutant emissions during construction will remain at below the level of significance and will therefore not be significant.

Mitigation measures Air-1 through Air-11 will also ensure that cumulative air quality impacts during construction remain at below the level of significance and that construction-related impacts to sensitive receptors are reduced to below the level of significance.

Measure Air-1

Water or a stabilizing agent shall be applied during Tier I to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the County of Los Angeles to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour as instantaneous gusts), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the County of Los Angeles. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. The County of Los Angeles shall also ensure that the plans and specifications for each element of the project include a requirement for ground cover to be replaced in disturbed areas as quickly as practicable and that the County of Los Angeles appoints a construction relations officer to act as a community liaison concerning on-site construction activity including addressing issues related to fugitive dust generation.

Measure Air-2

Moistening or covering of excavated soil piles shall be required during Tier I to treat grading areas during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.

Measure Air-3

Discontinuing Tier I construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour as instantaneous gusts) shall be discontinued to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour as instantaneous gusts.

Measure Air-4

Track-out during Tier I shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Track-out is defined by the South Coast Air Quality Management District as any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday. Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available.

Measure Air-5

A wheel washing system shall be installed during Tier I, and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site. Washing of wheels leaving the construction site during construction of each element shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities.

Measure Air-6

All haul trucks hauling soil, sand, and other loose materials during Tier I shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). All transport of soils to and from the project site for each element shall be conducted in a manner that avoids fugitive dust emissions and ensures compliance with current air quality standards. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site.

Measure Air-7

Traffic speeds on unpaved roads during Tier I shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour

Measure Air-8

Heavy-equipment Tier I operations shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure heavy-equipment operations be suspended during first- and second-stage smog alerts.

Measure Air-9

All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized and/or limited to no more than five minutes in accordance with state law. All equipment engines shall be maintained in good operating condition and in tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meets the aforementioned criteria. All on-site construction equipment shall be required to meet U.S. EPA Tier 2 or higher emissions standards according to the following:

- April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

Measure Air-10

Wherever possible, contractors shall use materials that do not require painting or use pre-painted materials. In order to minimize emissions of volatile organic compounds, contractors shall use high-pressure, low-volume paint applicators with a minimum transfer efficiency of at least 50 percent and coatings and solvents with a volatile organic compound content lower than required under South Coast Air Quality Management District Rule 1113, Architectural Coatings:

- Clear wood finishes: 275 grams/liter
- Floor coatings: 50 grams/liter
- Sealers: waterproofing sealers 100 grams/liter; sanding sealers 275 grams/liter; all other sealers 100 grams/liter
- Shellacs: Clear 730 grams/liter; pigmented 550 grams/liter
- Stains: 100 grams/liter

Measure Air-11

The following measures shall be implemented, wherever feasible, to reduce operational air quality impacts:

- Improve traffic flow by signal synchronization;
- Ensure County-owned campus vehicles use clean fuels such as compressed natural gas and that shuttle buses for the campus are "clean" buses, such as 2010-compliant vehicles;
- Require all County of Los Angeles and County contractor vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications;
- Provide services that promote ridesharing and vanpools;

- Provide charging stations or preferred parking for alternative technology vehicles;
- Provide preferred parking for carpools and vanpools; and
- Reduce energy consumption by providing alternative energy sources on site and installing energy-efficient appliances.

Tier II

Significant Impact:

Implementation of Tier II of the project is expected to result in significant impacts to air quality related to air quality standards, cumulative impacts, sensitive receptors during construction, and limited operation.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate, reduce to below the level of significance, or avoid the significant effects on the environment related to air quality.

Facts:

Implementation of air quality mitigation measures Air-1 through Air-8 will reduce fugitive dust emissions associated with construction activities, which will cause daily $PM_{2.5}$ and PM_{10} emissions to remain at below the SCAQMD thresholds of significance.

Implementation of mitigation measures Air-9 and Air-10 will ensure that criteria pollutant emissions associated with the use of construction equipment and the application of paints and coatings are reduced to the maximum extent feasible. However, volatile organic compounds (VOCs) and NO_x emissions during construction will still result in temporary significant and unavoidable impacts.

Mitigation measure Air-11 would reduce mobile source emissions during operation, but criteria pollutant emissions from mobile sources during operation of Tier II will remain significant.

Mitigation measures Air-1 through Air-11 will also ensure that air quality impacts on sensitive receptors during construction are reduced to the maximum extent feasible. However, implementation of Tier II of the project will still have the potential to result in significant impacts to sensitive receptors related to emissions of NO_x, $PM_{2.5}$, and PM_{10}.

Mitigation measures Air-1 through Air-11 will also ensure that cumulative air quality impacts during construction are reduced to the maximum extent feasible. However, implementation of Tier II of the project will still be expected to result in cumulative construction-related impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects.

Measure Air-1

Water or a stabilizing agent shall be applied during Tier II to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the County of Los Angeles to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour as instantaneous gusts), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the County of Los Angeles. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. The County of Los Angeles shall also ensure that the plans and specifications for each element of the project include a requirement for ground cover to be replaced in disturbed areas as quickly as practicable and that the County of Los Angeles appoints a construction relations officer to act as a community liaison concerning on-site construction activity including addressing issues related to fugitive dust generation.

Measure Air-2

Moistening or covering of excavated soil piles shall be required during Tier II to treat grading areas during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.

Measure Air-3

Construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour as instantaneous gusts) shall be discontinued to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour as instantaneous gusts.

Measure Air-4

Track-out during Tier II shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Track-out is defined by the South Coast Air Quality Management District as any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday. Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available.

Measure Air-5

A wheel washing system shall be installed during Tier II, and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site. Washing of wheels leaving the construction site during construction of each element shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities.

Measure Air-6

All haul trucks hauling soil, sand, and other loose materials during Tier II shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). All transport of soils to and from the project site for each element shall be conducted in a manner that avoids fugitive dust emissions and ensures compliance with current air quality standards. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site.

Measure Air-7

Traffic speeds on unpaved roads during Tier II shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour.

Measure Air-8

Heavy-equipment Tier II operations shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure heavy-equipment operations be suspended during first- and second-stage smog alerts.

Measure Air-9

All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized and/or limited to no more than five minutes in accordance with state law. All equipment engines shall be maintained in good operating condition and in tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria. All on-site construction equipment shall be required to meet U.S. EPA Tier 2 or higher emissions standards according to the following:

- April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

Measure Air-10

Wherever possible, contractors shall use materials that do not require painting or use pre-painted materials. In order to minimize emissions of volatile organic compounds, contractors shall use high-pressure, low-volume paint applicators with a minimum transfer efficiency of at least 50 percent and coatings and solvents with a volatile organic compound content lower than required under South Coast Air Quality Management District Rule 1113, Architectural Coatings:

- Clear wood finishes: 275 grams/liter
- Floor coatings: 50 grams/liter
- Sealers: waterproofing sealers 100 grams/liter; sanding sealers 275 grams/liter; all other sealers 100 grams/liter
- Shellacs: Clear 730 grams/liter; pigmented 550 grams/liter
- Stains: 100 grams/liter

Measure Air-11

The following measures shall be implemented, wherever feasible, to reduce operational air quality impacts:

- Improve traffic flow by signal synchronization;
- Ensure County-owned campus vehicles use clean fuels such as compressed natural gas and that shuttle buses for the campus are "clean" buses, such as 2010-compliant vehicles;
- Require all County of Los Angeles and County of Los Angeles contractor vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications;
- Provide services that promote ridesharing and vanpools;
- Provide charging stations or preferred parking for alternative technology vehicles;
- Provide preferred parking for carpools and vanpools; and
- Reduce energy consumption by providing alternative energy sources on site and installing energy-efficient appliances.

III.C CULTURAL RESOURCES

Tier I

Significant Impact:

Implementation of Tier I of the project is expected to result in potentially significant impacts to cultural resources related to paleontological resources and human remains as a result of development of the project.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to cultural resources.

Facts:

Implementation of mitigation measure Cultural-1 will reduce any potential significant impacts to cultural resources related to an adverse change in the significance of a unique paleontological resource discovered under Tier I to below the level of significance.

Implementation of mitigation measure Cultural-2 will reduce any potential significant impacts to human remains discovered under Tier I to below the level of significance.

Paleontological Resources

Measure Cultural-1

The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the project shall be reduced to below the level of significance by monitoring, salvage, and curation of unanticipated paleontological resources discovered during ground-disturbing activities in previously undisturbed native soils located 15 or more feet below the ground surface that would have the potential to contact extant older Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology:

- Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found.

- Prior to any ground-disturbing activities, the County of Los Angeles shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium.

- A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources.

- Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find.

- If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing.

- Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored, the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered, fossil specimens recovered, and associated specimen data.

- All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository, regarding the final disposition, permanent storage, and maintenance of any significant fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written agreement shall specify the level of treatment (i.e., preparation, identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed.

- Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended, itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, signify the completion of the program to mitigate impacts to paleontological resources.

Human Remains

Measure Cultural-2

Although the discovery of human remains is not anticipated during ground-disturbing activities for the project, a process has been delineated for addressing the unanticipated discovery of human remains:

- Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met:

    - The Los Angeles County Coroner has determined that no investigation of the cause of death is required, and

    - Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences in writing to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

Tier II

Significant Impact:

Implementation of Tier II of the project is expected to result in significant impacts to cultural resources related to paleontological resources, human remains, and historical resources.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to cultural resources.

Facts:

Implementation of mitigation measure Cultural-1 will reduce any potential significant impacts to cultural resources related to an adverse change in the significance of a unique paleontological resource discovered under Tier II to below the level of significance.

Implementation of mitigation measure Cultural-2 will reduce any potential significant impacts to human remains discovered under Tier II to below the level of significance.

Implementation of mitigation measure Cultural-3 will reduce Tier II impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium as a result of Tier II of the project to below the level of significance.

Implementation of mitigation measures Cultural-4 and Cultural-5 will reduce Tier II impacts to the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Mental Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium as a result of Tier II of the project to the maximum extent feasible. However, the demolition of a historical resource still will remain a significant adverse impact.

Paleontological Resources

Measure Cultural-1

The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the project shall be reduced to below the level of significance by monitoring, salvage, and curation of unanticipated paleontological resources discovered during ground-disturbing activities in previously undisturbed native soils located 15 or more feet below the ground surface that would have the potential to contact extant older Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology:

- Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found.

- Prior to any ground-disturbing activities, the County of Los Angeles shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium.

- A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources.

- Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find.

- If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing.

- Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored, the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered, fossil specimens recovered, and associated specimen data.

- All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository, regarding the final disposition, permanent storage, and maintenance of any significant fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written agreement shall specify the level of treatment (i.e., preparation, identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed.

- Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended, itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, signify the completion of the program to mitigate impacts to paleontological resources.

Human Remains

Measure Cultural-2

Although the discovery of human remains is not anticipated during ground-disturbing activities for the project, a process has been delineated for addressing the unanticipated discovery of human remains:

- Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met:
    - The Los Angeles County Coroner has determined that no investigation of the cause of death is required, and
    - Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences in writing to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

Historical Resources

Potentially significant adverse impacts to historical resources have been identified in relation to five historical resources as a result of implementation of the Tier II project: the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium. Three mitigation measures have been identified in association with Tier II to reduce impacts to the maximum extent practicable. In the event that the five historical resources are not removed or otherwise impacted through significant modifications or alterations to the character-defining features of these resources, this impact would be less than significant and would not require mitigation.

Measure Cultural-3

Tier II impacts to four significant historical resources (Multi-Service Ambulatory Care Center [MACC], Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium) and the integrity of the Martin Luther King, Jr. Medical Center Campus Historic District (a fifth historic resource) shall be reduced to below the level of significance through utilization of the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines of Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* for any alterations, including all site work, structural upgrades, architectural, and mechanical systems improvements and repairs. The work shall conform to the standards and guidelines for "rehabilitation." Conformance with the Secretary of the Interior's Standards shall be monitored by an architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualification Standards. Completion of this mitigation measure shall be monitored and enforced by the County of Los Angeles.

Measure Cultural-4

Tier II impacts resulting from demolition or substantial alteration of significant historical resources not in conformance with the Secretary of the Interior's Standards shall be reduced to the maximum extent feasible through archival documentation of as-found condition. Prior to the initiation of construction activities, the County of Los Angeles shall ensure that documentation of the Martin Luther King, Jr. Medical Center Campus Historic District, Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and/or Dr. H. Claude Hudson Auditorium is completed in accordance with Historic American Buildings Survey (HABS) requirements for donated material. The documentation shall be in the form of a Historic American Building Survey and shall comply with the *Secretary of the Interior's Standards for Architectural and Engineering Documentation*. The documentation shall include large-format photographic recordation, detailed historic narrative report, measured architectural drawings, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be offered as donated material to Historic American Building Survey for inclusion in the Library of Congress. Archival copies of the documentation also would be available at the Martin Luther King, Jr. Medical Center campus and maintained by the County of Los Angeles.

Measure Cultural-5

Impacts resulting from the loss of integrity of the Martin Luther King, Jr. Medical Center Campus Historic District such that its significance is materially impaired shall be reduced to the maximum extent feasible through the development of a retrospective exhibit detailing the history of the Martin Luther King, Jr. Medical Center Campus Historic District, its significance, and its important details and features. The retrospective exhibit shall be in the form of a physical exhibit installed on the Martin Luther King, Jr. Medical Center Campus, which shall be located either within a building or on a freestanding kiosk or comparable structure or installation on the property. The exhibit should commemorate the historic appearance of the district and provide the public with sufficient information to understand its historic significance.

The exhibit shall be prepared by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The exhibit should be completed within a period of no more than two years from the date of completion of Tier II of the project.

III.D GEOLOGY AND SOILS

Tier I

Significant Impact:

Implementation of Tier I of the project is expected to result in significant impacts to geology and soils in relation to substantial soil erosion and loss of topsoil, being located on a geologic unit or soil that is unstable, or that would become unstable, and being located on expansive soil, creating substantial risks to life or property.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to geology and soils.

Facts:

Implementation of mitigation measures Geology-1 through Geology-3 described below will reduce impacts related to geology and soils to below the level of significance.

Measure Geology-1

The construction contractor shall incorporate best management practices consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[1] As discussed in the Geotechnical Investigation that was prepared for the project site, earthwork at the project site should be performed in conformance with the Los Angeles County Building Code and other guidelines provided in the geotechnical study, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills.

Measure Geology-2

Due to seismic compliance standards established by the Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or as required, the construction contractor shall incorporate project design elements consistent with Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or required standards, and thus further reduce any potential for impacts resulting from unstable geologic units and soils. The County of Los Angeles shall

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[1] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

conform to measures described in the project geotechnical study(ies) to ensure compliance throughout the construction and development of the project.

Measure Geology-3

A geotechnical engineer shall be present on site for observation of earth-moving activities (such as site preparation, excavation) to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered shall be evaluated by the project engineering geologist and the soil engineer.

Tier II

Significant Impact:

Implementation of Tier II of the project is expected to result in significant impacts to geology and soils in relation to substantial soil erosion and loss of topsoil, being located on a geologic unit or soil that is unstable, or that would become unstable, and being located on expansive soil, creating substantial risks to life or property.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to geology and soils.

Facts:

Implementation of mitigation measure Geology-1 will reduce significant impacts of Tier II related to soil erosion or loss of topsoil to below the level of significance.

Implementation of mitigation measure Geology-2 will reduce significant impacts of Tier II related to the project being located on a geologic unit or soil that is unstable to below the level of significance.

Implementation of mitigation measure Geology-3 will reduce significant impacts of Tier II related to the project being located on expansive soil to below the level of significance.

Measure Geology-1

The construction contractor shall incorporate best management practices consistent with the guidelines provided in the *California Storm Water Best Management Practice Handbooks: Construction*.[2] As discussed in the Geotechnical Investigation that was prepared for the project site, earthwork at the project site should be performed in conformance with the Los Angeles County Building Code and other guidelines provided in the geotechnical study, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills.

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[2] California Stormwater Quality Association. 2003. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

Measure Geology-2

Due to seismic compliance standards established by the Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code,, or as required, the construction contractor shall incorporate project design elements consistent with Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or required standards, and thus further reduce any potential for impacts resulting from unstable geologic units and soils. The County of Los Angeles shall conform to measures described in the project geotechnical study(ies) to ensure compliance throughout the construction and development of the project.

Measure Geology-3

A geotechnical engineer shall be present on site for observation of earth moving activities (such as site preparation, excavation) to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered shall be evaluated by the project engineering geologist and the soil engineer.

III.E GREENHOUSE GAS EMISSIONS

Tier I

Significant Impact:

Implementation of Tier I of the project is expected to result in significant impacts to greenhouse gas emissions related to emissions during construction and operation.

Finding:

Changes or alterations (in the form of a mitigation measure) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to greenhouse gas emissions.

Facts:

Mitigation measure GHG-1 will reduce CO_2 emissions contributed by operation of Tier I of the project, thereby assisting compliance with the goals of Assembly Bill (AB) 32 to reduce CO_{2e} emissions to 1990 levels by the year 2020. Mitigation measure GHG-1 will ensure that indirect, direct, and cumulative greenhouse gas (GHG) emission impacts are reduced to the maximum extent feasible. After implementation of mitigation measure GHG-1, potential GHG emission impacts associated with operation of Tier I will remain at below the level of significance. However, construction of Tier I of the project may be expected to remain above the level of significance if the California Air Pollution Controls Officers Association (CAPCOA) suggested quantitative threshold of 900 tons of CO_{2e} per year is used.

Measure GHG-1

Prior to construction of the project, the final design plan and schemes for Tier I shall be reviewed to ensure that the County of Los Angeles conforms to its commitments pursuant to the California Climate Action Registry and the greenhouse gas emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven (7) of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide (CO_2) emissions per capita:

- Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use.
- Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings.
- Create water-efficient landscapes.
- Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site).
- Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods.
- Incorporate provisions for future public transit into project design.
- Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio.

The review shall further ensure that all applicable sustainable design measures or comparable measures have been incorporated into the final project design.

Tier II

Significant Impact:

Implementation of Tier II of the project is expected to result in significant impacts to GHG emissions related to emissions during construction and operation.

Finding:

Changes or alterations (in the form of a mitigation measure) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to greenhouse gas emissions.

Facts:

Mitigation measure GHG-1 will reduce CO_2 emissions contributed by operation of Tier II of the project, thereby assisting compliance with the goals of AB 32 to reduce CO_{2e} emissions to 1990 levels by the year 2020. Mitigation measure GHG-1 would ensure that indirect, direct, and cumulative GHG emission impacts would be reduced to the maximum extent feasible. However, potential GHG emission impacts associated with construction and operation of Tier II would remain as significant and unavoidable.

Measure GHG-1

Prior to construction of the project, the final design plan and schemes for Tier II shall be reviewed to ensure that the County of Los Angeles conforms to its commitments pursuant to the California Climate Action Registry and the greenhouse gas emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven (7) of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide (CO_2) emissions per capita:

- Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use
- Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings
- Create water-efficient landscapes
- Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site.)
- Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods
- Incorporate provisions for future public transit into project design
- Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio

The review shall further ensure that all applicable sustainable design measures or comparable measures have been incorporated into the final project design.

III.F HAZARDS AND HAZARDOUS MATERIALS

Tier I

Significant Impact:

Implementation of Tier I of the project will be expected to result in significant impacts to hazards and hazardous materials in relation to the release of hazardous materials into the environment and hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste, to existing or schools located within one-quarter mile of the project site, and Government Code Section 65962.5 as a result of construction and operation related activities.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to hazards and hazardous materials.

Facts:

Implementation of mitigation measure Hazards-1 and Hazards-2 for Tier I will reduce significant impacts related to the exposure of hazards and hazardous materials to below the level of significance.

Implementation of mitigation measure Hazards-3 for Tier I will reduce significant impacts related to underground storage tanks (USTs) below the level of significance.

Implementation of mitigation measure Hazards-4 for Tier I will reduce significant impacts related to exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the project to below the level of significance.

Implementation of mitigation measure Hazards-5 for Tier I will reduce significant impacts related to hazards and hazardous materials below the level of significance.

Measure Hazards-1

To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction). A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance, and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

Measure Hazards-2

To avoid exposure to asbestos-containing materials and lead-based paints during demolition, construction, and remediation activities, the County of Los Angeles and the Office of Statewide Health Planning and Development shall require that all such materials and wastes be identified and an Operations and Maintenance Plan developed prior to the issuance of demolition permits for each structure constructed prior to 1979. The Operations and Maintenance Plan shall ensure compliance with all applicable federal, state, and local requirements and specify all work to be done, including lead and asbestos surveys of structures to be demolished, proper handling and storage of lubricants and fuels for construction equipment, and methods for remediation of asbestos-containing materials and lead-based paints, if necessary. The Operations and Maintenance Plan shall be submitted to the County of Los Angeles Department of Health Services for review and approval prior to initiation of construction and demolition activities for the Multi-Service Ambulatory Care Center building, emergency room, storage building, and cooling towers. The Operations and Maintenance Plan shall, as appropriate and necessary, conform to the requirements of the Los Angeles County Department of Health Services (Local Enforcement Agency), South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, and the Department of Toxic Substances Control. Compliance with the Operations and Maintenance Plan shall be monitored by the County of Los Angeles Regional Planning Department throughout construction and demolition.

To reduce impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction). These agencies shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

Measure Hazards-3

Prior to the issuance of grading permits for development, the County of Los Angeles shall ensure that a Soil Management Plan is prepared for the project site and that the Office of Statewide Health Planning and Development reviews the grading plans to ensure that the construction contractor is required to stop work and notify the Certified Unified Program Agency of the unanticipated encounter of underground storage tanks during grading activities. In the event that any leaking underground storage tanks are located or encountered, the County of Los Angeles Department of Public Works shall be notified and the underground storage tank shall be remediated in accordance with County of Los Angeles guidelines and consistent with specifications of the Department of Toxic Substances Control and other relevant standards. The County of Los Angeles Fire Department Health Hazardous Materials Division shall be notified of all other contaminated soils encountered during construction-related site activities.

Measure Hazards-4

To avoid exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the project, the County of Los Angeles shall require that the construction contractor store, use, and transport all hazardous materials in compliance with all relevant regulations and guidelines. The routine transport of hazardous materials to and from the Martin Luther King, Jr. Medical Center Campus during construction and operation of the elements of the project shall be accomplished via Wilmington Avenue, Compton Avenue, and 119th Street. Compliance shall be determined by monitoring by regulatory agencies. Transport, storage, and handling of construction-related hazardous materials shall be consistent with the guidelines provided by the California Department of Transportation, Los Angeles Regional Water Quality Control Board, the South Coast Air Quality Management District, and the Certified Unified Program Agency. Each agency shall regulate and enforce, through permitting and record keeping, the monitoring and enforcement of this mitigation measure.

Measure Hazards-5

At least 30 days prior to approval of Tier I final plans and specifications for development, the Office of Statewide Health Planning and Development shall review and provide comments on the plans and specifications to ensure compliance with all requirements of the Department of Toxic Substances Control and in order to verify that the site remains unlisted on the Hazardous Materials and Substance Sites List maintained by the California Environmental Protection Agency, Department of Toxic Substances Control.

Tier II

Significant Impact:

Implementation of Tier II of the project is expected to result in significant impacts to hazards and hazardous materials in relation to the release of hazardous materials into the environment and hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste, to existing or schools located within one-quarter mile of the project site, and Government Code Section 65962.5.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to hazards and hazardous materials.

Facts:

Implementation of mitigation measure Hazards-1 and Hazards-2 for Tier II will reduce significant impacts related to the exposure of hazards and hazardous materials to below the level of significance.

Implementation of mitigation measure Hazards-3 for Tier II will reduce significant impacts related to USTs below the level of significance.

Implementation of mitigation measure Hazards-4 for Tier II will reduce significant impacts related to exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the project to below the level of significance.

Implementation of mitigation measure Hazards-5 for Tier II will reduce significant impacts related to hazards and hazardous materials below the level of significance.

Measure Hazards-1

To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction). A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance, and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

Measure Hazards-2

To avoid exposure to asbestos-containing materials and lead-based paints during demolition, construction, and remediation activities, the County of Los Angeles and the Office of Statewide Health Planning and Development shall require that all such materials and wastes be identified and an Operations and Maintenance Plan developed prior to the issuance of demolition permits for each structure constructed prior to 1979. The Operations and Maintenance Plan shall ensure compliance with all applicable federal, state, and local requirements and specify all work to be done, including lead and asbestos surveys of structures to be demolished, proper handling and storage of lubricants and fuels for construction equipment, and methods for remediation of asbestos-containing materials and lead-based paints, if necessary. The Operations and Maintenance Plan shall be submitted to the County of Los Angeles Department of Health Services for review and approval prior to initiation of construction and demolition activities for the Multi-Service Ambulatory Care Center building, emergency room, storage building or the cooling towers. The Operations and Maintenance Plan shall, as appropriate and necessary, conform to the requirements of the Los Angeles County Department of Health Services (Local Enforcement Agency), South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, and the Department of Toxic Substances Control. Compliance with the Operations and Maintenance Plan shall be monitored by the County of Los Angeles Regional Planning Department throughout construction and demolition.

To reduce impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction). These agencies shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

Measure Hazards-3

Prior to the issuance of grading permits for development, the County of Los Angeles shall ensure that a Soil Management Plan is prepared for the project site and that the Office of Statewide Health Planning and Development reviews the grading plans to ensure that the construction contractor is required to stop work and notify the Certified Unified Program Agency of the unanticipated encounter of underground storage tanks during grading activities. In the event that any leaking underground storage tanks are located or encountered, the County of Los Angeles Department of Public Works shall be notified and the underground storage tank shall be remediated in accordance with County of Los Angeles guidelines and consistent with specifications of the Department of Toxic Substances Control and other relevant standards. The County of Los Angeles Fire Department Health Hazardous Materials Division shall be notified of all other contaminated soils encountered during construction-related site activities.

Soil screening samples will be analyzed for chemicals of potential concern. If volatile organic compounds are among the chemicals of potential concern, the Soil Management Plan will include protocols for conducting a soil vapor sampling program to investigate the potential for soil vapor intrusion in the area of concern. In the event that significant levels of soil or soil vapor contamination are identified, the County of Los Angeles Department of Public Works shall be notified and the area of concern shall be remediated to a level adequate to meet or exceed County of Los Angeles guidelines and the specifications of the Department of Toxic Substances Control and any other relevant standards.

Measure Hazards-4

To avoid exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the project, the County of Los Angeles shall require that the construction contractor store, use, and transport all hazardous materials in compliance with all relevant regulations and guidelines. The routine transport of hazardous materials to and from the Martin Luther King, Jr. Medical Center Campus during construction and operation of the elements of the project shall be accomplished via Wilmington Avenue, Compton Avenue, and 119th Street. Compliance shall be determined by monitoring by regulatory agencies. Transport, storage, and handling of construction-related hazardous materials shall be consistent with the guidelines provided by the California Department of Transportation, Los Angeles Regional Water Quality Control Board, the South Coast Air Quality Management District, and the Certified Unified Program Agency. Each agency shall regulate and enforce, through permitting and record keeping, the monitoring and enforcement of this mitigation measure.

Measure Hazards-5

At least 30 days prior to approval of Tier II final plans and specifications for development, the Office of Statewide Health Planning and Development shall review and provide comments on the plans and specifications to ensure compliance with all requirements of the Department of Toxic Substances Control and in order to verify that the site remains unlisted on the Hazardous Materials and Substance Sites List maintained by the California Environmental Protection Agency, Department of Toxic Substances Control.

III.G HYDROLOGY AND WATER QUALITY

Tier I

Significant Impact:

Implementation of Tier I of the project is expected to result in significant impacts to hydrology and water quality related to water quality standards, waste discharge, runoff water, and degrade water quality as a result of construction and limited operation related activities.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to hydrology and water quality.

Facts:

Implementation of mitigation measures Hydrology-1 through Hydrology-3, in addition to Hazards-1, will reduce significant hydrology and water quality impacts related to construction-related water quality to below the level of significance.

Measure Hydrology-1

The County of Los Angeles shall ensure that the construction, landscape features, and site grading for Tier I of the project comply with standard best management practices set forth by the Regional Water Quality Control Board. Prior to final plans and specifications for all elements of the project, the County of Los Angeles shall review the plans and specifications for all elements to ensure that the plans and specifications require the construction contractor to prepare a Standard Urban Stormwater Mitigation Plan for construction activities and implement best management practices for construction, materials, and waste handling activities, which shall include, but not be limited to:

- Scheduling excavation, grading, and paving activities for dry weather periods.
- Controlling the amount of runoff crossing the construction site by means of berms and drainage ditches to divert water flow around the site.
- Identifying potential pollution sources from materials and wastes that will be used, stored, or disposed of on the site.

- Informing contractors and subcontractors about the clean storm water requirements and enforce their responsibilities in pollution prevention through a contractual agreement
- Sweeping the streets surrounding the project site daily and trash removal throughout the construction of the project to avoid degradation of water quality.

Measure Hydrology-2

The construction contractor shall incorporate Standard Urban Stormwater Mitigation Plan requirements and best management practices to mitigate storm water runoff, which include the following:

- The incorporation of bio-retention facilities located within the project area
- The incorporation of catch basin filtration systems
- The use of porous pavements to reduce runoff volume

Measure Hydrology-3

In the event that groundwater is encountered during Tier I construction, the County of Los Angeles shall require the construction contractor complete the dewatering operations in accordance with the established National Pollution Discharge Elimination System permit requirements.

Measure Hazards-1

To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction). A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance, and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

Tier II

Significant Impact:

Implementation of Tier II of the project is expected to result in significant impacts to hydrology and water quality related to water quality standards, waste discharge, runoff water, and degrade water quality as a result of construction and limited operation related activities.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to hydrology and water quality.

Facts:

Implementation of mitigation measures Hydrology-1 through Hydrology-4, in addition to Hazards-1, will reduce significant hydrology and water quality impacts related to construction- and operation-related water quality to below the level of significance.

Measure Hydrology-1

The County of Los Angeles shall ensure that the construction, landscape features, and site grading for Tier II of the project comply with standard best management practices set forth by the Regional Water Quality Control Board. Prior to final plans and specifications for all elements of the project, the County of Los Angeles shall review the plans and specifications for all elements to ensure that the plans and specifications require the construction contractor to prepare a Standard Urban Stormwater Mitigation Plan for construction activities and implement best management practices for construction, materials, and waste handling activities, which shall include, but not be limited to:

- Scheduling excavation, grading, and paving activities for dry weather periods.
- Controlling the amount of runoff crossing the construction site by means of berms and drainage ditches to divert water flow around the site.
- Identifying potential pollution sources from materials and wastes that will be used, stored, or disposed of on the site.
- Informing contractors and subcontractors about the clean storm water requirements and enforce their responsibilities in pollution prevention through a contractual agreement
- Sweeping the streets surrounding the project site daily and trash removal throughout the construction of the project to avoid degradation of water quality.

Measure Hydrology-2

The construction contractor shall incorporate Standard Urban Stormwater Mitigation Plan requirements and best management practices to mitigate storm water runoff, which include the following:

- The incorporation of bio-retention facilities located within the project area
- The incorporation of catch basin filtration systems
- The use of porous pavements to reduce runoff volume

Measure Hydrology-3

In the event that groundwater is encountered during Tier II construction, the County of Los Angeles shall require the construction contractor to complete the dewatering operations in accordance with the established National Pollution Discharge Elimination System permit requirements.

Measure Hydrology-4

To ensure that operational impacts associated with Tier II remain below the level of significance, the County of Los Angeles shall require that best management practices and sustainable practices, such as regularly removing vegetation and debris from curbs, catch basins, and outlets; limiting the amount of pesticides and fertilizers used in landscaping, and other best management practice as recommended by the Environmental Protection Agency or in the California Stormwater Best Management Practice Handbooks as ongoing maintenance measures, are implemented into a maintenance plan for the campus.

Measure Hazards-1

To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction). A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.

III.H NOISE

Tier I

Significant Impact:

Implementation of Tier I of the project is expected to result in significant impacts to noise related to groundbourne temporary ambient noise increase during construction, vibration, and mechanical noise during construction.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate, reduce, or avoid the significant effects on the environment related to noise.

Facts:

The distance from the project site at which impacts to affected residential structures will be below the level of significance is 80 feet. Structures located further than 80 feet away from the site are likely to not be impacted by construction related activities that are associated with the development of the project. The nearest residential land use is approximately 50 feet south of the project. Implementation of mitigation measures Noise-1 and Noise-2 will reduce construction noise at residential properties to the east and west of the campus to below the level of significance; however, construction noise levels will exceed the 75 dBA permissible level at residences south of the project site that are within 80 feet of the project property. Therefore, noise impacts from construction, while temporary, will remain significant and unavoidable.

Implementation of mitigation measure Noise-3 will reduce significant impacts related to potential building damage from vibration during construction to below the level of significance both on and off-site. However, vibration levels will still be perceptible at sensitive receptors such as homes and school located adjacent to the site; therefore, vibration levels during construction of the project will result in a significant and unavoidable impact.

Implementation of mitigation measure Noise-4 will reduce significant impacts related to mechanical noise to below the level of significance.

Measure Noise-1

The County of Los Angeles shall require that the plans and specifications require that construction equipment be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 dB. The height and length of the barriers or curtains shall be determined based on location of construction activity and receptor.

Because of the close proximity of the source and receptors, the noise impact would be dependent on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during demolition and construction, and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noises shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall take into account the demolition and equipment mix that would be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels.

Measure Noise-2

Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment.

Measure Noise-3

The distance at which impact pile driving would not exceed a peak particle velocity of 0.2 inch per second at a residence would be 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving shall be utilized.

Measure Noise-4

The County of Los Angeles shall ensure that mechanical noise generated by the project is less than 45 dBA at residences immediately south (approximately 50 feet) of the project. This shall be achieved by implementing one, or a combination of more than one of the following strategies: utilizing quiet mechanical systems; locating mechanical systems away from residences (mechanical systems that produce a noise level of 55 DBA at 50 feet would need to be located a minimum of 160 feet from residences to bring mechanical noise levels below 45 dBA at residences), or utilizing insulating screens to break the line-of-site between the mechanical systems and nearby residences.

Tier II

Significant Impact:

Implementation of Tier II of the project is expected to result in significant impacts to noise related to groundbourne temporary ambient noise increase during construction, vibration, and mechanical noise during construction.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to noise.

Facts:

The distance from the project site at which impacts to affected residential structures will be below the level of significance is 80 feet. The nearest residential land use is approximately 50 feet south of the project. Implementation of mitigation measures Noise-1 and Noise-2 will reduce construction noise at residential properties to the east and west of the campus to below the level of significance; however, construction noise levels will exceed the 75 dBA permissible level at residences south of the project site that are within 80 feet of the project property. Therefore, noise impacts from construction, while temporary, will remain significant and unavoidable.

Implementation of mitigation measure Noise-3 will reduce significant impacts related to potential building damage from vibration during construction to below the level of significance. However, vibration levels will still be perceptible at sensitive receptors; therefore, vibration levels during construction of the project will result in a significant and unavoidable impact.

Implementation of mitigation measure Noise-4 will reduce significant impacts related to mechanical noise to below the level of significance.

Measure Noise-1

The County of Los Angeles shall require that the plans and specifications require that construction equipment be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 dB or to the maximum extent possible. The height and length of the barriers or curtains shall be determined based on the location of the construction activity and receptor.

Because of the close proximity of the source and receptors, the noise impact would be dependent on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during demolition and construction, and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noises shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall take into account the demolition and equipment mix that would be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels.

Measure Noise-2

Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment.

Measure Noise-3

The distance at which impact pile driving would not exceed a PPV 0.2 inch per second at a residence would be 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving will not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving will be utilized.

Measure Noise-4

The County of Los Angeles shall ensure that mechanical noise generated by the project is less than 45 dBA at residences immediately south (approximately 50 feet) of the project. This shall be achieved by implementing one, or a combination of more than one of the following strategies: utilizing quiet mechanical systems; locating mechanical systems away from residences (mechanical systems that produce a noise level of 55 DBA at 50 feet would need to be located a minimum of 160 feet from residences to bring mechanical noise levels below 45 dBA at residences), or utilizing insulating screens to break the line-of-site between the mechanical systems and nearby residences.

III.I TRANSPORTATION AND TRAFFIC

Tier I

Significant Impact:

Implementation of Tier I of the project will result in significant transportation and traffic impacts related to circulation system and congestion during construction.

Finding:

Changes or alterations (in the form of a mitigation measure) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to transportation and traffic.

Facts:

Implementation of the mitigation measures Traffic-1 will reduce impacts generated during the construction of Tier I to less than significant.

Measure Traffic-1

To reduce the traffic-related construction impacts, the County of Los Angeles shall require the construction contractor to provide a Construction Traffic Management Plan, to be prepared in accordance with the California Department of Transportation's Construction Manual and Manual on Uniform Traffic Control Devices. The Construction Traffic Management Plan shall at the minimum include:

- Timing of deliveries of heavy equipment and building materials;
- Directing construction traffic with a flag person;
- Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic;
- Identifying if improvements to the intersection of 120th Street, Wilmington Avenue, or Compton Avenue are necessary to accommodate the turning radii needed by large trucks accessing site;
- Identifying multiple alternate ingress/egress access point for the circulation of traffic and emergency response vehicles;

- Determining the need for construction work hours and arrival/departure times outside peak traffic periods;
- Ensuring access for emergency vehicles to the project site;
- Temporary closure of travel lanes or disruptions to street segments and intersections during materials delivery, transmission line stringing activities, or any other utility connections;
- Maintaining access to adjacent property;
- Specifying both construction-related vehicle travel and oversize load haul routes, minimizing construction traffic during the AM and PM peak hour, distributing construction traffic flow across alternative routes to access the project site, and avoiding residential neighborhoods to the maximum extent feasible; and
- Identifying vehicle safety procedures for entering and exiting site access roads.

Tier II

Significant Impact:

Implementation of Tier II of the project will result in significant transportation and traffic impacts related to circulation system and congestion during construction, operation, and cumulatively.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to transportation and traffic.

Facts:

Implementation of the mitigation measures Traffic-1 through Traffic-4 will reduce construction-related Tier II and operational Tier II project impacts and cumulative project impacts to below the level of significance.

Measure Traffic-1

To reduce the traffic-related construction impacts, the County of Los Angeles shall require the construction contractor to provide a Construction Traffic Management Plan that is prepared in accordance with the California Department of Transportation's Construction Manual and Manual on Uniform Traffic Control Devices. The Construction Traffic Management Plan shall at the minimum include:

- Timing of deliveries of heavy equipment and building materials;
- Directing construction traffic with a flag person;
- Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic;

- Identifying if improvements to the intersection of 120th Street, Wilmington Avenue, or Compton Avenue are necessary to accommodate the turning radii needed by large trucks accessing site;
- Identifying multiple alternate ingress/egress access point for the circulation of traffic and emergency response vehicles;
- Determining the need for construction work hours and arrival/departure times outside peak traffic periods;
- Ensuring access for emergency vehicles to the project site;
- Temporary closure of travel lanes or disruptions to street segments and intersections during materials delivery, transmission line stringing activities, or any other utility connections;
- Maintaining access to adjacent property;
- Specification of both construction-related vehicle travel and oversize load haul routes, the minimization of construction traffic during the AM and PM peak hour, distributing construction traffic flow across alternative routes to access the project site, and avoiding residential neighborhoods to the maximum extent feasible; and
- Identification of vehicle safety procedures for entering and exiting site access roads.

Measure Traffic-2

In order to address the Tier II project impacts, the County of Los Angeles shall complete the following improvements:

- Compton Avenue / Imperial Highway, County of Los Angeles / City of Los Angeles: Re-stripe westbound approach to provide a separate right-turn lane.

- I-105 / Imperial Highway: Provide a third northbound, left-turn lane by widening off-ramp by 10 feet for approximately 150 to 200 feet.

- Wilmington Avenue / El Segundo Boulevard: Re-stripe eastbound and westbound approaches to have separate right-turn lanes. Allow buses to go through the intersection from the right-turn lanes.

- Central Avenue / 120th Street: Re-stripe northbound approach to provide a separate right-turn lane. Also, widen the east leg by 3 feet on each curbside (i.e., reduce sidewalk along 120th Street east of Central Avenue by 3 feet for approximately 120 feet and re-stripe westbound 120th Street approach to provide a left-turn, two through lanes, and a separate right-turn lane.

- Wilmington Avenue / I-105 Eastbound Ramps, County of Los Angeles / California Department of Transportation: Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach shall have a left-turn lane, shared left-right turn lane, and a separate right-turn lane. The sidewalks on both sides of Wilmington Avenue (as noted above) shall be reduced by 2 feet and the Wilmington Avenue roadway shall be widened by 2 feet on both sides (a total of 4 feet) from the south leg of this intersection. Provide an additional northbound left-turn lane by widening (reducing the medians). The northbound approach shall have dual left-turn lanes and three through lanes.

- Wilmington Avenue / 118th Street, County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on both sides and re-stripe to provide two through lanes, a shared through right-turn lane and dual left-turn lanes along the southbound approach. Re-stripe the westbound approach to provide a separate right-turn lane and a shared left-through lane. Northbound approach shall have the same lane geometry as existing conditions. Under cumulative conditions, widen 118th Street roadway by 4 feet and re-stripe to provide a separate right-turn lane and shared left-through lane along the eastbound approach.

- Wilmington Avenue / 120th Street–119th Street, County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on both sides and restripe the southbound approach to provide a separate right-turn lane, three through lanes, and a left-turn lane.

  Re-stripe northbound approach to provide a shared through-right turn lane, two through lanes, and a left-turn lane. Remove median adjacent to northbound approach to facilitate three southbound receiving lanes. Restrict parking along Wilmington Avenue roadway during morning and evening peak periods along the eastside of Wilmington between 120th Street and Martin Luther King, Jr. Hospital Driveway entrance.

  Widen 120th Street west of Wilmington Avenue for 250 feet, on the south side by 2 feet, and re-stripe the eastbound approach to provide a separate right-turn lane, dual left-turn lanes, and a through lane. The westbound approach of 119th Street would have the same lane geometry as existing conditions.

- Wilmington Avenue / Martin Luther King, Jr. Hospital Entrance–120th Street, County of Los Angeles: Re-stripe southbound approach to provide a separate right-turn lane, two through lanes, and a left-turn lane. Provide three northbound receiving lanes and restrict on-street curb parking along the eastside of Wilmington Avenue between Martin Luther King, Jr. Hospital Driveway and 120th Street and 120th Street and 119th Street during morning and evening peak hours.

  Remove the median within the hospital entrance and re-stripe the driveway to provide dual left-turn lanes, a through lane, and a separate right-turn lane along the eastbound approach. Re-stripe to provide one receiving lane.

The appropriate conceptual signing and striping plans shall be submitted to the County of Los Angeles Department of Public Works, Traffic and Lighting Division for review and approval during the planning phase.

Measure Traffic-3

In order to address the Tier II cumulative projects impacts, using County of Los Angeles traffic study guidelines, the following mitigation measures shall be implemented to alleviate the cumulative significant impacts:

- Avalon Boulevard / El Segundo Boulevard, County of Los Angeles: Widen northbound approach by 2 feet and re-stripe the approach to provide a left turn lane, two through lanes, and a separate right-turn lane (10 feet, 10 feet, 10 feet, 12 feet). The approach could be widened by narrowing the 5-foot-wide median to a 3-foot-wide median, or by reducing the 12-foot-wide sidewalk to a 10-foot-wide sidewalk. This widening would need to occur all the way to an alley located approximately 100 feet south of the intersection. The bus stop at this approach would continue to be located at the same location; however, buses would be allowed to go straight through the intersection.

- Alameda Street / El Segundo Boulevard, County of Los Angeles / Compton: Re-stripe northbound/southbound approaches and provide a southbound right-turn lane. The lanes along the north leg shall be re-striped to provide 13-foot and 11-foot receiving lanes; 10-foot, 11-foot, 10-foot, and 12-foot approach lanes for southbound left-turn lane, southbound through lanes, and southbound right-turn lanes, respectively. The lanes along the south leg would have a 13-foot shared right through-way, 11-foot through lane, 10-foot left-turn lane, 12-foot receiving lane, and a 20-foot receiving lane. Remove two on-street parking spaces along the southbound approach during peak hours.

- Alameda Street / 103rd Street, County of Los Angeles / Lynwood: Re-stripe eastbound approach to provide a 10-foot, left-turn lane and a 12-foot, left-right shared lane. The receiving lane would be re-striped for 18.5 feet.

- Central Avenue / Rosecrans Avenue, County of Los Angeles / Compton: Re-stripe westbound approach to provide a separate right-turn lane. Allow buses to go through the intersection from the right-turn lane.

- Central Avenue / El Segundo Boulevard, County of Los Angeles / Compton: Re-stripe southbound approach to provide a separate right-turn lane. Widen northbound approach by reducing median by 1 foot to 2 foot. Provide re-striping to show a separate northbound right-turn lane. Allow buses to go through the intersection from the right-turn lane.

- Alameda Street / Imperial Highway, County of Los Angeles / City of Lynwood: Re-stripe southbound approach to provide the following roadway geometry: two left-turn lanes, ~~a~~ two through lanes, and one right-turn lane.

The appropriate conceptual signing and striping plans shall be submitted to the County of Los Angeles Department of Public Works, Traffic and Lighting Division for review and approval during the planning phase.

Measure Traffic-4

Along the southbound approach of Alameda Street, the County of Los Angeles shall provide two left-turn lanes, two through lanes and one right-turn lane instead of one left-turn lane, two through lanes and a separate right-turn lane (i.e., add a second left turn lane). In addition, the County of Los Angeles shall provide the required signal hardware and supporting software to facilitate a right-turn arrow signal indication for southbound right-turn overlap with eastbound-westbound left-turns at the intersection.

III.J UTILITIES AND SERVICE SYSTEMS

Tier I

It was determined that Tier I of the project is not expected to result in significant impacts to utilities and services systems and no mitigation was required for this issue area.

Tier II

Significant Impact:

Implementation of Tier II of the project is expected to result in significant impacts to utilities and services systems related to wastewater treatment requirements and solid waste compliance.

Finding:

Changes or alterations (in the form of mitigation measures) have been required in, or incorporated into, the project, that mitigate or avoid the significant effects on the environment related to utilities and service systems.

Facts:

Implementation of mitigation measures Utilities-1 and Utilities-2 will reduce impacts to utilities and service systems related to wastewater treatment and solid waste to below the level of significance.

Measure Utilities-1

Prior to issuance of the permits to connect to the sewer system, the County of Los Angeles shall ensure payment of the connection fee for the capital facilities has been submitted to the appropriate Sanitation Districts of Los Angeles County for compliance with the California Health and Safety Code.

Measure Utilities-2

The County of Los Angeles shall review the plans and specifications for the project and the parking facilities to ensure that adequate service areas are provided for trash and recycling receptacles for compliance with applicable federal, state, and local statutes related to solid waste, and to reduce direct and cumulative impacts from project operation and maintenance to below the level of significance. Prior to advertising for construction bids for the new building, the County of Los Angeles shall ensure that the plans and specifications designating locations for trash receptacles and recycling receptacles are in conformance with the California Solid Waste Reuse and Recycling Access Act of 1991. Wherever trash receptacles are provided throughout the project site, a recycling receptacle for plastic, aluminum, and metal shall also be provided. Signs encouraging patrons to recycle shall be posted near each recycling receptacle.

To ensure conformance with the Solid Waste Management Act of 1989, the County of Los Angeles shall require the construction contractor to manage the solid waste generated during construction of each element of the project by diverting at least 50 percent of solid waste from disposal in landfills, particularly Class III landfills, through source reduction, reuse, and recycling of construction and demolition debris. The construction contractor shall submit a construction solid waste management plan to the County of Los Angeles for approval prior to initiation of demolition activities. The construction contractor shall demonstrate compliance with the solid waste management plan through the submission of monthly reports during construction and demolition activities that estimate total solid waste generated and diversion of 50 percent of the solid waste.

SECTION IV
SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS THAT CANNOT BE MITIGATED TO A LEVEL OF INSIGNIFICANCE

The County of Los Angeles (County) has determined that although the mitigation measures for Tier I of the project will substantially reduce the level of impacts to greenhouse gas emissions and noise resulting from the project, these impacts will remain significant, unavoidable, and adverse. The County has also determined that, although the mitigation measures for Tier II of the project will substantially reduce the level of impacts to air quality, cultural resources, greenhouse gas emissions, and noise resulting from the project, these impacts will remain significant, unavoidable, and adverse impacts. Consequently, in accordance with Section 15093 of the State California Environmental Quality Act (CEQA) Guidelines, a Statement of Overriding Considerations has been prepared (see Section IX of this document) to substantiate County's decision to accept these unavoidable adverse environmental effects on the grounds that they are outweighed by the benefits afforded by the project.

IV.A TIER I

GREENHOUSE GAS EMISSIONS

Significant Impact:

Implementation of Tier I of the project will potentially result in significant, unavoidable adverse impacts to greenhouse gas (GHG) emissions related to emissions during construction. Implementation of mitigation measures will reduce operational impacts to below the level of significance.

Finding:

A Statement of Overriding Considerations has been prepared (see Section IX of this document) to address the GHG emission impacts associated with carbon dioxide (CO_2) emissions that will be contributed by construction of Tier I of the project. Implementation of mitigation measure Greenhouse Gas-1 will reduce indirect impacts and the recommended project's share of cumulative GHG emission impacts to the maximum extent feasible. After implementation of mitigation measure Greenhouse Gas-1, potential GHG emission impacts associated with operation of Tier I will remain below the level of significance. However, cconstruction of Tier I of the project will potentially remain above the level of significance if the California Air Pollution Control Officers Association's suggested quantitative threshold of 900 tons of carbon dioxide equivalent (CO_{2e}) per year is compared to the project.

Mitigation of significant impacts to GHG emissions is normally achieved pursuant to the California Climate Action Registry and the GHG emission reduction targets established by Assembly Bill 32. The GHG emission reduction targets depend on the incorporation of this mitigation measure and are based on seven sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce CO_2 emissions per capita as discussed in detail in Section 3.5, Greenhouse Gas Emissions, of the EIR document.

Implementation of mitigation measure Greenhouse Gas-1, as well as mitigation measure Air-11, will reduce to the maximum extent feasible the potentially significant direct impacts, indirect impacts, and the project's contribution to cumulative impacts to GHG emissions related to construction of Tier I of the project. However, construction-related GHG emissions of the project will remain significant and adverse.

The EIR considered the No Project Alternative and the following five action alternatives:

- Alternative 1: Reduced Project Size Alternative (900,000 square foot Tier II)
- Alternative 2: Re-opening the Existing MACC Alternative
- Alternative 3: Public Transportation Focused Alternative
- Alternative 4: 500 beds (in Tier I) Alternative
- Alternative 5: No Tier II Alternative

Section 4.0, *Alternatives to the Proposed Project*, of the EIR evaluates the effectiveness of each of the alternatives to achieve the basic objectives of the project described in Section 2.0, *Project Description*, of the EIR. The project will meet all of the basic objectives set forth by the County. Although the No Project Alternative is the environmentally superior alternative and has been analyzed as required pursuant to CEQA, it is not capable of meeting most of the basic objectives of the project. Following the No Project Alternative, the No Tier II Alternative is the environmentally superior alternative.

Facts:

The County recognizes that a project of this magnitude will potentially generate environmental impacts related to GHG emissions. In Section 3.5, *Greenhouse Gas Emissions*, of the EIR, the County has identified one mitigation measure that will address the impact to GHG emissions resulting from the construction of the project: Greenhouse Gas-1.

Measure Greenhouse Gas-1

Prior to construction of the project, the final design plan and schemes for Tier I shall be reviewed to ensure that the County of Los Angeles conforms to its commitments pursuant to the California Climate Action Registry and the greenhouse gas emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide emissions per capita:

- Design buildings to be energy efficient; site buildings shall take advantage of shade, prevailing winds, landscaping, and sun screens to reduce energy use

- Install efficient lighting and lighting control systems; use daylight as an integral part of lighting systems in buildings

- Create water-efficient landscapes

- Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment (retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site)

- Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods

- Incorporate provisions for future public transit into the project design

- Preserve and create open space and parks; preserve existing trees and plant replacement trees at a set ratio

The review shall further ensure that all applicable sustainable design measures or comparable measures have been incorporated into the final project design.

NOISE

Significant Impact:

Implementation of Tier I of the project will potentially result in significant impacts to noise related to a temporary increase in groundbourne ambient noise during construction. Groundbourne vibration and mechanical noise during construction will be reduced to below the level of significance through mitigation.

Finding:

A Statement of Overriding Considerations has been prepared (see Section IX of this document) to address the noise impacts that would occur during the construction of the project.

Residences located approximately 80 feet (or further) away from the project site would likely experience impacts associated with construction-related noise and vibration that would be below the level of significance. The nearest residential land use is approximately 50 feet. This residence is located south of the project property. Implementation of mitigation measures Noise-1 and Noise-2 will reduce construction noise at residential properties to the east and west of the campus to below the level of significance; however, construction noise levels will potentially exceed the permissible level of 75 A-weighted decibels (dBA) at residences south of the project site that are within 80 feet of the project property. Therefore, noise impacts from construction, while temporary, will remain significant and unavoidable.

Implementation of mitigation measure Noise-3 will reduce significant impacts related to potential vibration-related building damage during construction to below the level of significance. However, vibration levels will still be perceptible at sensitive receptors; therefore, noise impacts from vibration levels during construction of the project will remain significant and unavoidable.

Implementation of mitigation measure Noise-4 will reduce significant impacts related to mechanical noise to below the level of significance.

The EIR considered the No Project Alternative and the following five action alternatives:

- Alternative 1: Reduced Project Size Alternative (900,000 square foot Tier II)
- Alternative 2: Re-opening the Existing MACC Alternative
- Alternative 3: Public Transportation Focused Alternative

- Alternative 4: 500 beds (in Tier I) Alternative
- Alternative 5: No Tier II Alternative

Section 4.0 of the EIR evaluates the effectiveness of each of the alternatives to achieve the basic objectives of the project described in Section 2.0 of the EIR. The project will meet all of the basic objectives of the County. Although the No Project Alternative is the environmentally superior alternative and has been analyzed as required by CEQA, it is not capable of meeting most of the basic objectives of the project. Following the No Project Alternative, the No Tier II Alternative is the environmentally superior alternative as it would result in the least amount of potentially significant environmental impacts. However, like the No Project Alternative, the No Tier II Alternative is not capable of meeting most of the basic objectives of the project that are associated with Tier II of the project.

Facts:

The County recognizes that a project of this magnitude will potentially generate environmental impacts to noise during the construction phase. In Section 3.8, *Noise,* of the EIR, the County has identified three mitigation measures that will reduce the potential construction-related noise impacts of the project: Noise-1, Noise-2, and Noise-3. However, these impacts will remain significant and unavoidable even after implementation of mitigation.

Implementation of measure Noise-1 will reduce impacts related to noise to below the level of significance.

Measure Noise-1

The County of Los Angeles shall require that the plans and specifications require that construction equipment be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 decibels. The height and length of the barriers or curtains shall be determined based on location of construction activity and receptor.

Because of the close proximity of the source and receptors, the noise impact will depend on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during demolition and construction, and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noises shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall take into account the demolition and equipment mix that will be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels.

Measure Noise-2

Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The

County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment.

Measure Noise-3

The distance at which impact pile driving would not exceed a peak particle velocity of 0.2 inch per second at a residence is 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving shall be utilized.

Measure Noise-4

The County of Los Angeles shall ensure that mechanical noise generated by the project is less than 45 A-weighted decibels at residences immediately south (approximately 50 feet) of the project. This shall be achieved by implementing one or a combination of more than one of the following strategies: utilizing quiet mechanical systems, locating mechanical systems away from residences (mechanical systems that produce a noise level of 55 A-weighted decibels at 50 feet shall be located a minimum of 160 feet from residences reduce mechanical noise levels to below 45 A-weighted decibels at residences), or utilizing insulating screens to break the line of sight between the mechanical systems and nearby residences.

IV.B TIER II

AIR QUALITY

Significant Impact:

Implementation of Tier II of the project will result in significant impacts to air quality related to air quality standards, cumulative impacts, and sensitive receptors during construction and limited operation (such as area sources from natural gas combustion, central plant, landscape maintenance equipment and mobile sources).

Finding:

A Statement of Overriding Considerations has been prepared (see Section IX of this document) to address the air quality impacts associated with the substantial adverse change in the significance of air quality standards, cumulative impacts, and sensitive receptors that will potentially occur during the construction and limited operation of the project.

Implementation of air quality mitigation measures Air-1 through Air-8 will reduce fugitive dust emissions associated with construction activities, which would cause daily emissions of particulate matter ($PM_{2.5}$ and PM_{10}) to remain below the South Coast Air Quality Management District threshold of significance.

Implementation of mitigation measures Air-9 and Air-10 will reduce, to the maximum extent feasible, criteria pollutants emissions associated with the use of construction equipment and the application of paints and coatings. However, emissions of volatile organic compounds and nitrogen oxides (NO_x) during construction will remain as temporary significant and unavoidable impacts.

Mitigation measures Air-1 through Air-11 will also ensure that air quality impacts to sensitive receptors during construction will be reduced to the maximum extent feasible. However, implementation of Tier II of the project will still potentially result in significant impacts to sensitive receptors related to emissions of NO_x, $PM_{2.5}$, and PM_{10}.

Mitigation measures Air-1 through Air-11 will also ensure that the project's contribution to cumulative air quality impacts during construction will be reduced to the maximum extent feasible. However, implementation of Tier II of the project will still potentially result in cumulative construction-related impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects.

Mitigation measure Air-11 would ensure that criteria pollutant emissions associated with operation of the proposed project are reduced to the maximum extent feasible; however, criteria pollutant emissions from mobile sources during operation of Tier II would remain significant.

The EIR considered the No Project Alternative and the following five action alternatives:

- Alternative 1: Reduced Project Size Alternative (900,000 square foot Tier II)
- Alternative 2: Re-opening the Existing MACC Alternative
- Alternative 3: Public Transportation Focused Alternative
- Alternative 4: 500 beds (in Tier I) Alternative
- Alternative 5: No Tier II Alternative

Section 4.0 of the EIR evaluates the effectiveness of each of the alternatives to achieve the basic objectives of the project described in Section 2.0 of the EIR. The project will meet all of the basic objectives of the County. Although the No Project Alternative is the environmentally superior alternative and has been analyzed as required by CEQA, it is not capable of meeting most of the basic objectives of the project. Following the No Project Alternative, the No Tier II Alternative is the environmentally superior alternative as it would result in the least amount of potentially significant environmental impacts. However, like the No Project Alternative, the No Tier II Alternative is not capable of meeting most of the basic objectives of the project that are associated with Tier II of the project.

Facts:

The County recognizes that a project of this magnitude will potentially generate environmental impacts to air quality. In Section 3.2, *Air Quality*, of the EIR, the County has identified 11 mitigation measures that will address the impact to air quality related to air quality standards, sensitive receptors, and the recommended project's contribution to cumulative impacts: Air-1 through Air-11.

Measure Air-1

Water or a stabilizing agent shall be applied during Tier II to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the lead agency to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour as instantaneous gusts), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the lead agency. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. The lead agency shall also ensure that the plans and specifications for each element of the project include a requirement for ground cover to be replaced in disturbed areas as quickly as practicable and that the County appoints a construction relations officer to act as a community liaison concerning on-site construction activity including addressing issues related to fugitive dust generation.

Measure Air-2

Moistening or covering of excavated soil piles shall be required during Tier II to treat grading areas during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.

Measure Air-3

Discontinuing Tier II construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour as instantaneous gusts) shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to soliciting construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour as instantaneous gusts.

Measure Air-4

Track-out during Tier II shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Track-out is defined by the South Coast Air Quality Management District as any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday. Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available.

Measure Air-5

A wheel washing system shall be installed during Tier II, and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site. Washing of wheels leaving the construction site during construction of each element shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities.

Measure Air-6

All haul trucks hauling soil, sand, and other loose materials during Tier II shall be covered (e.g., with tarps or other enclosures that will reduce fugitive dust emissions). All transport of soils to and from the project site for each element shall be conducted in a manner that avoids fugitive dust emissions and ensures compliance with current air quality standards. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site.

Measure Air-7

Traffic speeds on unpaved roads during Tier II shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour.

Measure Air-8

Heavy-equipment operation during Tier II of the project shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure heavy-equipment operations be suspended during first- and second-stage smog alerts.

Measure Air-9

All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized and/or limited to no more than five minutes in accordance with state law. All equipment engines shall be maintained in good operating condition and in tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the lead agency shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria. All on-site construction equipment shall be required to meet U.S. EPA Tier 2 or higher emissions standards according to the following:

- April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

Measure Air-10

Wherever possible, contractors shall use materials that do not require painting or use pre-painted materials. In order to minimize emissions of volatile organic compounds, contractors shall use high-pressure, low-volume paint applicators with a minimum transfer efficiency of at least 50 percent and coatings and solvents with a volatile organic compound content lower than required under South Coast Air Quality Management District Rule 1113, Architectural Coatings:

- Clear wood finishes: 275 grams/liter
- Floor coatings: 50 grams/liter
- Sealers: waterproofing sealers 100 grams/liter; sanding sealers 275 grams/liter; all other sealers 100 grams/liter
- Shellacs: Clear 730 grams/liter; pigmented 550 grams/liter
- Stains: 100 grams/liter

Measure Air-11

The following measures shall be implemented, wherever feasible, to reduce operational air quality impacts:

- Improve traffic flow by signal synchronization;
- Ensure County-owned campus vehicles use clean fuels such as compressed natural gas and that shuttle buses for the campus are "clean" buses, such as 2010-compliant vehicles;
- Require all County and County contractor vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications;
- Provide services that promote ridesharing and vanpools;
- Provide charging stations or preferred parking for alternative technology vehicles;
- Provide preferred parking for carpools and vanpools; and
- Reduce energy consumption by providing alternative energy sources on site and installing energy-efficient appliances.

CULTURAL RESOURCES

Significant Impact:

Implementation of Tier II of the project will result in potentially significant impacts to cultural resources related to paleontological resources, human remains, and historic resources. Other impacts to cultural resources will be reduced to below the level of significance through mitigation.

Finding:

A Statement of Overriding Considerations has been prepared (see Section IX of this document) to address the cultural resources impacts associated with the construction and operation of the project. Implementation of mitigation measure Cultural-1 will reduce any potentially significant impacts to cultural resources related to an adverse change in the significance of a unique paleontological resource discovered during implementation of Tier II to below the level of significance.

Implementation of mitigation measure Cultural-2 will reduce any potentially significant impacts to human remains discovered during implementation of Tier II to below the level of significance.

Implementation of mitigation measure Cultural-3 will reduce Tier II impacts to the Augustus F. Hawkins Comprehensive Mental Health Center; Dr. H. Claude Hudson Auditorium; Interns and Physicians Building; Martin Luther King, Jr. Medical Center Campus Historic District; and Multi-Service Ambulatory Care Center (MACC) to below the level of significance.

Implementation of mitigation measures Cultural-4 and Cultural-5 will reduce to the maximum extent feasible any impacts to the Augustus F. Hawkins Comprehensive Mental Health Center; Dr. H. Claude Hudson Auditorium; Interns and Physicians Building; Martin Luther King, Jr. Medical Center Campus Historic District; and MACC resulting from implementation of Tier II of the project. However, the demolition of a historic resource will remain a significant adverse impact.

The EIR considered the No Project Alternative and the following five action alternatives:

- Alternative 1: Reduced Project Size Alternative (900,000 square foot Tier II)
- Alternative 2: Re-opening the Existing MACC Alternative
- Alternative 3: Public Transportation Focused Alternative
- Alternative 4: 500 beds (in Tier I) Alternative
- Alternative 5: No Tier II Alternative

Section 4.0 evaluates the effectiveness of each of the alternatives to achieve the basic objectives of the project as described in Section 2.0 of the EIR. The project will meet all of the basic objectives of the County. Although the No Project Alternative is the environmentally superior alternative and has been analyzed as required by CEQA, it is not capable of meeting most of the basic objectives of the project. Following the No Project Alternative, the No Tier II Alternative is the environmentally superior alternative as it would result in the least amount of potentially significant environmental impacts. However, like the No Project Alternative, the No Tier II Alternative is not capable of meeting most of the basic objectives of the project that are associated with Tier II of the project.

Facts:

The County recognizes that a project of this magnitude will potentially generate environmental impacts to cultural resources. The County has identified five mitigation measures in Section 3.3, *Cultural Resources,* of the EIR that will address the potential impacts of the project to cultural resources: Cultural-1, Cultural-2, Cultural-3, Cultural-4, and Cultural-5.

Paleontological Resources

Measure Cultural-1

The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the project shall be reduced to below the level of significance by monitoring, salvage, and curation of unanticipated paleontological resources discovered during ground-disturbing activities in previously undisturbed native soils located 15 or more feet below the ground surface that would have the potential to contact extant older Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology:

- Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found.

- Prior to any ground-disturbing activities, the County of Los Angeles shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium.

- A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources.

- Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find.

- If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing.

- Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored, the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered, fossil specimens recovered, and associated specimen data.

- All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository regarding the final disposition, permanent storage, and maintenance of any significant fossil remains, associated specimen data, and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written agreement shall specify the level of treatment (i.e., preparation, identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed.

- Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, shall signify the completion of the program to mitigate impacts to paleontological resources.

Human Remains

Measure Cultural-2

Although the discovery of human remains is not anticipated during ground-disturbing activities for the project, a process has been delineated for addressing the unanticipated discovery of human remains:

- Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met:
    - The Los Angeles County Coroner has determined that no investigation of the cause of death is required
    - Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences in writing to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

Historic Resources

Potentially significant adverse impacts to historic resources have been identified in relation to five historic resources as a result of implementation of the Tier II project: Augustus F. Hawkins Comprehensive Medical Health Center; Dr. H. Claude Hudson Auditorium; Interns and Physicians Building; Martin Luther King, Jr. Medical Center Campus Historic District; and MACC. Three mitigation measures have been identified for implementation during with Tier II of the project to reduce impacts to the maximum extent practicable: Cultural-3, Cultural-4, and Cultural-5. In the event that the five historic resources are not removed or otherwise impacted through significant modifications or alterations to the character-defining features of these resources, this impact would be below the level of significance and would not require mitigation.

Measure Cultural-3

Tier II impacts to four significant historic resources (Augustus F. Hawkins Comprehensive Medical Health Center, Dr. H. Claude Hudson Auditorium, Interns and Physicians Building, and Multi-Service Ambulatory Care Center) and the integrity of the Martin Luther King, Jr. Medical Center Campus Historic District (a fifth historic resource) shall be reduced to below the level of significance through utilization of the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines of Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* for any alterations, including all site work, structural upgrades, architectural, and mechanical systems improvements and repairs. The work shall conform to the standards and guidelines for "rehabilitation." Conformance with the Secretary of the Interior's Standards shall be monitored by an architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualification Standards. Completion of this mitigation measure shall be monitored and enforced by the County of Los Angeles.

Measure Cultural-4

Tier II impacts resulting from demolition or substantial alteration of significant historical resources not in conformance with the Secretary of the Interior's Standards shall be reduced to the maximum extent feasible through archival documentation of as-found condition. Prior to the initiation of construction activities, the County of Los Angeles shall ensure that documentation of the Augustus F. Hawkins Comprehensive Medical Health Center; Interns and Physicians Building; Martin Luther King, Jr. Medical Center Campus Historic District; Multi-Service Ambulatory Care Center; and/or Dr. H. Claude Hudson Auditorium is completed in accordance with Historic American Buildings Survey requirements for donated material. The documentation shall be in the form of a Historic American Buildings Survey and shall comply with the *Secretary of the Interior's Standards for Architectural and Engineering Documentation*. The documentation shall include large-format photographic recordation, detailed historic narrative report, measured architectural drawings, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be offered as donated material to Historic American Building Survey for inclusion in the Library of Congress. Archival copies of the documentation also shall be available at the Martin Luther King, Jr. Medical Center campus and maintained by the County of Los Angeles.

Measure Cultural-5

Impacts resulting from the loss of integrity of the Martin Luther King, Jr. Medical Center Campus Historic District such that its significance is materially impaired will be reduced to the maximum extent feasible through the development of a retrospective exhibit detailing the history of the Martin Luther King, Jr. Medical Center Campus Historic District, its significance, and its important details and features. The retrospective exhibit shall be in the form of a physical exhibit installed on the Martin Luther King, Jr. Medical Center Campus either within a building or on a freestanding kiosk or comparable structure or installation on the property. The exhibit shall commemorate the historic appearance of the district and provide the public with sufficient information to understand its historic significance.

The exhibit shall be prepared by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The exhibit should be completed within a period of no more than two years from the date of completion of Tier II of the project.

GREENHOUSE GAS EMISSIONS

Significant Impact:

Implementation of Tier II of the project will result in potentially significant impacts to construction-related GHG emissions. Operational impacts will be reduced to below the level of significance with mitigation.

Finding:

A Statement of Overriding Considerations has been prepared (see Section IX of this document) to address the greenhouse gas emissions impact associated with construction of the project.

Mitigation measure Greenhouse Gas-1 will reduce CO_2 emissions resulting from operation of Tier II of the project, thereby assisting in compliance with the goals of Assembly Bill 32 to reduce CO_{2e} emissions to 1990 levels by the year 2020. Mitigation measure Greenhouse Gas-1 will ensure that indirect and cumulative GHG emission impacts will be reduced to the maximum extent feasible. However, potential GHG emission impacts associated with construction and operation of Tier II will remain significant and unavoidable.

The EIR considered the No Project Alternative and the following five action alternatives:

- Alternative 1: Reduced Project Size Alternative (900,000 square foot Tier II)
- Alternative 2: Re-opening the Existing MACC Alternative
- Alternative 3: Public Transportation Focused Alternative
- Alternative 4: 500 beds (in Tier I) Alternative
- Alternative 5: No Tier II Alternative

Section 4.0 evaluates the effectiveness of each of the alternatives to achieve the basic objectives of the project described in Section 2.0 of the EIR. The project will meet all of the basic objectives of the County. Although the No Project Alternative is the environmentally superior alternative and has been analyzed as required by CEQA, it is not capable of meeting most of the basic objectives of the project. Following the No Project Alternative, the No Tier II Alternative is the environmentally superior alternative as it would result in the least amount of potentially significant environmental impacts. However, like the No Project Alternative, the No Tier II Alternative is not capable of meeting most of the basic objectives of the project that are associated with Tier II of the project.

Facts:

The County recognizes that a project of this magnitude will potentially generate environmental impacts to recreation. The County has identified in Section 3.5 of the EIR, one mitigation measure that will address the impact to GHG emissions related to project: Greenhouse Gas-1.

Measure Greenhouse Gas-1

Prior to construction of the project, the final design plan and schemes for Tier II shall be reviewed to ensure that the County of Los Angeles conforms to its commitments pursuant to the California Climate Action Registry, and the greenhouse gas emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide emissions per capita:

- Design buildings to be energy efficient; site buildings shall take advantage of shade, prevailing winds, landscaping, and sun screens to reduce energy use
- Install efficient lighting and lighting control systems; use daylight as an integral part of lighting systems in buildings
- Create water-efficient landscapes
- Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment (retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site)
- Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods
- Incorporate provisions for future public transit into the project design
- Preserve and create open space and parks; preserve existing trees and plant replacement trees at a set ratio

The review shall further ensure that all applicable sustainable design measures or comparable measures have been incorporated into the final project design.

NOISE

Significant Impact:

Implementation of Tier II of the project will result in potentially significant impacts to noise related to groundbourne temporary ambient noise increase during construction, vibration, and mechanical noise during construction. Groundbourne vibration and mechanical noise during construction would be reduced to below the level of significance through mitigation.

Finding:

A Statement of Overriding Considerations has been prepared (see Section IX of this document) to address the noise impacts associated with construction of the project.

Noise or vibration related impacts to residential structures located 80 feet (or further) away from the project site would be below the level of significance. The nearest residential land use is approximately 50 feet south of the project. Implementation of mitigation measures Noise-1 and Noise-2 will reduce construction noise at residential properties to the east and west of the campus to below the level of significance; however, construction noise levels will exceed the permissible noise level of 75 dBA at residences south of the project site that are within 80 feet of the project property. Therefore, noise impacts from construction, while temporary, will remain significant and unavoidable.

Implementation of mitigation measure Noise-3 will reduce significant impacts related to potential building damage from vibration during construction to below the level of significance. However, vibration levels will still be perceptible at sensitive receptors; therefore, vibration levels during construction of the project will result in a significant and unavoidable impact.

Implementation of mitigation measure Noise-4 will reduce significant impacts related to mechanical noise to below the level of significance.

The EIR considered the No Project Alternative and the following five action alternatives:

- Alternative 1: Reduced Project Size Alternative (900,000 square foot Tier II)
- Alternative 2: Re-opening the Existing MACC Alternative
- Alternative 3: Public Transportation Focused Alternative
- Alternative 4: 500 beds (in Tier I) Alternative
- Alternative 5: No Tier II Alternative

Section 4.0 evaluates the effectiveness of each of the alternatives to achieve the basic objectives of the project described in Section 2.0 of the EIR. The project will meet all of the basic objectives set forth by the County. Although the No Project Alternative is the environmentally superior alternative and has been analyzed as required by CEQA, it is not capable of meeting most of the basic objectives of the project. Following the No Project Alternative, the No Tier II Alternative is the environmentally superior alternative as it would result in the least amount of potentially significant environmental impacts. However, like the No Project Alternative, the No Tier II Alternative is not capable of meeting most of the basic objectives of the project that are associated with Tier II of the project.

Facts:

The County recognizes that a project of this magnitude will potentially generate environmental impacts to noise. The County has identified in Section 3.8, *Noise*, of the EIR, four mitigation measures that will address the impact to noise related to the project: Noise-1, Noise-2, Noise-3, and Noise-4.

Measure Noise-1

The County of Los Angeles shall require that the plans and specifications require that construction equipment be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 decibels or to the maximum extent feasible. The height and length of the barriers or curtains shall be determined based on the location of the construction activity and receptor.

Because of the proximity of the source and receptors, the noise impact will depend on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during demolition and construction, and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noises shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall take into account the demolition and equipment mix that would be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels.

Measure Noise-2

Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment.

Measure Noise-3

The distance at which impact pile driving would not exceed a peak particle velocity of 0.2 inch per second at a residence would be 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving shall not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving shall be utilized.

Measure Noise-4

The County of Los Angeles shall ensure that mechanical noise generated by the project is less than 45 A-weighted decibels at residences immediately south (approximately 50 feet) of the project. This shall be achieved by implementing one, or a combination of more than one, of the following strategies: utilizing quiet mechanical systems; locating mechanical systems away from residences (mechanical systems that produce a noise level of 55 A-weighted decibels at 50 feet shall be located a minimum of 160 feet from residences to reduce mechanical noise levels below 45 A-weighted decibels at residences), or utilizing insulating screens to break the line-of-sight between the mechanical systems and nearby residences.

SECTION V
FINDINGS REGARDING ALTERNATIVES

Alternatives were analyzed in the Environmental Impact Report (EIR) for the Martin Luther King, Jr., Medical Center Campus Redevelopment project (project or recommended project) consistent with the recommendations of Section 15126.6 of the State of California Environmental Quality Act (CEQA) Guidelines, which require evaluation of a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant project effects. The analysis of alternatives is limited to those that the County of Los Angeles (County) determines could feasibly attain most of the basic objectives of the project. Section 15126.6(f) of the State CEQA Guidelines describes feasibility as being dependent on site suitability, economic viability, availability of infrastructure, general plan consistency, consistency with other plans or regulatory limitations, jurisdictional boundaries, and the ability of the project proponent to gain access to or acquire an alternative site. As a result of the analysis contained in the project EIR regarding the environmental, health, and social characteristics of the project and alternatives, the County recommends approval of the project. Support for the project is directly responsive to the ability to attain all of the objectives of the project and reduce significant impacts. Therefore, the project will meet all objectives of the project and reduce the identified significant environmental impacts to the maximum extent feasible.

Six alternatives were considered and evaluated in detail in the EIR, including the No Project Alternative and five alternatives that would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant impacts of the project, particularly impacts related to air quality, cultural resources, greenhouse gas emissions, noise, and transportation and traffic. As a result of the project formulation process, the County explored the alternatives to assess their ability to fulfill most of the basic objectives of the project. The resulting range of alternatives considered in this EIR consists of the following six alternatives:

- No Project Alternative
- Reduced Project Size Alternative (900,000 square foot Tier II)
- Re-opening the Existing MACC Alternative
- Public Transportation Focused Alternative
- 500 beds (in Tier I Alternative)
- No Tier II Alternative

As required by CEQA, the No Project Alternative considers the effects of continuing to operate the project area as it currently exists. The additional alternatives evaluate the effects of a reduced project site, alternatives to the Tier II component of the project, or altering or enhancing the existing medical center facilities.

The ability of the project, the No Project Alternative, and the five alternatives listed above to meet the objectives of the project is summarized in Table V-1, *Summary of Project and Alternatives' Ability to Attain Project Objectives*.

The recommended project would meet all of the basic objectives of the County. Although the No Project Alternative is the environmentally superior alternative, it is not capable of meeting most of the basic objectives of the recommended project; it has been analyzed as required by CEQA. Following the No Project Alternative, the No Tier II Alternative is the environmentally superior alternative (Table V-1, *Summary of Project and Alternatives' Ability to Attain Project Objectives*).

TABLE V-1
SUMMARY OF PROJECT AND ALTERNATIVES' ABILITY TO ATTAIN PROJECT OBJECTIVE

	Recommended Project	No Project	Alternative No. 1: Reduced Project Size	Alternative No. 2: Re-opening the Existing MACC	Alternative No. 3: Public Transportation Focused	Alternative No. 4: 500 beds	Alternative No. 5: No Tier II
Tier I: Project Development Objective							
1. Revitalize the Martin Luther King, Jr. Medical Center Campus through the provision of comprehensive medical care	Yes	No	Yes	No	No	Yes	Yes
2. Demonstrate leadership in sustainable planning and design	Yes	No	Yes	No	No	Yes	Yes
3. Create a campus environment that encourages pedestrian movement and optimizes connectivity, staff interaction, and links to the community	Yes	No	Yes	No	No	Yes	Yes
4. Develop a campus that is contextually integrated with the County of Los Angeles and respects the surrounding communities	Yes	No	Yes	No	No	Yes	Yes
5. Improve the efficiency and quality of staff and tenant services	Yes	No	Yes	No	No	Yes	Yes

TABLE V-1
SUMMARY OF PROJECT AND ALTERNATIVES' ABILITY TO ATTAIN PROJECT OBJECTIVE, Continued

	Recommended Project	No Project	Alternative No. 1: Reduced Project Size	Alternative No. 2: Re-opening the Existing MACC	Alternative No. 3: Public Transportation Focused	Alternative No. 4: 500 beds	Alternative No. 5: No Tier II
6. Maintain the 2,100-square-foot Genesis Clinic; 2,580-square-foot Oasis Clinic (old); 1,850-square-foot Oasis Clinic (new); 10,950-square-foot Registration Building; 226,818-square-foot Augustus F. Hawkins Comprehensive Mental Health Center; 187,676-square-foot Inpatient Tower; 7,878-square-foot Pediatric Acute Care; 26,355-square-foot Medical Records and Laundry; 24,103-square-foot Central Plant; 15,648-square-foot Plant Management; 52,276-square-foot North Support Building; 34,762-square-foot South Support Building; 124,391-square-foot Interns and Physicians Building; 3,922-square-foot Claude Hudson Auditorium; 1,100-square-foot MRI Building; and 12,265-square-foot Hub Clinic Building	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7. Provide a 24,700-building-gross-square-footage (BGSF) space to accommodate the Ancillary Building to house the cafeteria, administrative functions, and support services for the MACC and the Inpatient Tower	Yes	No	Yes	No	Yes	No	Yes

TABLE V-1
SUMMARY OF PROJECT AND ALTERNATIVES' ABILITY TO ATTAIN PROJECT OBJECTIVE, Continued

	Recommended Project	No Project	Alternative No. 1: Reduced Project Size	Alternative No. 2: Re-opening the Existing MACC	Alternative No. 3: Public Transportation Focused	Alternative No. 4: 500 beds	Alternative No. 5: No Tier II
8. Provide a 132,000-BGSF space to accommodate the MACC program	Yes	No	Yes	No	Yes	No	Yes
9. Provide 34,000 square feet of tenant improvements to accommodate support functions in the North Support, South Support, Interns and Physicians, and Plant Management Buildings	Yes	No	Yes	No	Yes	No	Yes
10. Connect to an upgraded central plant to service the MACC, North Support Building, South Support Building, Inpatient Tower and Interns and Physicians Building	Yes	No	Yes	No	No	No	Yes
11. Provide a parking area to allow sufficient parking for patients, client, visitors, employees, medical staff; site work; and landscaping	Yes	No	Yes	Yes	No	Yes	Yes
12. Provide for a possible relocation of the MRI Building	Yes	No	Yes	No	No	No	Yes

TABLE V-1
SUMMARY OF PROJECT AND ALTERNATIVES' ABILITY TO ATTAIN PROJECT OBJECTIVE, Continued

	Recommended Project	No Project	Alternative No. 1: Reduced Project Size	Alternative No. 2: Re-opening the Existing MACC	Alternative No. 3: Public Transportation Focused	Alternative No. 4: 500 beds	Alternative No. 5: No Tier II
Tier II: Master Plan Development Objective							
13. Provide opportunities for development of up to 1,814,696 square feet of mixed use, including medical office, commercial, retail, residential, recreational, office space, and other development in support of the campus that are appurtenant to and compatible with the primary land use of a community-based health program facility	Yes	No	No	No	No	No	No
14. Provide sufficient parking for mixed-use development	Yes	No	Yes	No	No	No	No

Based on the analysis provided in the EIR, only the No Project Alternative is capable of reducing the significant and unavoidable impacts to both Tier I and Tier II components of the project. Evaluation of a no project alternative is required, as well as an environmentally superior alternative if the no project alternative is the environmentally superior alternative. For this project, the Environmentally Superior Action Alternative is the No Project Alternative. Although this alternative is capable of reducing the significant impacts discussed above; it would only meet one of the 14 project objectives. The No Tier II Alternative would be the environmental superior alternative for the project following the No Project Alternative. While this alternative would reduce or avoid impacts to aesthetics, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous resources, hydrology and water quality, noise, transportation and traffic, and utilities and services systems that are associated with Tier II of the project; as with the project, the No Tier II Alternative would have the same potential Tier I impacts as the project. Furthermore, this alternative would fail to meet all of the project objectives.

Table V-2, *Tier I Comparative Analysis of Impacts for Project and Alternatives,* provides a comparative analysis for the project, the No Project Alternative, and the five alternatives discussed in this document. Table V-3, *Tier II Comparative Analysis of Impacts for Project and Alternatives,* provides a comparative analysis for the project, the No Project Alternative, and the five alternatives discussed in this document.

TABLE V-2
TIER I COMPARATIVE ANALYSIS OF IMPACTS FOR PROJECT AND ALTERNATIVES

Resource	Project	No Project	Reduced Project Size	Re-opening the Existing MACC	Public Transportation Focused	500 Beds	No Tier II Alternative
Aesthetics	Implementation of the project will result in significant impacts to aesthetics related to light and glare.	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to aesthetics.	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to aesthetics that would require mitigation.	Unlike the project, the Re-opening of the Existing MACC Alternative would not have the potential to result in significant impacts to aesthetics.	Like Tier I of the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to aesthetics that would require mitigation.	Like Tier I of the recommended project, the 500 Beds (in Tier I) Alternative would have the potential to result in impacts to aesthetics that would require mitigation.	Like Tier I of the recommended project, the No Tier II Alternative would have the potential to result in impacts to aesthetics that would require mitigation.
	Impact: Mitigated to below the level of significance	*Comparative Impact:* Positive	*Comparative Impact:* Neutral	*Comparative Impact:* Positive	*Comparative Impact:* Neutral	*Comparative Impact:* Neutral	*Comparative Impact:* Neutral
Air Quality	Implementation of the project will result in significant impacts to air quality related to air quality standards, cumulative, and sensitive receptors during construction.	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to air quality.	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to air quality that would require mitigation.	Unlike the project, the Re-opening of the Existing MACC Alternative would have the potential to result in significant impacts to air quality.	Like the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to air quality that would require mitigation.	Unlike the recommended project, the 500 Bed Alternative would not have the potential to result in impacts to air quality.	Like Tier I of the recommended project, the No Tier II Alternative would have the potential to result in impacts to air quality that would require mitigation.
	Impact: Mitigated to below the level of significance	*Comparative Impact:* Positive	*Comparative Impact:* Neutral	*Comparative Impact:* Positive	*Comparative Impact:* Neutral	*Comparative Impact: Positive*	*Comparative Impact:* Neutral
Cultural Resources	Implementation of the project will result in significant impacts to cultural resources related to historic resource, paleontological resource, and human remains.	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to cultural resources.	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to cultural resources that would require mitigation.	Unlike the project, Re-opening of the Existing MACC Alternative would not have the potential to result in significant impacts to cultural resources.	Like Tier I of the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to cultural resources that would require mitigation.	Unlike the recommended project, the 500 Bed Alternative would not have the potential to result in impacts to cultural resources.	Like Tier II of the recommended project, Tier I of the No Tier II Alternative would have the potential to result in impacts to cultural resources that would require mitigation.
	Impact: Mitigated to below the level of significance	*Comparative Impact:* Positive	*Comparative Impact:* Neutral	*Comparative Impact:* Positive	*Comparative Impact:* Neutral	*Comparative Impact: Positive*	*Comparative Impact:* Neutral

TABLE V-2
TIER I COMPARATIVE ANALYSIS OF IMPACTS FOR PROJECT AND ALTERNATIVES, Continued

Resource	Project	No Project	Reduced Project Size	Re-opening the Existing MACC	Public Transportation Focused	500 Beds	No Tier II Alternative
Geology and Soils	Implementation of the project will result in significant impacts to geology and soils related to soil erosion or loss of top soil, geologic unit or unstable soil, and expansive soil. *Impact:* Mitigated to below the level of significance	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to geology and soils. *Comparative Impact:* Positive	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to geology and soils that would require mitigation. *Comparative Impact:* Neutral	Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to geology and soils although the anticipated seismic improvements that would be required under this alternative would be more considerable than the project. *Comparative Impact:* Negative	Like Tier I of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to geology and soils that would require mitigation. *Comparative Impact:* Neutral	Unlike the recommended project, the 500 Bed Alternative would not have the potential to result in impacts to geology and soils. *Comparative Impact: Positive*	Like Tier I of the recommended project, Tier I of the No Tier II Alternative would have the potential to result in impacts to geology and soils that would require mitigation. *Comparative Impact:* Neutral
Greenhouse Gas Emissions	Implementation of the project will result in significant impacts to greenhouse gas emissions related to operation. *Impact:* Significant and unavoidable	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to greenhouse gas emissions. *Comparative Impact:* Positive	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to greenhouse gas emissions. *Comparative Impact:* Neutral	Unlike the project, the Re-opening of the Existing MACC Alternative would not have the potential to result in significant impacts to greenhouse gas emissions. *Comparative Impact:* Positive	Like Tier I of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to greenhouse gas emissions. *Comparative Impact:* Neutral	Unlike the recommended project, the 500 Bed Alternative would not have the potential to result in impacts to greenhouse gas emissions. *Comparative Impact: Positive*	Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in impacts to GHG emissions with regard to Tier I development. *Comparative Impact:* Neutral
Hazards and Hazardous Materials	Implementation of the project will result in significant impacts to hazards and hazardous materials related to accidental release, 0.25 mile of an existing or proposed school, and Government Code Section 65962.5. *Impact:* Mitigated to below the level of significance	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. *Comparative Impact:* Positive	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to hazards and hazardous materials that would require mitigation. *Comparative Impact:* Neutral	Like the recommended project, the Re-opening of the Existing MACC Alternative would have the potential to result in impacts to hazards and hazardous materials that would require mitigation. *Comparative Impact:* Neutral	Like Tier I of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hazards and hazardous materials that would require mitigation. *Comparative Impact:* Neutral	Unlike the recommended project, the 500 Bed Alternative would not have the potential to result in impacts to hazards and hazardous materials. *Comparative Impact: Positive*	Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in impacts to hazards and hazardous materials that would require mitigation. *Comparative Impact:* Neutral

TABLE V-2
TIER I COMPARATIVE ANALYSIS OF IMPACTS FOR PROJECT AND ALTERNATIVES, Continued

Resource	Project	No Project	Reduced Project Size	Re-opening the Existing MACC	Public Transportation Focused	500 Beds	No Tier II Alternative
Hydrology and Water Quality	Implementation of the project will result in significant impacts to hydrology and water quality related to water quality standards, waste discharge, runoff water, and degrade water quality during construction and limited operation. *Impact:* Mitigated to below the level of significance	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to hydrology and water quality. *Comparative Impact:* Positive	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to hydrology and water quality that would require mitigation. *Comparative Impact:* Neutral	As with the project, the Re-opening of the Existing MACC Alternative would have the potential to result in significant impacts to hydrology and water quality. However, the anticipated impacts associated with this alternative would be more considerable than the project. *Comparative Impact:* Negative	Like Tier I of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hydrology and water quality that would require mitigation. *Comparative Impact:* Neutral	Like the recommended project, this alternative would have the potential to result in impacts to hydrology and water quality that would require mitigation. *Comparative Impact:* Neutral	Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in impacts to hydrology and water quality that would require mitigation. *Comparative Impact:* Neutral
Noise	Implementation of the project will result in significant impacts to noise related to groundbourne vibration and mechanical noise during construction. *Impact:* Significant and unavoidable	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to noise. *Comparative Impact:* Positive	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to noise. *Comparative Impact:* Neutral	Unlike the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to noise. *Comparative Impact:* Positive	Like Tier I of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to noise. *Comparative Impact:* Neutral	Unlike the recommended project, the 500 Beds Alternative would not have the potential to result in significant impacts to noise. *Comparative Impact:* Positive	Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in significant impacts to noise. *Comparative Impact:* Neutral
Population and Housing	No significant impacts related to population and housing will arise from implementation of the project. *Impact:* None[1]	As with the project, the No Project Alternative would not have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral	Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral	Like Tier I of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral	Like the recommended project, the 500 Beds Alternative would not have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral	Like the recommended project, Tier I of the No Tier II Alternative would not have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral

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[1] The term "none" is used in tables V-2-1 and V-2-2 to identify impacts issue areas that resulted in "no impact" or "less than significant" impacts that did not require mitigation and were not found to be significant after mitigation.

TABLE V-2
TIER I COMPARATIVE ANALYSIS OF IMPACTS FOR PROJECT AND ALTERNATIVES, Continued

Resource	Project	No Project	Reduced Project Size	Re-opening the Existing MACC	Public Transportation Focused	500 Beds	No Tier II Alternative
Public Services	No significant impacts related to public services will arise from implementation of the project. *Impact:* None	As with the project, the No Project Alternative would not have the potential to result in significant impacts to public services. *Comparative Impact:* Neutral	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to public services. *Comparative Impact:* Neutral	Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to public services. *Comparative Impact:* Neutral	Like Tier I of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts public services. *Comparative Impact:* Neutral	Like the recommended project, the 500 Beds Alternative would not have the potential to result in significant impacts to public services. *Comparative Impact:* Neutral	Like the recommended project, Tier I of the No Tier II Alternative would not have the potential to result in significant impacts to public services. *Comparative Impact:* Neutral
Recreation	No significant impacts related to recreation will arise from implementation of the project. *Impact:* None	As with the project, the No Project Alternative would not have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral	Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral	Like Tier I of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral	Like the recommended project, the 500 Beds Alternative would not have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral	Like the recommended project, Tier I of the No Tier II Alternative would not have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral
Transportation and Traffic	Implementation of the project will result in significant impacts to transportation and traffic related to circulation system and congestion during construction. *Impact:* Mitigated to below the level of significance	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to transportation and traffic and would not require mitigation. *Comparative Impact:* Positive	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to transportation and traffic that would require mitigation. *Comparative Impact:* Neutral	Unlike Tier I of the project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to transportation and traffic. *Comparative Impact:* Positive	Unlike the recommended project, the Public Transportation Focused Alternative would not have the potential to result in impacts to transportation and traffic. *Comparative Impact:* Positive	Unlike the recommended project, the 500 Bed Alternative would not have the potential to result in significant impacts to transportation and traffic. *Comparative Impact:* Positive	Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in significant impacts to transportation and traffic that would require mitigation. *Comparative Impact:* Neutral
Utilities and Service Systems	No significant impacts related to utilities and service systems will arise from implementation of the project. *Impact:* None	As with the project, the No Project Alternative would not have the potential to result in significant impacts to utilities and services systems. *Comparative Impact:* Positive[2]	As with the project, the Reduced Project Site Alternative would have the potential to result in significant impacts to utilities and service systems. *Comparative Impact:* Neutral	Unlike Tier I of the project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to utilities and service systems. *Comparative Impact: Negative*	Like Tier I of the recommended project, the Public Transportation Focused Alternative would not be expected to result in impacts to utilities and service systems. *Comparative Impact:* Neutral	Unlike Tier I of the recommended project, the 500 Beds Alternative would have the potential to result in significant impacts to utilities and service systems. *Comparative Impact:* Positive	Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in significant impacts to utilities and service systems. *Comparative Impact:* Neutral

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[2] This impact is reflected as positive because this alternative would not alter the existing utilities and services systems at the campus while the project would, however, operation of Tier I of the project would be expected to result in benefits to utilities and services systems.

TABLE V-3
TIER II COMPARATIVE ANALYSIS OF IMPACTS FOR PROJECT AND ALTERNATIVES

Resource	Project	No Project	Reduced Project Size	Re-opening the Existing MACC	Public Transportation Focused	500 Beds	No Tier II Alternative
Aesthetics	Implementation of the project will result in significant impacts to aesthetics related to visual character and light/glare. *Impact:* Mitigated to below the level of significance	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to aesthetics. *Comparative Impact:* Positive	As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to aesthetics although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to aesthetics although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Like Tier II of the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to aesthetics. *Comparative Impact:* Neutral	Like Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would have the potential to result in significant impacts to aesthetics although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Unlike Tier II of the recommended project, the No Tier II Alternative would not result in impacts to aesthetics. *Comparative Impact:* Positive
Air Quality	Implementation of the project will result in significant impacts to air quality related to air quality standards, cumulative, sensitive receptors during construction and limited operation. *Impact:* Significant and unavoidable	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to air quality. *Comparative Impact:* Positive	As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to air quality although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to air quality although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Like the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to air quality. *Comparative Impact:* Neutral	Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to ambient air quality. *Comparative Impact:* Positive	Unlike Tier II of the recommended project, the No Tier II Alternative would not have the potential to result in significant impacts to ambient air quality. *Comparative Impact:* Positive
Cultural Resources	Implementation of the project will result in significant impacts to cultural resources related to paleontological resource and human remains, historic resource, paleontological resource. *Impact:* Significant and unavoidable (historic resource, paleontological resource, human remains)	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to cultural resources. *Comparative Impact:* Positive	As with Tier II the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to cultural resources. *Comparative Impact:* Neutral	Unlike Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to cultural resources. *Comparative Impact:* Positive	Like Tier II of the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to cultural resources. *Comparative Impact:* Neutral	Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to cultural resources. *Comparative Impact:* Positive	Unlike Tier II of the recommended project, the No Tier II Alternative would not have the potential to result in significant impacts to cultural resources. *Comparative Impact:* Positive

TABLE V-3
TIER II COMPARATIVE ANALYSIS OF IMPACTS FOR PROJECT AND ALTERNATIVES, Continued

Resource	Project	No Project	Reduced Project Size	Re-opening the Existing MACC	Public Transportation Focused	500 Beds	No Tier II Alternative
Geology and Soils	Implementation of the project will result in significant impacts to geology and soils related to soil erosion or loss of top soil, geologic unit or unstable soil, and expansive soil. *Impact:* Mitigated to below the level of significance	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to geology and soils. *Comparative Impact:* Positive	As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to geology and soils although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to geology and soils although it is anticipated that he seismic improvements under this alternative would be more considerable than the project. *Comparative Impact:* Negative	Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to geology and soils. *Comparative Impact:* Neutral	Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to geology and soils, although it is anticipated that the seismic improvements under this alternative would be more considerable than the project. *Comparative Impact:* Negative	Unlike Tier II of the recommended project, the No Tier II Alternative would not have the potential to result in significant impacts to geology and soils. *Comparative Impact:* Positive
Greenhouse Gas Emissions	Implementation of the project will result in significant impacts to greenhouse gas emissions related to construction and operation. *Impact:* Significant and unavoidable (construction)	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to greenhouse gas emissions. *Comparative Impact:* Positive	As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to greenhouse gas emissions although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Unlike Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant construction related impacts to greenhouse gas emissions. *Comparative Impact:* Positive	Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to greenhouse gas emissions. *Comparative Impact:* Neutral	Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to GHG emissions. *Comparative Impact:* Positive	Unlike Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to GHG emissions. *Comparative Impact:* Positive
Hazards and Hazardous Materials	Implementation of the project will result in significant impacts to hazards and hazardous materials related to accidental release, 0.25 mile of an existing or proposed school, and Government Code Section 65962.5. *Impact:* Mitigated to below the level of significance	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. *Comparative Impact:* Positive	As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to hazards and hazardous materials although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Unlike Tier II of the recommended project, Tier II of the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. *Comparative Impact:* Positive	Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hazards and hazardous materials. *Comparative Impact:* Neutral	Unlike Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. *Comparative Impact:* Positive	Unlike Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. *Comparative Impact:* Positive

TABLE V-3
TIER II COMPARATIVE ANALYSIS OF IMPACTS FOR PROJECT AND ALTERNATIVES, Continued

Resource	Project	No Project	Reduced Project Size	Re-opening the Existing MACC	Public Transportation Focused	500 Beds	No Tier II Alternative
Hydrology and Water Quality	Implementation of the project will result in significant impacts to hydrology and water quality related to water quality standards, waste discharge, runoff water, and degrade water quality during construction and operation. *Impact:* Mitigated to below the level of significance	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to hydrology and water quality. *Comparative Impact:* Positive	As with Tier II the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to hydrology and water quality although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Like Tier II of the recommended project, Tier II of the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to hydrology and water quality. *Comparative Impact:* Neutral	Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hydrology and water quality. *Comparative Impact:* Neutral	Like Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would have the potential to result in significant impacts to hydrology and water quality. *Comparative Impact:* Neutral	Unlike Tier I of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. *Comparative Impact:* Positive
Noise	Implementation of the project will result in significant impacts to noise related to groundbourne vibration and mechanical noise during construction, temporary ambient noise increase during construction. *Impact:* Significant and unavoidable (temporary ambient noise increase during construction)	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to noise. *Comparative Impact:* Positive	As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to noise although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Unlike Tier II of the recommended project, Tier II of the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to noise. *Comparative Impact:* Positive	Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to noise. *Comparative Impact:* Neutral	Unlike Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to noise. *Comparative Impact:* Positive	Unlike Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to noise. *Comparative Impact:* Positive
Population and Housing	No significant impacts related to population and housing will arise from implementation of the project. *Impact:* None	As with the project, the No Project Alternative would not have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral	As with Tier II of the recommended project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral	Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral	Like Tier II of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral	As with Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral	As with Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to population and housing. *Comparative Impact:* Neutral

TABLE V-3
TIER II COMPARATIVE ANALYSIS OF IMPACTS FOR PROJECT AND ALTERNATIVES, Continued

Resource	Project	No Project	Reduced Project Size	Re-opening the Existing MACC	Public Transportation Focused	500 Beds	No Tier II Alternative
Public Services	No significant impacts related to public services will arise from implementation of the project. *Impact:* None	As with the project, the No Project Alternative would not have the potential to result in significant impacts to public services. *Comparative Impact:* Neutral	As with Tier II of the recommended project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to public services. *Comparative Impact:* Neutral	Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to public services. *Comparative Impact:* Neutral	Like Tier II of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts public services. *Comparative Impact:* Neutral	As with Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to public services. *Comparative Impact:* Neutral	As with Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to public services. *Comparative Impact:* Neutral
Recreation	No significant impacts related to recreation will arise from implementation of the project. *Impact:* None	As with the project, the No Project Alternative would not have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral	As with Tier II of the recommended project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral	Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral	Like Tier II of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral	As with Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral	As with Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to recreation. *Comparative Impact:* Neutral
Transportation and Traffic	Implementation of the project will result in significant impacts to transportation and traffic related to circulation system and congestion during construction, operation, and cumulatively. *Impact:* Mitigated to below the level of significance	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to traffic and transportation. *Comparative Impact:* Positive	Like Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to transportation and traffic although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to transportation and traffic although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Unlike the recommended project, the Public Transportation Focused Alternative would not have the potential to result in impacts to transportation and traffic. *Comparative Impact:* Positive	Unlike Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to transportation and traffic. *Comparative Impact:* Positive	As with Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to transportation and traffic although the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive
Utilities and Service Systems	Implementation of the project will result in significant impacts to utilities and service systems related to wastewater treatment requirements and solid waste compliance. *Impact:* Mitigated to below the level of significance	Unlike the project, the No Project Alternative would not have the potential to result in significant impacts to Utilities and Services Systems. *Comparative Impact:* Positive	Like Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to utilities and services systems, but the impacts would not be as extensive as those related to the project. *Comparative Impact:* Positive	Like Tier II of the recommended project, Tier II of the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to utilities and service systems. *Comparative Impact:* Neutral	Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in impacts to utilities and service systems. *Comparative Impact:* Neutral	Like Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would have the potential to result in significant impacts to utilities and service systems. *Comparative Impact:* Neutral	Unlike Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to utilities and service systems. *Comparative Impact:* Positive

V.A NO PROJECT ALTERNATIVE

Description of Alternative: Under the No Project Alternative, the existing conditions described in this document would remain unchanged. The recreational activities conducted at the site would remain unchanged. Similarly, the site and structures would remain without any alterations or improvements.

Effectiveness in Meeting Project Objectives: Under the No Project Alternative, most of the objectives of the project would not be met. This alternative meets only 1 of the objectives discussed in the EIR. The summary of this alternative's ability to meet the objectives is described in Table V-1.

Comparison of Effects of the Alternative to Effects of the Project: The regulatory framework and existing conditions would be the same as that described for the project. A summary comparison of this alternative to impacts of the project is presented in Table V-2. The analysis presented in the table shows that this alternative would not result in the significant impacts that would be anticipated as a result of the project.

- Aesthetics

  Tier I - Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to aesthetics. Under the No Project Alternative, potential aesthetic changes relating to the replacement of existing site features would not occur. The project site would continue in its existing form with its visual and aesthetic character unchanged. Even though the aesthetic changes resulting from the recommended project would not be considered significant impacts, the No Project Alternative's impacts to aesthetics would be less because no change, such as increased nighttime lighting, would occur. As with Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to aesthetics with the No Project Alternative, implementation of measure Aesthetics-1 specified for Tier I of the recommended project would not be required. Tier I impacts related to aesthetics would be less than significant for the No Project Alternative.

  Tier II - Unlike Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to aesthetics. Under the No Project Alternative, potential aesthetic changes relating to the replacement of existing site features would not occur. This alternative would not result in the more intensive development or the increase in nighttime lighting from vehicles, buildings, landscape features, and signage associated with commercial uses under the recommended project. As a result, the project site would continue in its existing form with its visual and aesthetic character unchanged. Even though the aesthetic changes resulting from the recommended project would not be considered significant impacts, the No Project Alternative's impacts to aesthetics would be less because no change, such as increased nighttime lighting, would occur. As with Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to aesthetics with the No Project Alternative, implementation of measures Aesthetics-1 through Aesthetics-4 specified for Tier II of the recommended project would not be required. Tier II impacts related to aesthetics would be less than significant for the No Project Alternative.

- Air Quality

  Tier I - Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to ambient air quality. The No Project Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike the recommended project, this alternative would not entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, or asphalt operations beyond the baseline conditions. The No Project Alternative would not require grading or the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of volatile organic compounds (VOCs). The No Project Alternative would not have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors. Unlike Tier I of the recommended project, the No Project Alternative would avoid potential significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the recommended project site by employees and visitors that would need mitigation measures to be reduced to less than significant levels. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to ambient air quality with the No Project Alternative, implementation of measures Air-1 through Air-11 would not be required. Tier I impacts related to air quality would be less than significant for the No Project Alternative.

  Tier II - Unlike Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to ambient air quality. The No Project Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike the recommended project, this alternative would not entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, or asphalt operations beyond the baseline conditions. The No Project Alternative would not require grading or the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. The No Project Alternative would not have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors. Implementation of Tier II the recommended project would be expected to result in cumulative construction-related impacts and impacts during operation that would remain above the level of significance with the incorporation of mitigation measures. Unlike Tier II of the recommended project, the No Project Alternative would avoid potential significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the recommended project site by employees and visitors. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to ambient air quality with the No Project Alternative, implementation of measures Air-1 through Air-11 would not be required. Tier II impacts related to air quality would be less than significant for the No Project Alternative.

- Cultural Resources

  Tier I -Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to cultural resources. The No Project Alternative would avoid the construction-related and redevelopment impacts to cultural resources that would occur as a result of the recommended project. Unlike Tier I of the recommended project, the No Project Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would not occur. As a result, the project site would continue in its existing form with its cultural resources unchanged. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to cultural resources with the No Project Alternative, implementation of measures Cultural-1 through Cultural-2 specified for Tier I of the recommended project would not be required. Tier I impacts related to cultural resources would be less than significant for the No Project Alternative.

  Tier II - Unlike Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to cultural resources. The No Project Alternative would avoid the construction-related and redevelopment impacts to cultural resources that would occur as a result of the recommended project. Unlike Tier II of the recommended project, the No Project Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would not occur. As a result, the project site would continue in its existing form with its cultural resources unchanged. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to cultural resources with the No Project Alternative, implementation of Measures Cultural-1 through Cultural-5 specified for Tier II of the recommended project would not be required. Tier II impacts related to cultural resources would be less than significant for the No Project Alternative.

- Geology and Soils

  Tier I - Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to geology and soils. The No Project Alternative avoids potential impacts to geology and soils that could result from the implementation of the recommended project. This alternative would avoid short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier I of the recommended project, this alternative would entail no grading (excavation and fill), modification of existing structures, or construction of new structures and implementation of the mitigation measures would not be required. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to geology and soils with the No Project Alternative, implementation of measures Geology-1 through Geology-3 specified for Tier I of the recommended project would not be required. Tier I impacts related to geology and soils would be less than significant for the No Project Alternative.

Tier II - Unlike Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to geology and soils. The No Project Alternative avoids potential impacts to geology and soils that could result from the implementation of the recommended project. This alternative would avoid short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier II of the recommended project, this alternative would entail no grading (excavation and fill), modification of existing structures, or construction of new structures and implementation of the mitigation measures would not be required. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to geology and soils with the No Project Alternative, implementation of measures Geology-1 through Geology-3 specified for Tier II of the recommended project would not be required. Tier II impacts related to geology and soils would be less than significant for the No Project Alternative.

- Greenhouse Gas Emissions

Tier I - Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to greenhouse gas (GHG) emissions. The No Project Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike Tier I of the recommended project, this alternative would not entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, or electricity consumption beyond the baseline conditions. The No Project Alternative would not require the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to GHG emissions. Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to GHG emissions with the No Project Alternative, implementation of measure GHG-1 would not be required. Tier I impacts related to greenhouse gas emissions would be less than significant for the No Project Alternative.

Tier II - Unlike Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to GHG emissions. The No Project Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike Tier II of the recommended project, this alternative would not entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, or electricity consumption beyond the baseline conditions. The No Project Alternative would not require the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to GHG emissions. Unlike Tier II of the recommended project, the No Project Alternative would not have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Potential GHG emission impacts associated with construction and operation of Tier II would remain as significant and unavoidable even with the incorporation of mitigation measures. Unlike Tier II of the recommended project, the No Project Alternative would avoid potential significant impacts to GHG emissions that would result from emissions from construction equipment, electricity consumption, and the anticipated increase in vehicle miles traveled to the recommended project site by employees and visitors. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to GHG emissions with the No Project Alternative, implementation of measure GHG-1 would not be required. Tier II impacts related to greenhouse gas emissions would be less than significant for the No Project Alternative.

- Hazards and Hazardous Materials

  Tier I - Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The No Project Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the recommended project. Unlike Tier I of the recommended project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6, *Hazards and Hazardous Materials*, would not be required. Potential operational impacts from hazards or hazardous materials would not occur. The No Project Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hazards and hazardous materials with the No Project Alternative, implementation of measures Hazards-1 through Hazards-5 specified for Tier I of the recommended project would not be required. Tier I impacts related to hazards and hazardous materials would be less than significant for the No Project Alternative.

  Tier II - Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The No Project Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the recommended project. Unlike Tier I of the recommended project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6 would not be required. Potential operational impacts from hazards or hazardous materials would not occur. The No Project Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hazards and hazardous materials with the No Project Alternative, implementation of Measures Hazards-1 through Hazards-5 specified for Tier I of the recommended project would not be required. Tier II impacts related to hazards and hazardous materials would be less than significant for the No Project Alternative.

- Hydrology and Water Quality

  Tier I - Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to hydrology and water quality. The No Project Alternative avoids impacts to hydrology and water quality that could result from the implementation of the recommended project. Section 3.7, *Hydrology and Water Quality*, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier I of the recommended project, the No Project Alternative would entail no conversion of vacant land including grading, paving, and construction, and implementation of the mitigation measures would not be required. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hydrology and water quality with the No Project Alternative, implementation of measures Hydrology-1 through Hydrology-3 and Hazards-1 specified for Tier I of the recommended project would not be required. Tier I impacts related to hydrology and water quality would be less than significant for the No Project Alternative.

  Tier II - Unlike Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to hydrology and water quality. The No Project Alternative avoids impacts to hydrology and water quality that could result from the implementation of the recommended project. Section 3.7 of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier II of the recommended project, the No Project Alternative would entail no conversion of vacant land including grading, paving, and construction, and implementation of the mitigation measures would not be required. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hydrology and water quality with the No Project Alternative, implementation of measures Hydrology-1 through Hydrology-4 and Hazards-1 specified for Tier II of the recommended project would not be required. Tier II impacts related to hydrology and water quality would be less than significant for the No Project Alternative.

- Noise

  Tier I - Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to noise. The No Project Alternative would not entail for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Section 3.8, *Noise*, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier I of the recommended project, the No Project Alternative would not result in impacts related to noise and no mitigation measures would be required. The No Project Alternative would not result in short- or long-term impacts to noise. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to noise with the No Project Alternative, implementation of measures Noise-1 through Noise-3 specified for Tier I the recommended project would not be required. Tier I impacts related to noise would be less than significant for the No Project Alternative.

Tier II - Unlike Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to noise. The No Project Alternative would not entail for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Section 3.8 of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier II of the recommended project, the No Project Alternative would not result in impacts related to noise and no mitigation measures would be required. The No Project Alternative would not result in short- or long-term impacts to noise. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to noise with the No Project Alternative, implementation of measures Noise-1 through Noise-4 specified for Tier II the recommended project would not be required. Tier II impacts related to noise would be less than significant for the No Project Alternative.

- Population and Housing

Tier I - As with Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to population and housing. The No Project Alternative would not assist in meeting regional housing and employment goals. Under the No Project Alternative, potential changes related to population and housing would not occur. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the recommended project, there would be no impacts to population and housing with the No Project Alternative, and no mitigation measures would be required. Tier I impacts related to population and housing would be less than significant for the No Project Alternative.

Tier II - As with Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to population and housing. The No Project Alternative would not assist in meeting regional housing and employment goals. Under the No Project Alternative, potential changes related to population and housing would not occur. This alternative would not result in any residential development or more intensive development associated with the medical, commercial or retail uses under the recommended project. Although potential impacts resulting from Tier II of the recommended project would not be considered significant impacts. The No Project Alternative's impacts to population and housing would be less than the recommended project because no change, such as the 100 unit residential component, would be implemented. However, the No Project Alternative would not contribute to the regional housing goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to population and housing with the No Project Alternative, and no mitigation measures would be required. Tier II impacts related to population and housing would be less than significant for the No Project Alternative.

- Public Services

  Tier I - As with Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to public services. The No Project Alternative would not result in the need for additional fire protection, police protection, schools, parks, and other public services. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the recommended project, there would be no impacts to public services with the No Project Alternative, and no mitigation measures would be required. Tier I impacts related to public services would be less than significant for the No Project Alternative.

  Tier II - As with Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to public services. The No Project Alternative would not result in the need for additional fire protection, police protection, schools, parks, and other public services. Section 3.10, *Public Services*, of this EIR provides a discussion of the potential impact to public services related to Tier II of the recommended project. Like Tier II of the recommended project, the No Project Alternative would not create a significant net increase in public services and would require the implementation of the mitigation measures. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to public services with the No Project Alternative, and no mitigation measures would be required. Tier II impacts related to public services would be less than significant for the No Project Alternative.

- Recreation

  Tier I - As with Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to recreation. The No Project Alternative would not result in impacts to parks and recreational facilities. The No Project Alternative would also not create an additional demand for the County's parks. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the recommended project, there would be no impacts to recreation with the No Project Alternative, and no mitigation measures would be required. Tier I impacts related to recreation would be less than significant for the No Project Alternative.

  Tier II - As with Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to recreation. The No Project Alternative would not result in impacts to parks and recreational facilities. The No Project Alternative would also not create an additional demand for the County's parks. Tier II of the recommended project would not result in significant impacts to existing parks or recreational facilities given the limited number of residential units recommended under Tier II and the availability and location of existing recreational facilities. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to recreation with the No Project Alternative, and no mitigation measures would be required. Tier II impacts related to recreation would be less than significant for the No Project Alternative.

- Transportation and Traffic

  Tier I - Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to transportation and traffic. The No Project Alternative avoids potential impacts to transportation and traffic that could result from the implementation of Tier I of the recommended project. The No Project Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier I of the recommended project, this alternative would create no additional transportation or circulation components and implementation of the mitigation measures would not be required. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to transportation and traffic with the No Project Alternative, implementation of measure Traffic-1 specified for Tier I of the recommended project would not be required. Tier I impacts related to transportation and traffic would be less than significant for the No Project Alternative.

  Tier II - Unlike Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to transportation and traffic. The No Project Alternative avoids potential impacts to transportation and traffic that could result from the implementation of Tier II of the recommended project. The No Project Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the recommended project. Unlike the Tier II of recommended project, this alternative would create no additional transportation or circulation components and implementation of the mitigation measures would not be required. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to transportation and traffic with the No Project Alternative, implementation of measures Traffic-1 through Traffic-3 specified for Tier II of the recommended project would not be required. Tier II impacts related to transportation and traffic would be less than significant for the No Project Alternative.

- Utilities and Service Systems

  Tier I - Unlike Tier I of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to utilities and service systems. The No Project Alternative avoids potential impacts to utilities and service systems that could result from the implementation of Tier I of the recommended project. The No Project Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Like Tier I of the recommended project, this alternative would not require mitigation however, unlike Tier I of the recommended project, this alternative would entail no additional construction of buildings and would not require additional use of existing infrastructure (i.e., sewer, water, etc.). Tier I impacts related to utilities and service systems would be less than significant for the No Project Alternative.

  Tier II - Unlike Tier II of the recommended project, the No Project Alternative would not have the potential to result in significant impacts to utilities and service systems.

The No Project Alternative avoids potential impacts to utilities and service systems that could result from the implementation of Tier II of the recommended project. The No Project Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the recommended project. Unlike the recommended project, this alternative would entail no additional construction of buildings and would not require additional use of existing infrastructure (i.e., sewer, water, etc.). With the No Project Alternative, mitigation measures would not be required. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to utilities and service systems with the No Project Alternative, implementation of Measures Utilities-1 through Utilitites-2 specified for Tier II of the recommended project would not be required. Tier II impacts related to utilities and service systems would be less than significant for the No Project Alternative.

Feasibility: This alternative is considered infeasible.

Facts: The above feasibility finding is based on the following:

- The No Project Alternative would only meet one of the project objectives.
- The No Project Alternative would not improve the hospital, create a mixed use development or create additional jobs.
- The No Project Alternative would present no improvements to the baseline existing conditions.
- The No Project Alternative would not address the existing need for quality health care in the County and would not be a feasible alternative

V.B ALTERNATIVE 1: REDUCED PROJECT SIZE ALTERNATIVE (900,000-SQUARE-FOOT TIER II)

Description of Alternative: Under the Reduced Project Size Alternative would vary from the recommended project in its development of Tier II, although the Tier I components would be the same as those associated with the recommended project. Under this alternative, there would still be a campus-wide master plan and the respective improvements, the buildings that were identified as being replaced, removed, or reused in the recommended project would be the same; however the potential build-out for this alternative would be less than half of the development that would be included in the recommended project. This alternative would entail a maximum potential build-out of 900,000 square feet in its Tier II component.

Effectiveness in Meeting Project Objectives: Under the Reduced Project Size Alternative would meet most of the objectives of the project. As with the recommended project, objectives 1-12 and 14 would be met; however, this alternative would not meet objective 13 described in Table V-1.

Comparison of Effects of the Alternative to Effects of the Project: The regulatory framework and existing conditions would be the same as that described for the project. A summary comparison of this alternative to impacts of the project is presented in Table V-2. The analysis presented in the table shows that this alternative would still result in some of the significant impacts that would be anticipated as a result of the project.

- Aesthetics

  Tier I - As with Tier I of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to aesthetics. The Reduced Project Size Alternative for Tier II, this alternative reduces impacts to aesthetics that could result from the implementation of the recommended project. This alternative would have the same visual character (i.e., building design, etc.) as Tier I of the recommended project. Thus, the Reduced Project Size Alternative would result in similar aesthetic impacts as Tier I of the recommended project. This alternative would not substantially degrade the visual character of the site and its surroundings but would still require mitigation for light and glare and shade and shadow. Impacts would be less than significant with mitigation incorporated. This alternative is considered to have the same Tier I visual impacts as compared to the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to aesthetics with the Reduced Project Size Alternative, it is expected that implementation of measures Aesthetics-1 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to aesthetics. The Reduced Project Size Alternative for Tier II reduces impacts to aesthetics that could result from the implementation of the recommended project. This alternative would not result in the long-term operation impacts that would occur as a result of the recommended project because it would not entail as much development or expansion as the recommended project. This alternative would generally have a similar visual character (i.e., building design, etc.) as the recommended project but would reduce the building square footage associated with Tier II. Thus, the Reduced Project Size Alternative would result in similar aesthetic impacts as the recommended project but to a lesser degree. This alternative would not substantially degrade the visual character of the site and its surroundings but would still require mitigation for light and glare and shade and shadow. Impacts would be less than significant with mitigation incorporated. This alternative is considered to have reduced visual impacts as compared to the recommended project given the reduction in development. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to aesthetics with the Reduced Project Size Alternative, it is expected that implementation of measures Aesthetics-1 through Aesthetics-4 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Air Quality

  Tier I - As with Tier I of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Reduced Project Size Alternative would require the same Tier I elements, the Reduced Project Size Alternative is considered to have comparable impacts to air quality compared with Tier I of the recommended project. As with the recommended project, the Reduced Project Size Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with Tier I of the recommended project, this alternative would entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, and asphalt operations beyond the baseline conditions. The Reduced Project Size Alternative would require grading and the use of construction equipment, thus resulting in potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. As with Tier I of the recommended project, the Reduced Project Size Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. As with the Tier I recommended project, the Reduced Project Size Alternative would result in potentially significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the recommended project site by employees and visitors. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Reduced Project Size Alternative, it is expected that implementation of measures Air-1 through Air-11 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II - As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Reduced Project Size Alternative would require less construction and less vehicle trips than Tier II of the recommended project, the Reduced Project Size Alternative is considered to have lesser impacts to air quality compared with Tier II of the recommended project. However, as with Tier II of the recommended project, the Reduced Project Size Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with Tier II of the recommended project, this alternative would entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, and asphalt operations beyond the baseline conditions. The Reduced Project Size Alternative would require grading and the use of construction equipment, thus resulting in potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. As with the recommended project, the Reduced Project Size Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. As with Tier II of the recommended project, the Reduced Project Size Alternative would result in potentially significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the recommended project site by employees and visitors. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Reduced Project Size Alternative, it is expected that implementation of measures Air-1 through Air-11 specified for the recommended project would be required to reduce the anticipated impacts to the maximum extent feasible, although as with the recommended project, impacts would be significant and unavoidable.

- Cultural Resources

  Tier I - As with Tier I the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to cultural resources. This alternative would result in reduced impacts to paleontological resources, archeological resources, and human remains and similar impacts to historical resources that would result from the implementation of the recommended project. Under this alternative, the scale and scope of construction-related activities would be consistent with Tier I development and would result in the reduced potential to encounter paleontological resources, archeological resources, and human remains because there would be less construction related activity such as grading or ground disturbance that typically result in these impacts. Therefore, the Reduced Project Size Alternative would be anticipated to have fewer potential impacts to paleontological resources, archeological resources, and human remains. However, the buildings that were identified as being vacated in Tier I of the recommended project would remain the same. This alternative would still require mitigation for redevelopment impacts to reduce impacts. Like Tier I of the recommended project, this alternative would have the potential to result in cumulatively considerable impacts. Since there would be potential impacts to cultural resources with the Reduced Project Size Alternative, it is expected that implementation of measures Cultural-1 through Cultural-2 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to cultural resources. This alternative would result in reduced impacts to paleontological resources, archeological resources, and human remains and similar impacts to historical resources that would result from the implementation of Tier II of the recommended project. Under this alternative, the reduced scale and scope of construction-related activities would result in the reduced potential to encounter paleontological resources, archeological resources, and human remains. Therefore, the Reduced Project Size Alternative would be anticipated to have fewer potential impacts to paleontological resources, archeological resources, and human remains. However, the buildings that were identified as being replaced, reused, or removed in Tier II of the recommended project would remain the same, resulting in similar impacts to historical resources as the recommended project. This alternative would still require mitigation for redevelopment impacts to reduce impacts to the maximum extent feasible. Impacts to historical resources would remain a significant adverse impact. Like Tier II of the recommended project, this alternative would have the potential to result in cumulatively considerable impacts. Since there would be potential impacts to cultural resources with the Reduced Project Size Alternative, it is expected that implementation of measures Cultural-1 through Cultural-5 specified for Tier II of the recommended project would be required to reduce the anticipated impacts to the maximum extent feasible, although as with the recommended project, impacts would be significant and unavoidable.

- Geology and Soils

  Tier I - As with Tier I of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to geology and soils. The Reduced Project Size Alternative would result in comparable impacts to geology and soils that could result from the implementation of Tier I of the recommended project. This alternative would entail the same amount of grading (excavation and fill), modification of existing structures, or construction of new structures. The Reduced Project Size Alternative would be comparable to Tier I of the recommended project when considering only potential impacts to geology and soils. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to geology and soils with the Reduced Project Size Alternative, it is expected that implementation of measures Geology-1 through Geology-3 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II - As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to geology and soils. The Reduced Project Size Alternative would result in fewer potential impacts to geology and soils that could result from the implementation Tier II of the recommended project. Unlike Tier II of the recommended project, this alternative would entail less grading (excavation and fill), modification of existing structures, or construction of new structures. The implementation of the mitigation measures would be required to a lesser extent. The Reduced Project Size Alternative would be preferable to Tier II of the recommended project when considering only potential impacts to geology and soils. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to geology and soils with the Reduced Project Size Alternative, it is expected that implementation of measures Geology-1 through Geology-3 specified for Tier II the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Greenhouse Gas Emissions

Tier I - As with Tier I of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to greenhouse gas emissions. Due to the fact that the Reduced Project Size Alternative would require comparable construction, electricity consumption, and vehicle trips as Tier I of the recommended project, the Reduced Project Size Alternative is considered to have comparable impacts to GHG emissions compared with Tier I of the recommended project. As with Tier I of the recommended project, the Reduced Project Size Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with Tier I of the recommended project, this alternative would entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, and electricity consumption beyond the baseline conditions. As with Tier I of the recommended project, the Reduced Project Size Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. As with Tier I of the recommended project, the Reduced Project Size Alternative would result in potentially significant impacts to GHG emissions that would result from emissions from construction equipment, electricity consumption, and the anticipated increase in vehicle miles traveled to the recommended project site by employees and visitors. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to GHG emissions with the Reduced Project Size Alternative, it is anticipated that implementation of mitigation measure GHG-1 would be required to reduce the anticipated impacts to the maximum extent feasible, although as with the recommended project, impacts would be significant and unavoidable.

Tier II -As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to greenhouse gas emissions. Due to the fact that the Reduced Project Size Alternative would require less construction, less electricity consumption, and less vehicle trips than the recommended project, the Reduced Project Size Alternative is considered to have lesser impacts to GHG emissions compared with Tier II of the recommended project. However, as with Tier II of the recommended project, the Reduced Project Size Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with the Tier II of the recommended project, this alternative would entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, and electricity consumption beyond the baseline conditions. As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. As with Tier II of the recommended project, the Reduced Project Size Alternative would result in potentially significant impacts to GHG emissions that would result from emissions from construction equipment, electricity consumption, and the anticipated increase in vehicle miles traveled to the recommended project site by employees and visitors. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to GHG emissions with the Reduced Project Size Alternative, it is anticipated that implementation of mitigation measure GHG-1 would be required to reduce the anticipated impacts to the maximum extent feasible, although as with the recommended project, impacts would be significant and unavoidable.

- Hazards and Hazardous Materials

Tier I - As with Tier I of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to hazards and hazardous materials. The Reduced Project Size Alternative would result in comparable potential impacts to hazards and hazardous materials that could result from the implementation of Tier I of the recommended project. Like Tier I of the recommended project, this alternative would entail less grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the same mitigation measures identified for the recommended project would be required. Potential operational impacts from hazards or hazardous materials would be comparable to Tier I of the recommended project. The Reduced Project Size Alternative would result in both short- and long-term impacts from hazards and hazardous materials. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hazards and hazardous materials with the Reduced Project Size Alternative, it is expected that implementation of measures Hazards-1 through Hazards-5 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II - As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to hazards and hazardous materials. The Reduced Project Size Alternative would result in fewer potential impacts to hazards and hazardous materials that could result from the implementation of Tier II of the recommended project. Unlike Tier II of the recommended project, this alternative would entail less grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the mitigation measures would be required, but not to the extent that would be required for implementation of the recommended project. Potential operational impacts from hazards or hazardous materials would be less than Tier II of the recommended project. The Reduced Project Size Alternative would result in less short- or long-term impacts from hazards and hazardous materials. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hazards and hazardous materials with the Reduced Project Size Alternative, it is expected that implementation of measures Hazards-1 through Hazards-5 specified for Tier II of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Hydrology and Water Quality

Tier I - As with Tier I of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to hydrology and water quality. Due to the fact that the Reduced Project Size Alternative would require the same construction as Tier I, the Reduced Project Size Alternative would result in the same potential impacts to hydrology that could result from the implementation of Tier I of the recommended project. Under this Alternative, the scale and scope of construction-related activities would entail comparable grading (excavation and fill), therefore the potential impact to surface water quality from erosion and runoff into storm drain systems would be the same. As with Tier I of the recommended project the potential for construction related or accidental releases of petroleum products and other hazardous substances that could result in contamination of surface water through transport of pollutants into the storm drain system. This alternative would still require all of the hydrology mitigation measures that for are required for Tier I of the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the Reduced Project Size Alternative, it is expected that implementation of measures Hydrology-1 through Hydrology-3 and Hazards-1 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II - As with Tier II the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to hydrology and water quality. Due to the fact that the Reduced Project Size Alternative would require less construction, the Reduced Project Size Alternative would result in fewer potential impacts to hydrology that could result from the implementation of Tier II of the recommended project. Under this Alternative, the reduced scale and scope of construction-related activities in Tier II would entail less grading (excavation and fill), therefore the potential impact to surface water quality from erosion and runoff into storm drain systems would be less. A smaller project scale would also reduce the potential for construction related or accidental releases of petroleum products and other hazardous substances that could result in contamination of surface water through transport of pollutants into the storm drain system. This alternative would still require all of the hydrology mitigation measures that for are required for Tier II of the recommended project. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the Reduced Project Size Alternative, it is expected that implementation of measures Hydrology-1 through Hydrology-4 and Hazards-1 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Noise

  Tier I - As with Tier I of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to noise. Due to the fact that the Reduced Project Size Alternative would require the same construction and vehicle trips as Tier I of the recommended project, the Reduced Project Size Alternative is considered to have comparable impacts to noise compared with Tier I of the recommended project. In addition, the Reduced Project Size Alternative would have construction related activities that would be comparable to Tier I of the recommended project. As with Tier I of the recommended project, the Reduced Project Size Alternative would require grading and the use of construction equipment, thus resulting in potentially significant impacts related to noise. The Reduced Size Alternative would have construction related impacts to noise that would be comparable to Tier I of the recommended project. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to noise with the Reduced Project Size Alternative, it is expected that implementation of measures Noise-1 through Noise-3 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to the maximum extent feasible, although as with the recommended project, impacts would be significant and unavoidable.

  Tier II - As with Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to noise. Due to the fact that the Reduced Project Size Alternative would require less construction and less vehicle trips than Tier II of the recommended project, the Reduced Project Size Alternative is considered to have lesser impacts to noise compared with Tier II of the recommended project. However, the Reduced Project Size Alternative would have construction related activities that would be comparable to Tier II of the recommended project. As with Tier II of the recommended project, the Reduced Project Size Alternative would require grading and the use of construction equipment, thus resulting in potentially significant impacts related to noise. The Reduced Size Alternative would have construction related impacts to noise that would be less than with Tier II of the recommended project. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to noise with the Reduced Project Size Alternative, it is expected that implementation of measures Noise-1 through Noise-4 specified for Tier II of the recommended project would be required to reduce the anticipated impacts to the maximum extent feasible, although as with the recommended project, impacts would be significant and unavoidable.

- Population and Housing

  Tier I - As with Tier I of the recommended project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to population and housing. This alternative would generally have a similar population, housing and or growth impact as Tier I of the recommended project. Thus, the Reduced Project Size Alternative would result in similar population and housing impacts as Tier I of the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the recommended project, there would be no impacts to population and housing with the Reduced Project Size Alternative, and no mitigation measures would be required and Tier I impacts related to population and housing would be less than significant.

  Tier II - As with Tier II of the recommended project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to population and housing. This alternative would generally have a similar population, housing and or growth impacts as Tier II of the recommended project but would reduce the building square footage associated with Tier II. As with the recommended project, this alternative would not cause or contribute to a significant growth in population in this area. Thus, the Reduced Project Size Alternative would result in similar population and housing impacts as Tier II of the recommended project but to a lesser degree. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to population and housing with the Reduced Project Size Alternative, and no mitigation measures would be required and Tier II impacts related to population and housing would be less than significant.

- Public Services

  Tier I - As with Tier I of the recommended project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to public services. As with Tier I of the recommended project, the Reduced Project Size Alternative would not be expected to result in significant impacts to fire protection, police protection, parks, schools, and other public services as Tier I of the recommended project due to increased need for public services. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the recommended project, there would be no impacts to public services with the Reduced Project Size Alternative, and no mitigation measures would be required and Tier I impacts related to public services would be less than significant.

Tier II - As with Tier II of the recommended project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to public services. As with Tier II of the recommended project, the Reduced Project Size Alternative would not be expected to result in significant impacts to fire protection, police protection, parks, schools, and other public services as Tier II of the recommended project due to increased need for public services. This alternative however, would reduce the development in Tier II and as such would have less development and less of a potential to result in impacts to public services than the implementation of the recommended project. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to public services with the Reduced Project Size Alternative, and no mitigation measures would be required and Tier II impacts related to public services would be less than significant.

- Recreation

  Tier I - As with Tier I of the recommended project, the Reduced Project Size Alternative would not have the potential to result in the same development as Tier I of the recommended project. As with Tier I of the recommended project, the Reduced Project Size Alternative would not be expected to result in increased use of the County's park and recreational facilities. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the recommended project, there would be no impacts to recreation with the Reduced Project Size Alternative, and no mitigation measures would be required and Tier I impacts related to recreation would be less than significant.

  Tier II - As with Tier II of the recommended project, the Reduced Project Size Alternative would not have the potential to result in significant impacts to recreation. The Reduced Project Size Alternative would result in a less development than Tier II of the recommended project, which would result in less of a potential for recreational impacts. However, as with Tier II of the recommended project, the Reduced Project Size Alternative would not be expected to result in increased use of the County's park and recreational facilities. Overall, because the Reduced Project Size Alternative would not include as many residential units constructed as Tier II of the recommended project, but as with Tier II of the recommended project, no mitigation measures would be required. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the Tier II of the recommended project, there would be no impacts to recreation with the Reduced Project Size Alternative, and no mitigation measures would be required and Tier II impacts related to recreation would be less than significant.

- Transportation and Traffic

  Tier I - Like Tier I of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to transportation and traffic. The Reduced Project Size Alternative would result in a similar development scenario as Tier I of the recommended project. As with Tier I of the recommended project, this alternative would most likely need to implement mitigation measures to further reduce impacts of project-generated traffic. This alternative would overall result in comparable to increased traffic generation as Tier I of the recommended project. As with the recommended project, Tier I would result in a reduction of trips. Tier I would result in 2,586 daily trips of which 176 trips would occur in the morning peak hour and 179 trips would occur in the evening peak hour. Since Tier I also involves vacating existing uses, a net reduction in trips of approximately 4,905 daily trips, 332 AM trips, and 338 PM trips would occur. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to transportation and traffic with the Reduced Project Size Alternative, it is expected that implementation of measure Traffic-1 specified for Tier I the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II - Like Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to transportation and traffic. The Reduced Project Size Alternative would result in a smaller development scenario than Tier II the recommended project, which would result in fewer overall traffic impacts. The weekday trip generation forecast for this alternative is expected to generate less of a net increase in vehicle trips. However, this alternative would most likely need to implement mitigation measures to further reduce impacts of project-generated traffic. This alternative would overall result in fewer impacts related to increased traffic generation than Tier II of the recommended project. The Tier II component trip generation for this alternative would result in a net total of approximately 11,909 daily trips of which 745 trips would occur during the morning peak hour and 1,048 trips during the evening peak hour. The recommended project (Tiers I and II combined) would have a total net trip generation of 7,004 daily trips of which 413 trips would occur during the morning peak hour and 710 trips during the evening peak hour. This represents 64% less daily trips than the recommended project and 67% and 59% less trips during the AM and PM peak hours, respectively. Similar to the recommended project, the Reduced Project Size Alternative would have the potential to result in significant traffic impacts. However, this alternative would adversely impact traffic to a lesser degree, based on the 67% less trip generation than the Recommended Project. No significant differences in travel patterns outside the project area would be expected between this alternative and that of the recommended project. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to transportation and traffic with the Reduced Project Size Alternative, it is expected that implementation of measures Traffic-1 through Traffic-3 specified for Tier II of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Utilities and Service Systems

  Tier I - Like Tier I of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to utilities and services systems. The Reduced Project Size Alternative would still result in substantially more development than currently exists at the project site although as with Tier I there would not be a small increase in the population. Due to the fact that the total development under this alternative is comparable to that of Tier I of the recommended project, this alternative would result in a reduction in the demand on water supply, wastewater treatment facilities, landfills and recycling requirements. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to utilities and service systems with the Reduced Project Size Alternative, it is expected that like Tier I of the recommended project, no mitigation would be required and Tier I impacts related to utilities and service systems would be less than significant.

Tier II - Like Tier II of the recommended project, the Reduced Project Size Alternative would have the potential to result in significant impacts to utilities and services systems. The Reduced Project Size Alternative would still result in substantially more development than currently exists at the project site and would still result a small increase in the population. Therefore the Reduced Project Size Alternative would also increase demand on water supply, wastewater treatment, solid waste or other utilities within the project area. However, because the total development under this alternative is reduced compared to that of Tier II of the recommended project, this alternative would result in less demand on water supply, wastewater treatment facilities, landfills and recycling requirements. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to utilities and service systems with the Reduced Project Size Alternative, it is expected that implementation of Measures Utilitites-1 through Utilitites-2 specified for Tier II of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Feasibility: This alternative is feasible. This alternative would be feasible but it would require a reduced scale, scope, and limited site configurations that may not fully include all of the mixed use components described in the recommended project.

Facts: The above feasibility finding is based on the following:

- As with the recommended project, objectives 1-12 and 14 would be met; however, this alternative would not meet objective 13.
- The master campus plan development would be limited to less than half of the potential development that is being considered at the recommended project site; however, the maximum daily construction activity would likely be similar to the recommended project scenario.
- The Reduced Site Alternative would not be capable of reducing all the significant impacts that would result from the project to below the level of significance.

V.C ALTERNATIVE 2: RE-OPENING THE EXISTING MACC ALTERNATIVE

Description of Alternative: As with the recommended project, the Re-opening the existing MACC Alternative would be located on the existing campus. This alternative would restore the former outpatient and inpatient (i.e. the trauma center, emergency services, and at least 233 beds) functions of the MACC building within the existing MACC building. Under this alternative, it is anticipated that Tier I of the recommended project (development of the new MACC and Ancillary buildings) would not occur. In addition, no community-based, comprehensive, or mixed use development as described in Tier II, master plan development of the recommended project would occur. There would be no new development.

Effectiveness in Meeting Project Objectives: the Re-opening the Existing MACC Alternative would be capable of meeting only one of the objectives identified by the County, objective 6. The existing

MACC is operationally and environmentally inefficient. The County's efforts and funding would all contribute to the seismic upgrades, inpatient improvements, and operations at the existing MACC.

Comparison of Effects of the Alternative to Effects of the Project: The regulatory framework and existing conditions would be the same as that described for the project. A summary comparison of this alternative to impacts of the project is presented in Table V-2. The analysis presented in the table shows that this alternative would still result in some of the significant impacts that would be anticipated as a result of the project.

- Aesthetics

  Tier I - Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to aesthetics. Under this alternative, it is anticipated that Tier I and the visual appearance of the recommended project area would essentially look like it does under existing conditions. This alternative would slightly reduce visual impacts as it relates to the MACC building (i.e., two less buildings would need to be constructed). The Re-opening of the Existing MACC Alternative would still result in an increase in nighttime lighting from vehicles, buildings, landscape features, and signage associated with medical, residential commercial uses under the recommended project Tier II. This alternative is considered to have slightly reduced visual impacts as compared to Tier I of the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to aesthetics with the Re-opening the Existing MACC Alternative it is expected that implementation of measure Aesthetics-1 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to aesthetics. However, this alternative would reduce the visual impacts associated with the Tier II development. No Tier II development would occur. The Re-opening of the Existing MACC Alternative would still result in an increase in nighttime lighting from vehicles, buildings, landscape features, and signage associated with medical, residential commercial uses under the recommended project Tier II although they would be limited and would be comparable to impacts associated with the past operational campus. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. However, this alternative is considered to have slightly reduced visual impacts as compared to the recommended project. Since there would be potential impacts to aesthetics with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Aesthetics-1 through Aesthetics-4 specified for Tier II of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Air Quality

  Tier I - Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Re-opening the Existing MACC Alternative would require less construction and less vehicle trips than the recommended project, the Re-opening the

Existing MACC Alternative is considered to have lesser impacts to air quality compared with Tier I of the recommended project. Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would require only limited construction and site improvement activities. Unlike the recommended project, this alternative would not entail the vacation of existing structures or grading activities beyond the baseline conditions. The Re-opening the Existing MACC Alternative would require the use of a limited number of construction equipment and would generate vehicle trips, thus resulting in potentially significant impacts to air quality, particularly with regard to NO_x emissions. As with Tier I of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. However, due to the fact that no grading, excavation, or major construction activities would occur beyond the existing MACC building, it is anticipated that implementation of mitigation measures would not be required. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Re-opening the Existing MACC Alternative it is expected that implementation of Measures Air-1 through Air-11 specified for Tier I the recommended project would not be required. Impacts related to air quality would be expected to be less than significant.

Tier II - Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Tier II element of this alternative would not occur, the Re-opening the Existing MACC Alternative is considered to have the fewer impacts to air quality compared with Tier II of the recommended project. Unlike Tier II of the recommended project, this alternative would not entail reuse, removal, or replacement of existing structures or grading activities beyond the baseline conditions. The Re-opening the Existing MACC Alternative would require the use of construction equipment and would generate vehicle trips, although there would be less use of construction-related equipment and fewer vehicle trips, thus resulting in fewer potentially significant impacts to air quality, particularly with regard to NO_x emissions. As with Tier II of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. Due to the fact that no significant grading, excavation, or major construction activities would occur beyond the existing MACC, it is anticipated that implementation of mitigation measures would not be required. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Air-1 through Air-11 specified for Tier II of the recommended project would not be required. Impacts related to air quality would be expected to be less than significant.

- Cultural Resources

Tier I - Unlike Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to cultural resources. The Re-opening the existing MACC Alternative would reduce potential impacts to cultural resources that could result from the implementation of the recommended project. Structural and tenant refinements related to the incorporation of a 500-bed hospital within the existing MACC, a historical resource, would require review for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Unlike the recommended project, this Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of historical resources would not occur. As a result, the project site would continue in its existing form with its cultural resources largely unchanged. The incorporation of structural and tenant refinements to the existing MACC, a historical resource, would require review for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to cultural resources with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Cultural-1 through Cultural-5 specified for the recommended project would not be required. Impacts related to cultural resources would be expected to be less than significant.

Tier II - Unlike Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to cultural resources. The Re-opening the existing MACC Alternative would reduce potential impacts to cultural resources that could result from the implementation of the recommended project. Structural and tenant refinements related to the incorporation of a 500-bed hospital within the existing MACC, a historical resource, would require review for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Unlike the recommended project, this Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of historical resources would not occur. As a result, the project site would continue in its existing form with its cultural resources largely unchanged. The incorporation of structural and tenant refinements to the existing MACC, a historical resource, would require review for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to cultural resources with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Cultural-1 through Cultural-5 specified for the recommended project would not be required. Impacts related to cultural resources would be expected to be less than significant.

- Geology and Soils

Tier I - Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to geology and soils. This alternative avoids most of the potential impacts to geology and soils that could result from the implementation of the recommended project. Section 3.4, *Geology and Soils*, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike the recommended project, this alternative would entail no grading (excavation and fill), modification of existing structures, or construction of new structures and implementation of the mitigation measures would not be required. However, the anticipated seismic improvements that would be required under this alternative would be considerable and would require different mitigation than that recommended for the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to geology and soils with the Re-opening the Existing MACC Alternative it is expected that although implementation of measures Geology-1 through Geology-3 specified for the recommended project would not be required, although other mitigation measures would be required for this alternative to reduce the anticipated impacts to below the level of significance.

Tier II - Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to geology and soils. This alternative avoids most of the potential impacts to geology and soils that could result from the implementation of the recommended project. Section 3.4, *Geology and Soils*, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike the recommended project, this alternative would entail no grading (excavation and fill), modification of existing structures, or construction of new structures and implementation of the mitigation measures would not be required. However, the anticipated seismic improvements that would be required under this alternative would be considerable and would require different mitigation than that recommended for the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to geology and soils with the Re-opening the Existing MACC Alternative it is expected that although implementation of measures Geology-1 through Geology-3 specified for the recommended project would not be required, mitigation measures specific to this alternative's impacts would be required to reduce the anticipated impacts to below the level of significance.

- Greenhouse Gas Emissions

Tier I - Unlike Tier I of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant construction related impacts to greenhouse gas emissions. Due to the fact that the Re-opening the Existing MACC Alternative would require less construction, less electricity consumption, and less vehicle trips than the recommended project, the Re-opening the Existing MACC Alternative is considered to have fewer impacts to GHG emissions compared with the recommended project. Unlike the recommended project, the Re-opening the Existing MACC Alternative would require only limited construction and site improvement activities. Unlike the recommended project, this alternative would not entail demolition of existing structures or major construction activities beyond the baseline conditions. The Re-opening the Existing MACC Alternative would require the use of a limited number of construction equipment, would generate vehicle trips, and would require electricity consumption, thus resulting in potentially significant impacts to GHG emissions. As with the recommended project, the Re-opening the Existing MACC

Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no construction of new buildings associated with the Re-opening the Existing MACC Alternative, it is anticipated that implementation of measure GHG-1 would not be required. Impacts related to greenhouse gas emissions would be expected to be less than significant.

Tier II - Unlike Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant construction related impacts to greenhouse gas emissions. Due to the fact that the Re-opening the Existing MACC Alternative would require less construction, less electricity consumption, and less vehicle trips than the recommended project, the Re-opening the Existing MACC Alternative is considered to have fewer impacts to GHG emissions compared with the recommended project. Unlike the recommended project, the Re-opening the Existing MACC Alternative would require only limited construction and site improvement activities. Unlike the recommended project, this alternative would not entail demolition of existing structures or major construction activities beyond the baseline conditions. The Re-opening the Existing MACC Alternative would require the use of a limited number of construction equipment, would generate vehicle trips, and would require electricity consumption, thus resulting in potentially significant impacts to GHG emissions. As with the recommended project, the Re-opening the Existing MACC Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no construction of new buildings associated with the Re-opening the Existing MACC Alternative, it is anticipated that implementation of measure GHG-1 would not be required. Impacts related to greenhouse gas emissions would be expected to be less than significant.

- Hazards and Hazardous Materials

Tier I - Unlike the recommended project, this alternative would not have the potential to result in impacts to hazards and hazardous materials. This alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the recommended project. Unlike the recommended project, this alternative would entail no grading (excavation and fill) or the construction of new structures. However, this alternative would entail modification of the existing MACC building that might result in impacts related to hazards and hazardous materials. The implementation of the mitigation measures identified in Section 3.6 would be required. Potential operational impacts from hazards or hazardous materials would likely occur. This alternative would not result in short- or long-term impacts from hazards and hazardous materials that would be comparable to the impacts associated with the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to hazards and hazardous materials with the Re-opening the Existing

MACC Alternative it is expected that implementation of measures Hazards-1 through Hazards-5 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II -Unlike Tier II of the recommended project, Tier II of the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The Re-opening the Existing MACC Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the recommended project. Unlike Tier II of the recommended project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6, Hazards and Hazardous Materials, would not be required. Potential operational impacts from hazards or hazardous materials would not occur. The Re-opening the Existing MACC Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hazards and hazardous materials with the Re-opening the Existing MACC Alternative, implementation of measures Hazards-1 through Hazards-5 specified for Tier II of the recommended project would not be required. Impacts related to hazards and hazardous materials would be expected to be less than significant.

- Hydrology and Water Quality

Tier I -Like the recommended project, this alternative would have the potential to result in impacts to hydrology and water quality. Because there are no grading or fill activities, the implementation of the mitigation measures identified in Section 3.7 to reduce impacts from pollution entering the storm drain system would not be required. However, under the recommended project, the new MACC building would be an efficient and sustainable building, however this alternative would not include development of the sustainable or efficient elements that would reduce runoff and potential water quality–related impacts. The existing MACC as it currently operates is inefficient. Like the recommended project, this alternative would require the implementation of mitigation measures; however, efforts to re-open and expand the existing MACC would be expected to result in impacts to hydrology and water quality that would be greater than the recommended project. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the Re-opening the Existing MACC Alternative it is expected that implementation of Measures Hydrology-1 through Hydrology-4, specified for the recommended project would be required. However, it is anticipated that Hazards-1 specified for Tier I of the recommended project would not be required. Impacts related to hydrology and water quality would be expected to be less than significant.

Tier II - Like Tier II of the recommended project, Tier II of the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to hydrology and water quality. The Re-opening the Existing MACC Alternative avoids impacts to hydrology and water quality that could result from the implementation of the recommended project. Section 3.7 of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier II of the recommended project, the Re-opening the Existing MACC Alternative would entail no conversion of vacant land including grading, paving, and construction; however, the existing MACC is inefficient and seismic improvements to this structure would not improve the efficiency or reduce the water use of this building, nor would the improvements entail LEED or energy-efficient elements, and implementation of mitigation measures would be required. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be impacts to hydrology and water quality with the Re-opening the Existing MACC Alternative, implementation of measures Hydrology-1 through Hydrology-4 specified for Tier II of the recommended project would be required. However, it is anticipated that Hazards-1 specified for Tier II of the recommended project would not be required. Impacts related to hydrology and water quality would be expected to be less than significant.

- Noise

Tier I - Unlike the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to noise. Under this alternative, the construction-related noise impacts would not occur. Both Tier I and Tier II related noise impacts would be avoided. Unlike the recommended project, this alternative would not be expected to result in noise-related construction impacts. As such, this alternative would be expected to result in fewer impacts associated with construction-related noise impacts than with the recommended project. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to noise with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Noise-1 through Noise-4 specified for the recommended project would not be required. Impacts related to noise would be expected to be less than significant.

Tier II - Unlike Tier II of the recommended project, Tier II of the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to noise. The Re-opening the Existing MACC Alternative would not entail for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Section 3.8, Noise, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not result in impacts related to noise and no mitigation measures would be required. The Re-opening the Existing MACC Alternative would not result in short- or long-term impacts to noise. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to noise with the Re-opening the Existing MACC Alternative, implementation of Measures Noise-1 through Noise-4 specified for Tier II the recommended project would not be required. Impacts related to noise would be expected to be less than significant.

- Population and Housing

Tier I - Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to population and housing. As with Tier I of the recommended project, there would be no anticipated impacts related to population and housing with this alternative. Under this alternative, the recommended residential units would still be constructed. Under this alternative, the up to 100 residential units would still be constructed as a part of Tier II. The Re-opening of the MACC Alternative would not be expected to significantly impact the population or housing in the recommended project area. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier I of the recommended project, there would be no impacts to population and housing with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required. Impacts related to population and housing would be expected to be less than significant.

Tier II - Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to population and housing. As with Tier II of the recommended project, there would be no anticipated impacts related to population and housing with this alternative. Under this alternative, the recommended residential units would still be constructed. Under this alternative, the up to 100 residential units would still be constructed as a part of Tier II. The Re-opening of the MACC Alternative would not be expected to significantly impact the population or housing in the recommended project area. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to population and housing with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required. Impacts related to population and housing would be expected to be less than significant.

- Public Services

  Tier I - Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to public services. The Re-opening of the Existing MACC Alternative would result in similar impacts to public services as compared to the recommended project. The Re-opening of the Existing MACC Alternative would have no impacts to fire protection, police protection, parks, schools, and other public services like the recommended project. As the recommended project the residential units would be included and impacts to public services are less than significant. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, there would be no impacts to public services with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required. Impacts related to public services would be expected to be less than significant.

  Tier II - Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to public services. The Re-opening of the Existing MACC Alternative would result in similar impacts to public services as compared to the recommended project. The Re-opening of the Existing MACC Alternative would have no impacts to fire protection, police protection, parks, schools, and other public services like the recommended project. As the recommended project the residential units would be included and impacts to public services are less than significant. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, there would be no impacts to public services with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required. Impacts related to public services would be expected to be less than significant.

- Recreation

  Tier I - Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to recreation. Under this alternative, the recommended residential units would still be constructed. The Re-opening the Existing MACC Alternative would still allow for the residential units to be constructed as a part of Tier II. As with Tier II of the recommended project, this alternative would not be expected to result in increased use of the County's park and recreational facilities. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to recreation with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required. Impacts related to recreation would be expected to be less than significant.

  Tier II - Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would not have the potential to result in significant impacts to recreation. Under this alternative, the recommended residential units would still be constructed. The Re-opening the Existing MACC Alternative would still allow for the residential units to be constructed as a part of Tier II. As with Tier II of the recommended project, this alternative would not be expected to result in increased use of the County's park and recreational facilities. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to recreation with the Re-opening the Existing MACC Alternative, and no mitigation measures would be required. Impacts related to recreation would be expected to be less than significant.

- Transportation and Traffic

  Tier I - Like Tier I of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to transportation and traffic. The Re-opening the Existing MACC Alternative would result in a comparable amount of trips associated within the Tier I of the recommended project. The amount of trips and impacts associated with the construction of this alternative would be comparable to those associated Tier I of the recommended project. The Re-opening the Existing MACC Alternative would overall result in impacts that are comparable to the recommended project and would require mitigation measures. This alternative would contain no new development and therefore would not generate any new trips. This alternative would generate fewer trips than the existing baseline conditions. The existing baseline trip generation includes both operational and non-operational existing uses, which includes the existing MACC building. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to transportation and traffic with the Re-opening the Existing MACC Alternative it is expected that implementation of

Measure Traffic-1 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II - Like Tier II of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to transportation and traffic. The Re-opening the Existing MACC Alternative would not result in a comparable amount of trips associated within the Tier II of the recommended project. Under this alternative, none of the development recommended under Tier II of the recommended project would be built. The amount of trips and impacts associated with this alternative would not be comparable to those associated the Tier II of the recommended project. The Re-opening the Existing MACC Alternative would overall result in impacts less than those of Tier II of the recommended project and would not require mitigation measures. This alternative would contain no new development and therefore, would not generate any new trips. This alternative would generate fewer trips than the existing baseline conditions. The existing baseline trip generation includes both operational and non-operational existing uses, which includes the existing MACC building. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to transportation and traffic with the Re-opening the Existing MACC Alternative it is expected that implementation of measures Traffic-1 through Traffic-3 specified for Tier II of the recommended project would not be required. Impacts related to transportation and traffic (as compared to Tier II of the recommended project) would be expected to be less than significant.

- Utilities and Service Systems

Tier I - Unlike Tier I of the recommended project, the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to utilities and service systems. The Re-opening the Existing MACC Alternative would result in greater impacts than the existing conditions and Tier I of the recommended project. The total development under this alternative would be greater than that of Tier I of the recommended project; therefore, this alternative would result in greater demand on water supply, wastewater treatment facilities, landfills and recycling requirements. Unlike Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to utilities and service systems with the Re-opening the Existing MACC Alternative it is expected that implementation mitigation measures would be required. Impacts related to utilities and service systems would be expected to be less than significant.

Tier II - Like Tier II of the recommended project, Tier II of the Re-opening the Existing MACC Alternative would have the potential to result in significant impacts to utilities and service systems. The Re-opening the Existing MACC Alternative avoids potential impacts to utilities and service systems that could result from the implementation of Tier II of the recommended project; however, the existing MACC is inefficient and seismic improvements to this structure would not improve the efficiency of this building, nor would the improvements entail LEED or energy-efficient elements. Although, the alternative would not entail the elements that are recommended in Tier II of the recommended project (i.e., no residential, retail, commercial uses, etc); this alternative would result in an increase in use to accommodate up to 250 inpatient beds as well as significant impacts to utilities and services due to the continued use of an inefficient building. As such, the Re-opening the Existing MACC Alternative would be expected to result in the short- and long-term construction and operation impacts. Unlike the recommended project, this alternative would entail no additional construction of buildings and would not require additional use of existing infrastructure (i.e., sewer, water, etc.). With the Re-opening the Existing MACC Alternative, mitigation measures would be required. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be impacts to utilities and service systems with the Re-opening the Existing MACC Alternative, implementation of mitigation measures including Measures Utilities-1 through Utilitites-2 specified for Tier II of the recommended project would be required. Impacts related to utilities and service systems would be expected to be less than significant.

Feasibility: This alternative is considered infeasible.

Facts: The above feasibility finding is based on the following:

- The alternative would not meet all the project objectives.
- This alternative would only provide health and medical services to a fraction of the population that would be serviced by the project.
- It is anticipated that the costs and the scope requirements such as ensuring the staff, operational efficiency, and timely licensing of all of the functions would be infeasible.

V.D ALTERNATIVE 3: PUBLIC TRANSPORTATION FOCUSED ALTERNATIVE

Description of Alternative: The Public Transportation Focused Alternative would consist of both Tier I and Tier II development elements of the recommended project and there would be a greater focus on enhancing the current public transportation services at the existing campus and the surrounding area. The intent of this alternative is to reduce the anticipated vehicle trips to the campus by approximately 10% more than that of the recommended project by implementing a series of transit improvement measures. The transit improvement could potentially include a combination of one or more of the following: increase of frequency of service, improvement of connectivity in the system, coordination of transfers and other incentives for increased transit usage.

Effectiveness in Meeting Project Objectives: the Transportation Focused Alternative would be capable of meeting four of the objectives identified by the County. This alternative would meet the County objectives to maintain existing campus buildings and provide for a new MACC, Ancillary building, and site and tenant improvements. This alternative would meet the County's objectives to improve efficiency; provide a sustainable and connected campus; and to develop the campus and incorporated mixed-uses on the campus. However, increasing service frequency would not necessarily increase coverage area of the public transportation network.

Comparison of Effects of the Alternative to Effects of the Project: The regulatory framework and existing conditions would be the same as that described for the project. A summary comparison of this alternative to impacts of the project is presented in Table V-2. The analysis presented in the table shows that this alternative would still result in some of the significant impacts that would be anticipated as a result of the project.

- Aesthetics

  Tier I - Like Tier I of the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to aesthetics. Under the Public Transportation Focused Alternative, all of the changes recommended under the Tier I would take place and this alternative would increase nighttime light and glare above the existing levels and is therefore considered to have similar aesthetic impacts to the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to aesthetics with the Public Transportation Focused Alternative it is expected that implementation of measures Aesthetics-1 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Like Tier II of the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to aesthetics. Under the Public Transportation Focused Alternative, all of the changes recommended under Tier II would take place (introduction of cohesive architectural design elements, improved medical facilities, retail, etc.) and the visual appearance of the project site would change as described in the recommended project. As with the recommended project, this alternative would have no impacts on scenic highways; however, it would potentially result in shade and shadows because it would introduce buildings at the recommended project site. This alternative would increase nighttime light and glare above the existing levels and is therefore considered to have aesthetic impacts similar to the recommended project. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to aesthetics with the Public Transportation Focused Alternative it is expected that implementation of measures Aesthetics-1 through Aesthetics-4 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Air Quality

  Tier I - Like the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Public Transportation Focused Alternative would require comparable construction and vehicle trips to the recommended project, the Public Transportation Focused Alternative is considered to have similar impacts to air quality compared with the recommended project. As with the recommended project, the Public Transportation Focused Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with the recommended project, this alternative would entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, and asphalt operations beyond the baseline conditions. The Public Transportation Focused Alternative would require grading or the use of construction equipment and mobile or stationary facilities, thus resulting in potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. As with the recommended project, the Public Transportation Focused Alternative would have the potential to conflict with the Air Quality

Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. As with the recommended project, the Public Transportation Focused Alternative would result in potentially significant impacts to air quality that would result from emissions from construction equipment. However, unlike the recommended project, the Public Transportation Focused Alternative would result in a net decrease in vehicle trips compared with baseline conditions. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Public Transportation Focused Alternative it is expected that implementation of measures Air-1 through Air-11 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II - Like the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to air quality. Due to the fact that the Public Transportation Focused Alternative would require comparable construction and vehicle trips to the recommended project, the Public Transportation Focused Alternative is considered to have similar impacts to air quality compared with the recommended project. As with the recommended project, the Public Transportation Focused Alternative would involve construction, operation, and maintenance activities beyond the baseline conditions. As with the recommended project, this alternative would entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, and asphalt operations beyond the baseline conditions. The Public Transportation Focused Alternative would require grading or the use of construction equipment and mobile or stationary facilities, thus resulting in potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. As with the recommended project, the Public Transportation Focused Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. As with the recommended project, the Public Transportation Focused Alternative would result in potentially significant impacts to air quality that would result from emissions from construction equipment. However, unlike the recommended project, the Public Transportation Focused Alternative would result in a net decrease in vehicle trips compared with baseline conditions. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to air quality with the Public Transportation Focused Alternative it is expected that implementation of measures Air-1 through Air-11 specified for the recommended project would be required to reduce the anticipated impacts to the maximum extent feasible, although as with the recommended project, impacts would be significant and unavoidable.

- Cultural Resources

Tier I - Like Tier I of the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to cultural resources. This alternative would result in construction-related and redevelopment impacts to cultural resources that would also occur as a result of the recommended project. Like the recommended project, this alternative would entail ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would have the potential to occur. Under this alternative, the construction-related activities would result the potential to encounter paleontological resources, archeological resources, and human remains. In addition, the buildings that were identified as being replaced, reused, or removed in the recommended project would be vacated as with Tier I of the recommended project, resulting in similar impacts to historical resources as the recommended project. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to cultural resources with the Public Transportation Focused Alternative it is expected that implementation of Measures Cultural-1 through Cultural-5 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II - Like Tier II of the recommended project, the Public Transportation Focused Alternative would have the potential to result in significant impacts to cultural resources. This alternative would result in construction-related and redevelopment impacts to cultural resources that would also occur as a result of the recommended project. Like the recommended project, this alternative would entail ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would have the potential to occur. Under this alternative, the construction-related activities would result the potential to encounter paleontological resources, archeological resources, and human remains. In addition, the buildings that were identified as being replaced, reused, or removed in the recommended project would be reused, replaced, or removed as with Tier II of the recommended project, resulting in similar impacts to historical resources as the recommended project. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to cultural resources with the Public Transportation Focused Alternative it is expected that implementation of measures Cultural-1 through Cultural-5 specified for the recommended project would be required to reduce the anticipated impacts to the maximum extent feasible, although as with the recommended project, impacts would be significant and unavoidable.

- Geology and Soils

Tier I - Like Tier I of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to geology and soils. This alternative would potentially have impacts to geology and soils that are comparable to those that could result from the implementation of Tier I of the recommended project. Geology and soils related impacts would include short- and long-term construction and operation impacts that would occur as a result of the recommended project. Like the recommended project, this alternative would entail grading (excavation and fill), and construction of new structures and implementation of the mitigation measures would be required. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to geology and soils with the Public Transportation Focused Alternative it is expected that implementation of measures Geology-1 through Geology-3 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II - Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to geology and soils. This alternative would potentially have impacts to geology and soils that are comparable to those that could result from the implementation of Tier II of the recommended project. Geology and soils–related impacts would include short- and long-term construction and operation impacts that would occur as a result of the recommended project. Like the recommended project, this alternative would entail grading (excavation and fill), and construction of new structures and implementation of the mitigation measures would be required. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to geology and soils with the Public Transportation Focused Alternative it is expected that implementation of measures Geology-1 through Geology-3 specified for Tier II of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Greenhouse Gas Emissions

Tier I - Like Tier I of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to greenhouse gas emissions. Due to the fact that the Public Transportation Focused Alternative would require construction, electricity consumption, and vehicle trips similar to the recommended project, the Public Transportation Focused Alternative is considered to have impacts to GHG emissions that are comparable to the recommended project. This alternative would entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, and electricity consumption beyond the baseline conditions. As with the recommended project, the Public Transportation Focused Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. As with the recommended project, the Public Transportation Focused Alternative would result in potentially significant impacts to GHG emissions that would result from emissions from construction equipment. Since there would be potential construction impacts to GHG emissions with the Public Transportation Focused Alternative, it is anticipated that implementation of Measure GHG-1 would be required. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. However, unlike the recommended project, the Public Transportation Focused Alternative would result in a net decrease in vehicle trips compared with baseline conditions. Therefore, operational impacts of the Public Transportation Focused Alternative would be anticipated to be below the level of significance.

Tier II - Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to greenhouse gas emissions. Due to the fact that the Public Transportation Focused Alternative would require construction, electricity consumption, and vehicle trips similar to the recommended project, the Public Transportation Focused Alternative is considered to have impacts to GHG emissions that are comparable to the recommended project. This alternative would entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, and electricity consumption beyond the baseline conditions. As with the recommended project, the Public Transportation Focused Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. As with the recommended project, the Public Transportation Focused Alternative would result in potentially significant impacts to GHG emissions that would result from emissions from construction equipment. Since there would be potential construction impacts to GHG emissions with the Public Transportation Focused Alternative, it is anticipated that implementation of Measure GHG-1 would be required. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. However, unlike the recommended project, the Public Transportation Focused Alternative would result in a net decrease in vehicle trips compared with baseline conditions. Therefore, operational impacts of the Public Transportation Focused Alternative would be anticipated to be below the level of significance.

- Hazards and Hazardous Materials

  Tier I - Like Tier I of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hazards and hazardous materials. This alternative would have comparable impacts to hazards and hazardous materials than what would result from the implementation of the recommended project. Like the recommended project, this alternative could potentially entail construction and operational elements that might result in impacts related to hazards and hazardous materials; the implementation of the mitigation measures would potentially be required. Potential operational impacts from hazards or hazardous materials would be expected to occur. This alternative would result in impacts from hazards and hazardous materials. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hazards and hazardous materials with the Public Transportation Focused Alternative it is expected that implementation of measures Hazards-1 through Hazards-5 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hazards and hazardous materials. This alternative would have comparable impacts to hazards and hazardous materials than what would result from the implementation of the recommended project. Like the recommended project, this alternative could potentially entail construction and operational elements that might result in impacts related to hazards and hazardous materials; the implementation of the mitigation measures would potentially be required. Potential operational impacts from hazards or hazardous materials would be expected to occur. This alternative would result in impacts from hazards and hazardous materials. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hazards and hazardous materials with the Public Transportation Focused Alternative it is expected that implementation of measures Hazards-1 through Hazards-5 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Hydrology and Water Quality

  Tier I - Like Tier I of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hydrology and water quality. The Public Transportation Focused Alternative would require construction that is comparable to the recommended project and would therefore result in potential impacts to hydrology and water quality that could result from the implementation of the recommended project. Because Tier I components would be constructed, the potential impact to surface water quality from erosion and runoff into storm drain systems would be comparable to the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the Public Transportation Focused Alternative it is expected that implementation of Measures Hydrology-1 through Hydrology-3, and Hazards-1 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to hydrology and water quality. The Public Transportation Focused Alternative would require construction that is comparable to the recommended project and would therefore result in potential impacts to hydrology and water quality that could result from the implementation of the recommended project. Because Tier II components would be constructed, the potential impact to surface water quality from erosion and runoff into storm drain systems would be comparable to the recommended project. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the Public Transportation Focused Alternative it is expected that implementation of measures Hydrology-1 through Hydrology-4, and Hazards-1 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Noise

  Tier I - Like Tier I of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to noise. Construction related noise impacts that would be comparable to the recommended project. This alternative would have significant noise related impacts that would result from use of loud machinery and other equipment, demolition, or other construction related activities. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to noise with the Public Transportation Focused Alternative it is expected that implementation of Measures Noise-1 through Noise-4 specified for the recommended project would be required.

  Tier II - Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in potential significant impacts to noise. Construction related noise impacts that would be comparable to the recommended project. This alternative would have significant noise related impacts that would result from construction related activities. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to noise with the Public Transportation Focused Alternative it is expected that implementation of measures Noise-1 through Noise-4 specified for the recommended project would be required to reduce the anticipated impacts to the maximum extent feasible, although as with the recommended project, impacts would be significant and unavoidable.

- Population and Housing

  Tier I - Like Tier I of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to population and housing. Like Tier I of the recommended project this alternative would not contribute to or result in population growth beyond the planned growth for the area and as such would not result in impacts related to population and housing. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, there would be no impacts to population and housing with the Public Transportation Focused Alternative, and no mitigation measures would be required. Therefore, Tier I impacts related to population and housing would be expected to be less than significant.

  Tier II - Like Tier II of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to population and housing. As with the recommended project, residential units would be constructed. Like Tier II of the recommended project this alternative would not contribute to or result in population growth beyond the planned growth for the area and as such would not result in impacts related to population and housing. This alternative would contribute to regional housing and employment goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, there would be no impacts to population and housing with the Public Transportation Focused Alternative, and no mitigation measures would be required. Therefore, Tier II impacts related to population and housing would be expected to be less than significant.

- Public Services

  Tier I - Like Tier I of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts public services. Like the recommended project, the Public Transportation Focused Alternative would not result in impacts to public services. This alternative would include the development of Tier I. As with the recommended project, the Public Transportation Focused Alternative would not result in significant impacts to public services. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, there would be no impacts to public services with the Public Transportation Focused Alternative, and no mitigation measures would be required. Therefore, Tier I impacts related to public services would be expected to be less than significant.

Tier II - Like Tier II of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts public services. Like the recommended project, the Public Transportation Focused Alternative would not result in impacts to public services. This alternative would include the development of Tier II. Tier II requires the development of residential units. Therefore, the residential units would be included in this alternative. However, as with the recommended project, the Public Transportation Focused Alternative would not result in significant impacts to public services. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, there would be no impacts to public services with the Public Transportation Focused Alternative, and no mitigation measures would be required. Therefore, Tier II impacts related to public services would be expected to be less than significant.

- Recreation

Tier I - Like Tier I of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to recreation. Under the Public Transportation Focused Alternative, Tier I building components would be constructed but they would not contribute to or result in significant impacts. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. This alternative would be comparable to the recommended project. As with the recommended project, there would be no impacts to recreation with the Public Transportation Focused Alternative, and no mitigation measures would be required. Therefore, Tier I impacts related to recreation would be expected to be less than significant.

Tier II - Like Tier II of the recommended project, the Public Transportation Focused Alternative would not have the potential to result in significant impacts to recreation. Under the Public Transportation Focused Alternative, Tier II building and development components would be constructed but they would not contribute to or result in significant impacts. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. This alternative would be comparable to the recommended project. As with the recommended project, there would be no impacts to recreation with the Public Transportation Focused Alternative, and no mitigation measures would be required. Therefore, Tier II impacts related to recreation would be expected to be less than significant.

- Transportation and Traffic

Tier I - Unlike the recommended project, the Public Transportation Focused Alternative would not have the potential to result in impacts to transportation and traffic. As recommended, the Public Transportation Focused Alternative would add additional routes and shuttles to the existing network utilize / purchase an off-site lot to transfer patients / visitors, and increase subsidies for visitors using public transportation. As with the recommended project, the Public Transportation Focused Alternative would involve some construction, operation, and maintenance activities beyond the baseline conditions. However, all the structures recommended under the recommended project would be built. Due to the fact that the Public Transportation Focused Alternative would offset the transportation related impacts, this alternative would result in significantly less vehicle trips than the recommended project, thus, the Public Transportation Focused Alternative is considered to have fewer impacts to traffic and transportation compared with the recommended project; however, construction-related impacts associated with Tier I of the recommended project would still occur. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to transportation and traffic with the Public Transportation Focused Alternative it is expected that implementation of measure Traffic-1 specified for the recommended project would not be required. Therefore, Tier I impacts related to transportation and traffic would be expected to be less than significant.

Tier II - Unlike the recommended project, the Public Transportation Focused Alternative would not have the potential to result in impacts to transportation and traffic. As recommended, the Public Transportation Focused Alternative would add additional routes and shuttles to the existing network utilize / purchase an off-site lot to transfer patients / visitors, and increase subsidies for visitors using public transportation. As with the recommended project, the Public Transportation Focused Alternative would involve some construction, operation, and maintenance activities beyond the baseline conditions. However, all the structures recommended under the recommended project would be built. Due to the fact that the Public Transportation Focused Alternative would offset the transportation related impacts, this alternative would result in significantly less vehicle trips than the recommended project, thus, the Public Transportation Focused Alternative is considered to have fewer impacts to traffic and transportation compared with the recommended project.

Under this alternative, the recommended project (Tiers I and II combined) would have a total net trip generation of 17,709 daily trips of which 1,116 trips would occur during the morning peak hour and 1,578 trips during the evening peak hour. This represents 10% less daily, morning, and evening peak hour trips than the recommended project. Similar to Tier II of the recommended project, this alternative would have the potential to result in significant traffic impacts. However, there would be up to 10% less in trip generation, than the recommended project. No significant differences in travel patterns outside the project area would be expected between this alternative and the recommended project. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to transportation and traffic with the Public Transportation Focused Alternative it is expected that implementation of measures Traffic-1 through Traffic-3 specified for the recommended project would not be required. Therefore, Tier II impacts related to transportation and traffic would be expected to be less than significant.

- Utilities and Service Systems

Tier I - Like Tier I of the recommended project, the Public Transportation Focused Alternative would not be expected to result in impacts to utilities and service systems. Under this alternative scenario, the components of Tier I would be constructed as discussed in the Section 3.13. The Public Transportation Focused Alternative results in impacts on utilities and service systems that are similar to the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively significant impacts. As with Tier I of the recommended project, it is anticipated that no mitigation measures would be required to reduce the anticipated impacts to below the level of significance.

Tier II - Like Tier II of the recommended project, the Public Transportation Focused Alternative would be expected to result in impacts to utilities and service systems. Under this alternative scenario, the components of Tier II would be constructed (i.e., residential, commercial, medical space, etc.), therefore, there would be a potentially significant increase in the demand on water supply, wastewater treatment, solid waste, or other utilities within the project area and would occur. The Public Transportation Focused Alternative results in impacts on utilities and service systems that are similar to the recommended project. Like Tier II of the recommended project, this alternative would not result in cumulatively significant impacts. However, since there would be potential impacts to utilities and service systems with the Public Transportation Focused Alternative it is expected that implementation of measures Utilities-1 through Utilities-2 specified for the recommended project would not be required to reduce the anticipated impacts to below the level of significance.

Feasibility: This alternative is infeasible.

Facts: The above feasibility finding is based on the following:

- This alternative would meet the County's objectives to improve efficiency; provide a sustainable and connected campus; and to develop the campus and incorporated mixed-uses on the campus. However, increasing service frequency would not necessarily increase coverage area of the public transportation network.
- The existing public transportation network already serves this area with adequate coverage and frequency to meet the existing and anticipated demands. It is for these reasons that this alternative would not be feasible. Despite this fact, it is worth noting that elements of this alternative are worthy of consideration and would be incorporated into the Master Plan for the recommended project, as appropriate.

V.E ALTERNATIVE 4: 500 BEDS (IN TIER I) ALTERNATIVE

Description of Alternative: Alternative 4, the 500 Beds (in Tier I) Alternative, would entail the development and operation of a 500-bed hospital. Tier I would consist of the development of a 500 bed hospital that would occupy the existing MACC. The existing MACC would provide up to 500 inpatient beds along with the inpatient services that were previously provided at the hospital. However, in order to provide inpatient services, the existing MACC would require significant seismic improvements by January 2020 for compliance with OSHPD requirements. The OSHPD requirements include but are not limited to improvements such as retrofitting the hospital buildings for acute care operation beyond 2030 in the event of seismic activity.

Effectiveness in Meeting Project Objectives: Alternative 4, 500 Beds (in Tier I) Alternative would be capable of meeting one of the objectives identified by the County, objective 6. The focus of this alternative would be to obtain the licensing, funding, and adequate operational requirements (including but not limited to staff, supplies, etc.) to re-open the existing MACC. Under this alternative, neither Tier I nor Tier II of the recommended project would be constructed. It is anticipated that no LEED, sustainable design, community-based, comprehensive, or mixed use development as described in Tier I and Tier II of the recommended project would occur. There would be no new development.

Comparison of Effects of the Alternative to Effects of the Project: The regulatory framework and existing conditions would be the same as that described for the project. A summary comparison of this alternative to impacts of the recommended project is presented in Table V-2. The analysis presented in the table shows that this alternative would result in some of the significant impacts that would be anticipated as a result of the project.

- Aesthetics

  Tier I - Like Tier I of the recommended project, the 500 Beds (in Tier I) Alternative would have the potential to result in impacts to aesthetics. This alternative would introduce additional uses at the project site; however, none of the Tier I or Tier II components would be constructed. Given that the recommended 500 Beds Alternative would occur the former MACC building, impacts to visual resources would be similar to the No Project Alternative. Therefore, this alternative would not have effects on scenic vistas, would result in fewer shadow impacts, and would have fewer impacts related to nighttime light and glare than the recommended project even though it would increase nighttime light and glare above the existing levels (reuse of the former MACC building). The 500 Beds Alternative would have fewer impacts on aesthetics than the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. However, since there would be potential impacts to aesthetics with the 500 Beds Alternative it is expected that implementation of measure Aesthetics-1 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Like Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would have the potential to result in significant impacts to aesthetics. Under the 500 Beds (in Tier I) Alternative, potential aesthetic changes relating to the replacement of existing site features would not occur. This alternative would not result in the more intensive development or the increase in nighttime lighting from vehicles, buildings, landscape features, and signage associated with commercial uses under the recommended project. As a result, the project site would continue in its existing form with its visual and aesthetic character unchanged. Even though the aesthetic changes resulting from the recommended project would not be considered significant impacts, the 500 Beds (in Tier I) Alternative's impacts to aesthetics would be less because no change, such as increased nighttime lighting, would occur. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. However, since there would be impacts to aesthetics with the 500 Beds (in Tier I) Alternative, implementation of measures Aesthetics-1 through Aesthetics-4 specified for Tier II of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Air Quality

  Tier I - Unlike the recommended project, the 500 Bed Alternative would not have the potential to result in impacts to air quality. Due to the fact that the 500 Beds Alternative would require less construction and less vehicle trips than the recommended project, the 500 Beds Alternative is considered to have lesser impacts to air quality compared with the recommended project. Unlike the recommended project, the 500 Beds Alternative would require only limited construction and site improvement activities. Unlike the recommended project, this alternative would not entail demolition of existing structures or grading activities beyond the baseline conditions. The 500 Beds Alternative would require the use of a limited number of construction equipment and would generate vehicle trips, thus resulting in potentially significant impacts to air quality, particularly with regard to NO_x emissions. As with the recommended project, the 500 Beds Alternative would have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. However, due to the fact that no grading, excavation, or major construction activities would occur, it is anticipated that implementation of mitigation measures would not be required. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to air quality with the 500 Beds Alternative it is expected that implementation of measures Air-1 through Air-11 specified for the recommended project would not be required. Impacts related to air quality would be expected to be less than significant.

Tier II - Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to ambient air quality. The 500 Beds (in Tier I) Alternative would not involve as considerable an amount of construction activities beyond the baseline conditions. Unlike the recommended project, this alternative would not entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, or asphalt operations beyond the baseline conditions. The 500 Beds (in Tier I) Alternative would not require grading or the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of volatile organic compounds (VOCs). The 500 Beds (in Tier I) Alternative would not have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors. Implementation of Tier II the recommended project would be expected to result in cumulative construction-related impacts and impacts during operation that would remain above the level of significance with the incorporation of mitigation measures. Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would avoid potential significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the recommended project site by employees and visitors. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to ambient air quality with the 500 Beds (in Tier I) Alternative, implementation of measures Air-1 through Air-11 would not be required. Impacts related to air quality would be expected to be less than significant.

- Cultural Resources

Tier I - Unlike the recommended project, the 500 Bed Alternative would not have the potential to result in impacts to cultural resources. The 500 Beds (in Tier I) Alternative would lessen potential impacts to cultural resources that could result from the implementation of the recommended project. Unlike the recommended project, this alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of historical resources would not occur. As a result, the project site would continue in its existing form with its cultural resources largely unchanged. Structural and tenant refinements related to the incorporation of a 500-bed hospital within the existing MACC, a historical resource, would require review for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to cultural resources with the 500 Beds Alternative it is expected that implementation of measures Cultural-1 through Cultural-5 specified for the recommended project would not be required. Impacts related to cultural resources would be expected to be less than significant.

Tier II - Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to cultural resources. The 500 Beds (in Tier I) Alternative would avoid the construction-related and redevelopment impacts to cultural resources that would occur as a result of the recommended project. Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would not occur. As a result, the project site would continue in its existing form with its cultural resources unchanged. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to cultural resources with the 500 Beds (in Tier I) Alternative, implementation of measures Cultural-1 through Cultural-5 specified for Tier II of the recommended project would not be required. Impacts related to cultural resources would be expected to be less than significant.

- Geology and Soils

  Tier I - Unlike the recommended project, the 500 Bed Alternative would not have the potential to result in impacts to geology and soils. This alternative avoids potential impacts to geology and soils that could result from the implementation of the recommended project. Unlike the recommended project, this alternative would entail no grading (excavation and fill), modification of or construction of new structures although the existing MACC would require significant seismic improvements and modification and implementation of the mitigation measures would be required. However, the anticipated seismic improvements that would be required under this alternative would be considerable and would require different mitigation than that recommended for the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Although the implementation of measures Geology-1 through Geology-3 specified for Tier I of the recommended project would not be required, other mitigation measure would be required for this alternative to reduce the anticipated impacts to below the level of significance.

  Tier II - Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to geology and soils. The

500 Beds (in Tier I) Alternative avoids potential impacts to geology and soils that could result from the implementation of the recommended project. This alternative would avoid short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier II of the recommended project, this alternative would entail no grading (excavation and fill), modification of or construction of new structures although the existing MACC would require significant seismic improvements and modification and implementation of the mitigation measures would be required. However, the anticipated seismic improvements that would be required under this alternative would be considerable and would require different mitigation than that recommended for the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Although the implementation of measures Geology-1 through Geology-3 specified for Tier II of the recommended project would not be required, other mitigation measure would be required for this alternative to reduce the anticipated impacts to below the level of significance.

- Greenhouse Gas Emissions

  Tier I - Unlike the recommended project, the 500 Bed Alternative would not have the potential to result in impacts to greenhouse gas emissions. Due to the fact that the 500 Beds (in Tier I) Alternative would require less construction, less electricity consumption, and less vehicle trips than the recommended project, the 500 Beds Alternative is considered to have lesser impacts to GHG emissions compared with the recommended project. Unlike the recommended project, the 500 Beds Alternative would require only limited construction and site improvement activities. Unlike the recommended project, this alternative would not entail demolition of existing structures or major construction activities beyond the baseline conditions. The 500 Beds Alternative would require the use of a limited number of construction equipment, would generate vehicle trips, and would require electricity consumption, thus resulting in potentially significant impacts to GHG emissions. As with the recommended project, the 500 Beds Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Since there would be no construction of new buildings associated with the 500 Beds (in Tier I) Alternative, it is anticipated that implementation of mitigation measures would not be required. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to greenhouse gas emissions with the 500 Beds Alternative it is expected that implementation of measure GHG-1 specified for the recommended project would not be required. Impacts related to greenhouse gas emissions would be expected to be less than significant.

  Tier II - Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to GHG emissions. The 500 Beds (in Tier I) Alternative would involve construction, operation, improvements and maintenance activities to the existing MACC beyond the baseline conditions although this development would not be as significant as with Tier II of the recommended project. Unlike Tier II of the recommended project, this alternative would not entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, or electricity consumption beyond the baseline conditions. The 500 Beds (in Tier I) Alternative would not require the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to GHG emissions. Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would not have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Potential GHG emission impacts associated with construction and operation of Tier II would remain as significant and unavoidable even with the incorporation of mitigation measures. Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would avoid potential significant impacts to GHG emissions that would result from emissions from construction equipment, electricity consumption, and the anticipated increase in vehicle miles traveled to the recommended project site by employees and visitors. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to GHG emissions with the 500 Beds (in Tier I) Alternative, implementation of measure GHG-1 would not be required. Impacts related to greenhouse gas emissions would be expected to be less than significant.

- Hazards and Hazardous Materials

  Tier I - Unlike the recommended project, this alternative would not have the potential to result in impacts to hazards and hazardous materials. This alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the recommended project. Unlike the recommended project, this alternative would entail no grading (excavation and fill) or the construction of new structures. However, this alternative would entail modification of the existing MACC building that might result in impacts related to hazards and hazardous materials. The implementation of the mitigation measures identified in Section 3.6 would be required. Potential operational impacts from hazards or hazardous materials would likely occur. This alternative would not result in short- or long-term impacts from hazards and hazardous materials that would be comparable to the impacts associated with the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to hazards and hazardous materials with the 500 Beds Alternative it is expected that implementation of measures Hazards-1 through Hazards-5 specified for the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Unlike Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The 500 Beds (in Tier I) Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the recommended project. Unlike Tier I of the recommended project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6 would not be required. Potential operational impacts from hazards or hazardous materials would not occur. The 500 Beds (in Tier I) Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hazards and hazardous materials with the 500 Beds (in Tier I) Alternative, implementation of measures Hazards-1 through Hazards-5 specified for Tier I of the recommended project would not be required to reduce the anticipated impacts to below the level of significance.

- Hydrology and Water Quality

  Tier I - Like the recommended project, this alternative would have the potential to result in impacts to hydrology and water quality. Because there are no grading or fill activities, the implementation of the mitigation measures identified in Section 3.7 to reduce impacts from pollution entering the storm drain system would not be required. However, under the recommended project, the new MACC building would be an efficient and sustainable building, however this alternative would not include development of the sustainable or efficient elements that would reduce runoff and potential water quality related impacts. The existing MACC as it currently operates is inefficient. Like the recommended project, this alternative would require the implementation of mitigation measures; however, efforts to re-open and expand the existing MACC would be expected to result in impacts to hydrology and water quality that would be greater than the recommended project. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to hydrology and water quality with the 500 Beds Alternative it is expected that implementation of measures Hydrology-1 through Hydrology-4, specified for the recommended project would be required. However, it is anticipated that Hazards-1 specified for Tier I of the recommended project would not be required. Impacts related to hydrology and water quality would be expected to be less than significant.

  Tier II - Like Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would have the potential to result in significant impacts to hydrology and water quality. The 500 Beds (in Tier I) Alternative avoids impacts to hydrology and water quality that could result from the implementation of the recommended project. Section 3.7, Hydrology and Water Quality, of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would entail no conversion of vacant land including grading, paving, and construction; however, the existing MACC is inefficient and seismic improvements to this structure would not improve the efficiency or reduce the water use of this building, nor would the improvements entail LEED or energy efficient elements and implementation of the mitigation measures would be required. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be impacts to hydrology and water quality with the 500 Beds (in Tier I) Alternative, implementation of measures Hydrology-1 through Hydrology-4 specified for Tier II of the recommended project would be required. However, it is anticipated that Hazards-1 specified for Tier II of the recommended project would not be required. Impacts related to hydrology and water quality would be expected to be less than significant.

- Noise

  Tier I - Unlike the recommended project, the 500 Beds Alternative would not have the potential to result in significant impacts to noise. Under this alternative, the construction related noise impacts would not occur. Both Tier I and Tier II related noise impacts would be avoided. Unlike the recommended project, this alternative would not be expected to result in noise related construction impacts. As such, this alternative would be expected to result in fewer impacts associated with construction related noise impacts than with the recommended project. Unlike Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no potential impacts to noise with the 500 Beds Alternative it is expected that implementation of measures Noise-1 through Noise-4 specified for the recommended project would not be required. Impacts related to hydrology and water quality would be expected to be less than significant.

  Tier II - Unlike Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to noise. The 500 Beds (in Tier I) Alternative would not entail for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Section 3.8 of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would not result in impacts related to noise and no mitigation measures would be required. The 500 Beds (in Tier I) Alternative would not result in short- or long-term impacts to noise. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to noise with the 500 Beds (in Tier I) Alternative, implementation of measures Noise-1 through Noise-4 specified for Tier II the recommended project would not be required. Impacts related to hydrology and water quality would be expected to be less than significant.

- Population and Housing

  Tier I - Like the recommended project, the 500 Beds Alternative would not have the potential to result in significant impacts to population and housing. Like the recommended project, this alternative would not be expected to result in impacts related to population and housing. Unlike the recommended project, his alternative would not include Tier I or Tier II elements and would not include housing. This alternative it would not contribute to regional housing and employment goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, there would be no impacts to population and housing with the 500 Beds Alternative, and no mitigation measures would be required. Impacts related to population and housing would be expected to be less than significant.

  Tier II - As with Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to population and housing. The 500 Beds (in Tier I) Alternative would not assist in meeting regional housing and employment goals. Under the 500 Beds (in Tier I) Alternative, potential changes related to population and housing would not occur. This alternative would not result in any residential development or more intensive development associated with the medical, commercial or retail uses under the recommended project. Even though potential impacts resulting from Tier II of the recommended project would not be considered significant, the 500 Beds (in Tier I) Alternative's impacts to population and housing would be less than the recommended project because no change, such as the 100-unit residential component, would be implemented. However, the 500 Beds (in Tier I) Alternative would not contribute to the regional housing goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to population and housing with the 500 Beds (in Tier I) Alternative, and no mitigation measures would be required. Impacts related to population and housing would be expected to be less than significant.

- Public Services

  Tier I - Like the recommended project, the 500 Beds Alternative would not have the potential to result in significant impacts to public services. As with the recommended project, the 500 Beds Alternative would not result in impacts related to public services. This alternative would not require the development of residential units. Unlike the recommended project, under this alternative, there would be no Tier I or Tier II development. There would not be an increase in the need for additional fire protection, police protection, parks, schools, and other public services, like the recommended project. This alternative, however, would not contribute to regional housing and employment goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). However, like the recommended project, this alternative would not be expected to result in significant impacts related to public services. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, there would be no impacts to public services with the 500 Beds Alternative, and no mitigation measures would be required. Impacts related to public services would be expected to be less than significant.

  Tier II - As with Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to public services. The 500 Beds (in Tier I) Alternative would not result in the need for additional fire protection, police protection, schools, parks, and other public services. Section 3.10, Public Services, of this EIR provides a discussion of the potential impact to public services related to Tier II of the recommended project. Like Tier II of the recommended project, the 500 Beds (in Tier I) Alternative would not create a significant net increase in public services and would require the implementation of the mitigation measures. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to public services with the 500 Beds (in Tier I) Alternative, and no mitigation measures would be required. Impacts related to public services would be expected to be less than significant.

- Recreation

  Tier I - Like the recommended project, the 500 Beds Alternative would not have the potential to result in significant impacts to recreation. Under the 500 Beds Alternative, the Tier I and Tier II building components would not be constructed. The 500 Beds Alternative would result in no residential units built. Like the recommended project, this alternative would not be expected to result in impacts related to recreation. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, there would be no impacts to recreation with the 500 Beds Alternative, and no mitigation measures would be required. Impacts related to recreation would be expected to be less than significant.

Tier II - As with Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to recreation. The 500 Beds (in Tier I) Alternative would not result in impacts to parks and recreational facilities. The 500 Beds (in Tier I) Alternative would also not create an additional demand for the County's parks. Tier II of the recommended project would not result in significant impacts to existing parks or recreational facilities given the limited number of residential units recommended under Tier II and the availability and location of existing recreational facilities. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to recreation with the 500 Beds (in Tier I) Alternative, and no mitigation measures would be required. Impacts related to recreation would be expected to be less than significant.

- Transportation and Traffic

Tier I - Unlike the recommended project, the 500 Bed Alternative would not have the potential to result in significant impacts to transportation and traffic. The 500 Beds Alternative would result in a smaller development scenario than that recommended development components under Tier I and Tier II of the recommended project. The total development under this alternative would be significantly less than that of the recommended project and would generate a substantial amount less of traffic trip generation given the reduced developed. This alternative would contain no new development and therefore would not generate any new trips. This alternative would generate fewer trips than the existing baseline conditions. The existing baseline trip generation includes both operational and non-operational existing uses, which includes the existing MACC building. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would not be potential impacts to transportation and traffic with the 500 Beds Alternative it is expected that implementation of measure Traffic-1 specified for the recommended project would not be required. Impacts related to transportation and traffic would be expected to be less than significant.

Tier II - Unlike Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would not have the potential to result in significant impacts to transportation and traffic. The 500 Beds (in Tier I) Alternative avoids potential impacts to transportation and traffic that could result from the implementation of Tier II of the recommended project. The 500 Beds (in Tier I) Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the recommended project. Unlike the Tier II of recommended project, this alternative would create no additional transportation or circulation components and implementation of the mitigation measures would not be required. This alternative would contain no new development and therefore, would not generate any new trips.

This alternative would generate fewer trips than the existing baseline conditions. The existing baseline trip generation includes both operational and non-operational existing uses, which includes the existing MACC building. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to transportation and traffic with the 500 Beds (in Tier I) Alternative, implementation of measures Traffic-1 through Traffic-3 specified for Tier II of the recommended project would not be required. Impacts related to transportation and traffic would be expected to be less than significant.

- Utilities and Service Systems

  Tier I - Unlike Tier I of the recommended project, the 500 Beds Alternative would have the potential to result in significant impacts to utilities and service systems. The 500 Beds Alternative would result in greater impacts than the existing conditions and Tier I of the recommended project. The total development under this alternative would be greater than that of Tier I of the recommended project; therefore, this alternative would result in greater demand on water supply, wastewater treatment facilities, landfills and recycling requirements. Unlike Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be potential impacts to utilities and service systems with the 500 Beds Alternative it is expected that implementation mitigation measures would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Like Tier II of the recommended project, Tier II of the 500 Beds (in Tier I) Alternative would have the potential to result in significant impacts to utilities and service systems. The 500 Beds (in Tier I) Alternative avoids potential impacts to utilities and service systems that could result from the implementation of Tier II of the recommended project; however, the existing MACC is inefficient and seismic improvements to this structure would not improve the efficiency of this building, nor would the improvements entail LEED or energy-efficient elements. Although, the alternative would not entail the elements that are recommended in Tier II of the recommended project (i.e., no residential, retail, commercial uses, etc); this alternative would result in an increase in use to accommodate 500 inpatient beds as well as significant impacts to utilities and services due to the continued use of an inefficient building. As such, the 500 Beds (in Tier I) Alternative would be expected to result in the short- and long-term construction and operation impacts. Unlike the recommended project, this alternative would entail no additional construction of buildings and would not require additional use of existing infrastructure (i.e., sewer, water, etc.). With the 500 Beds (in Tier I) Alternative, mitigation measures would be required. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts. Since there would be impacts to utilities and service systems with the 500 Beds (in Tier I) Alternative, implementation of mitigation measures including measures Utilities-1 through Utilitites-2 specified for Tier II of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Feasibility: This alternative is infeasible.

Facts: The above feasibility finding is based on the following:

- This alternative would not meet the majority of the other County objectives.

- The costs seismic upgrades, inpatient improvements, and operational requirements associated with opening a 500 bed hospital without addressing the efficiency concerns and other issues at the existing MACC that would be evaluated through a campus-wide plan would make this alternative infeasible.

V.F ALTERNATIVE 5: NO TIER II ALTERNATIVE

Description of Alternative: Alternative 5, the No Tier II Alternative, would entail the development of only Tier I of the recommended project. Alternative 5 would be located on the existing campus. This alternative would focus on the development of two new buildings (the new MACC and the Ancillary Building) tenant improvements in existing buildings, site improvements, and potential relocation of the MRI Building on the tech dock behind the new MACC. This alternative would not entail the campus-wide Master Plan development described in Tier II of the recommended project. Also, the existing MACC building, Emergency Room, Storage Building, and Cooling Towers would be vacated but would not be reused, replaced, or removed as a part of this alternative.

Effectiveness in Meeting Project Objectives: Alternative 5, No Tier II Alternative would be capable of meeting all Tier I objectives identified by the County but would not meet any of the Tier II objectives.

Comparison of Effects of the Alternative to Effects of the Project: The regulatory framework and existing conditions would be the same as that described for the project. A summary comparison of this alternative to impacts of the project is presented in Table V-2. The analysis presented in the table shows that this alternative would result in some of the significant impacts that would be anticipated as a result of the project.

- Aesthetics

  Tier I - Like Tier I of the recommended project, the No Tier II Alternative would have the potential to result in impacts to aesthetics. This alternative would introduce additional uses at the recommended project site through the construction of the Tier I component. The impacts to visual resources would be comparable to those discussed for Tier I in Section 3.1, Aesthetic Resources, of this EIR. Even though the No Tier II Alternative would increase nighttime light and glare above the existing levels by creating new sources of light and glare, the alternative would affect scenic vistas, would result in fewer shadow impacts, and would have fewer impacts related to nighttime light and glare than the recommended project would have. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. The No Tier II Alternative would have fewer impacts to aesthetics than the recommended project would have. Measure Aesthetics-1 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Unlike Tier II of the recommended project, the No Tier II Alternative would not result in impacts to aesthetics. Tier II of the recommended project would not be implemented. Therefore, the No Tier II Alternative would avoid the impacts associated with Tier II of the recommended project. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be not be potential for Tier II impacts to aesthetics with this alternative, no mitigation specified for Tier II of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

- Air Quality

  Tier I - Like Tier I of the recommended project, the No Tier II Alternative would have the potential to result in impacts to air quality. As with the recommended project, the No Tier II Alternative would require the use of a limited number of construction equipment and would generate vehicle trips, thus resulting in potentially significant impacts to air quality, particularly with regard to NO_x emissions. As with the recommended project, the No Tier II Alternative would have the potential to conflict with the Air Quality Management Plan, violate existing air quality standards, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial pollutant concentrations. The grading, excavation, and construction activities would be reduced. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Tier I impacts and mitigation measures as described in Section 3.2, *Air Quality*, of this EIR would be comparable to mitigation measures for the recommended project. Measures Air-1 through Air-11 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Unlike Tier II of the recommended project, the No Tier II Alternative would not have the potential to result in significant impacts to ambient air quality. The No Tier II Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike the recommended project, this alternative would not entail demolition of existing structures, soil removal, delivery and hauling of construction materials and equipment, fuel combustion by on-site construction equipment, construction worker commute trips, application of architectural coatings, or asphalt operations beyond the baseline conditions. The No Tier II Alternative would not require grading or the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to air quality from fugitive dust emissions, NO_x emissions, or the possible release of VOCs. The No Tier II Alternative would not have the potential to conflict with the Air Quality Management Plan, violate any existing air quality standard, result in a cumulatively considerable net increase of criteria pollutants, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors. Implementation of Tier II the recommended project would be expected to result in cumulative construction-related impacts and impacts during operation that would remain above the level of significance with the incorporation of mitigation measures. Unlike Tier II of the recommended project, the No Tier II Alternative would avoid potential significant impacts to air quality that would result from emissions from construction equipment and the anticipated increase in vehicle miles traveled to the recommended project site by employees and visitors. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts related to Tier I of the recommended project only. Since there would be no impacts to ambient air quality with the No Tier II Alternative, implementation of measures Air-1 through Air-11 would not be required. Impacts related to air quality would be expected to be less than significant.

- Cultural Resources

  Tier I - Like Tier II of the recommended project, Tier I of the No Tier II Alternative would have the potential to result in impacts to cultural resources. The No Tier II

Alternative would still slightly alter the appearance of existing historic resources with the development of the new structure. Like the recommended project, this alternative would entail ground-disturbing construction activities. Outside of the new development, the recommended project site would continue in its existing form with cultural resources largely unchanged. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Measures Cultural-1 through Cultural-5 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II - Unlike Tier II of the recommended project, the No Tier II Alternative would not have the potential to result in significant impacts to cultural resources. The No Tier II Alternative would avoid the construction-related and redevelopment impacts to cultural resources that would occur as a result of the recommended project. Unlike Tier II of the recommended project, the No Tier II Alternative would entail no ground-disturbing construction activities and the demolition or substantial alteration of cultural resources would not occur. As a result, the project site would continue in its existing form with its cultural resources unchanged. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts related to Tier I of the recommended project only. Since there would be no impacts to cultural resources with the No Tier II Alternative, implementation of measures Cultural-1 through Cultural-5 specified for Tier II of the recommended project would not be required. Impacts related to cultural resources would be expected to be less than significant.

- Geology and Soils

  Tier I - Like Tier I of the recommended project, Tier I of the No Tier II Alternative would have the potential to result in impacts to geology and soils. As with Tier I of the recommended project described in Section 3.4 of this EIR, this alternative would have potential impacts to geology and soils from the implementation of the recommended project. Like Tier I of the recommended project, this alternative would entail grading (excavation and fill), modification of existing structures, and construction of new structures. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Implementation of the mitigation measures identified for Tier I of the recommended project would be required. Measures Geology-1 through Geology-3 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Unlike Tier II of the recommended project, the No Tier II Alternative would not have the potential to result in significant impacts to geology and soils. The No Tier II (in Tier I) Alternative avoids potential impacts to geology and soils that could result from the implementation of the recommended project. This alternative would avoid short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier II of the recommended project, this alternative would entail no grading (excavation and fill), modification of existing structures, or construction of new structures and implementation of the mitigation measures would not be required. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to geology and soils with the No Tier II Alternative, implementation of measures Geology-1 through Geology-3 specified for Tier II of the recommended project would not be required.

- Greenhouse Gas Emissions

  Tier I - Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in impacts to GHG emissions with regard to Tier I development. Due to the fact that the No Tier II Alternative would not entail a Tier II component and would thus require less construction, less electricity consumption, and less vehicle trips than the recommended project, the No Tier II Alternative is considered to have fewer impacts to GHG emissions compared with the recommended project. Unlike the recommended project, this alternative would not entail demolition of existing structures or major construction activities beyond Tier I of the recommended project. The No Tier II Alternative would still require the use of construction equipment, would generate vehicle trips, and would require electricity consumption, thus resulting in potentially significant impacts to GHG emissions. As with Tier I of the recommended project described in Section 3.5 of this EIR, the No Tier II Alternative would have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment, and would have the potential to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Measure GHG-1 specified for Tier I of the recommended project would be required. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts to reduce the anticipated impacts to below the level of significance.

  Tier II - Unlike Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to GHG emissions. The No Tier II Alternative would not involve any construction, operation, or maintenance activities beyond the baseline conditions. Unlike Tier II of the recommended project, this alternative would not entail demolition of existing structures, use of construction materials or equipment, fuel combustion by on-site construction equipment, construction worker commute trips, asphalt operations, or electricity consumption beyond the baseline conditions. The No Tier II Alternative would not require the use of construction equipment or mobile or stationary facilities, thus avoiding any potentially significant impacts to GHG emissions. Unlike Tier II of the recommended project, the No Tier II Alternative would not have the potential to directly or indirectly generate GHG emissions that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Potential GHG emission impacts associated with construction and operation of Tier II would remain as significant and unavoidable even with the incorporation of mitigation measures. Unlike Tier II of the recommended project, the No Tier II Alternative would avoid potential significant impacts to GHG emissions that would result from emissions from construction equipment, electricity consumption, and the anticipated increase in vehicle miles traveled to the recommended project site by employees and visitors. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts related to Tier I of the recommended project only. Since there would be no impacts to GHG emissions with the No Tier II Alternative, implementation of measure GHG-1 would not be required to reduce the anticipated impacts to below the level of significance.

- Hazards and Hazardous Materials

  Tier I - Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in impacts to hazards and hazardous materials. As with Tier I of the recommended project as described in Section 3.6, this alternative would have the potential to result in impacts to hazards and hazardous materials. Like the recommended project, this alternative would entail grading (excavation and fill) and construction of new structures. However, this alternative would not entail demolition or the impacts associated with Tier II of the recommended project. Potential operational impacts from hazards or hazardous materials would likely occur. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Measures Hazards-1 through Hazards-5 identified in Section 3.6 for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Unlike Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The No Tier II (in Tier I) Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the recommended project. Unlike Tier I of the recommended project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6 would not be required. Potential operational impacts from hazards or hazardous materials would not occur. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. The No Tier II Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Since there would be no impacts to hazards and hazardous materials with the No Tier II Alternative, implementation of measures Hazards-1 through Hazards-5 specified for Tier I of the recommended project would not be required to reduce the anticipated impacts to below the level of significance.

- Hydrology and Water Quality

  Tier I - Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in impacts to hydrology and water quality. Because there are grading and construction related activities, implementation of the mitigation measures identified in Section 3.7 would be required to reduce impacts from pollution entering the storm drain system for Tier I of the recommended project. However, this alternative would not include Tier II development and would not have the potential to result in Tier II impacts. Like the recommended project, this alternative would require the implementation of Tier I Measures Hydrology-1 through Hydrology-3, and Hazards-1. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts to reduce the anticipated impacts to below the level of significance.

  Tier II - Unlike Tier I of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to hazards and hazardous materials. The No Tier II (in Tier I) Alternative avoids potential impacts to hazards and hazardous materials that could result from the implementation of the recommended project. Unlike Tier I of the recommended project, this alternative would entail no grading (excavation and fill), modification of existing structures that might result in impacts related to hazards and hazardous materials, or construction of new structures; the implementation of the emergency procedures identified in Section 3.6 would not be required. Potential operational impacts from hazards or hazardous materials would not occur. The No Tier II Alternative would not result in short- or long-term impacts from hazards and hazardous materials. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to hazards and hazardous materials with the No Tier II Alternative, implementation of measures Hydrology-1 through Hydrology-3 and Hazards-1 specified for Tier I of the recommended project would not be required to reduce the anticipated impacts to below the level of significance.

- Noise

  Tier I - Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in significant impacts to noise. Under this alternative, the construction-related noise impacts associated with Tier I of the recommended project would occur, as discussed in Section 3.8 of this EIR. However, Tier II–related noise impacts would be avoided. Like the recommended project, this alternative would be expected to result in construction-related noise impacts. However, by omitting the Tier II component, this alternative would be expected to result in fewer impacts associated with construction-related noise than would be expected to result from the recommended project. Like Tier I of the recommended project, this alternative would result in cumulatively considerable impacts. Measures Noise-1 through Noise-4 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

  Tier II - Unlike Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to noise. The No Tier II Alternative would not entail for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Section 3.8 of this EIR provides mitigation for short- and long-term construction and operation impacts that would occur as a result of the recommended project. Unlike Tier II of the recommended project, the No Tier II Alternative would not result in impacts related to noise and no mitigation measures would be required. The No Tier II Alternative would not result in short- or long-term impacts to noise. Like Tier II of the recommended project, this alternative would result in cumulatively considerable impacts related to Tier I of the recommended project only. Since there would be no impacts to noise with the No Tier II Alternative, implementation of measures Noise-1 through Noise-4 specified for Tier II the recommended project would not be required to reduce the anticipated impacts to below the level of significance.

- Population and Housing

  Tier I - Like the recommended project, Tier I of the No Tier II Alternative would not have the potential to result in significant impacts to population and housing. Like the recommended project, this alternative would not be expected to result in impacts related to population and housing. Like the recommended project, this alternative would include a Tier I element but it would not include Tier II development, which entails a residential component. Although the Tier I components of the alternative would address the existing needs of the population, this alternative would not contribute to regional housing and employment goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area), as discussed in Section 3.9 of this EIR for Tier II of the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, there would be no impacts to population and housing with this alternative, and no mitigation measures would be required. Impacts related to population and housing would be expected to be less than significant.

Tier II - As with Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to population and housing. The No Tier II Alternative would not assist in meeting regional housing and employment goals. Under the No Tier II Alternative, potential changes related to population and housing would not occur. This alternative would not result in any residential development or more intensive development associated with the medical, commercial or retail uses under the recommended project. Even though potential impacts resulting from Tier II of the recommended project would not be considered significant, the No Tier II Alternative's impacts to population and housing would be less than the recommended project because no change, such as the 100 unit residential component, would be implemented. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. However, the No Tier II Alternative would not contribute to the regional housing goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area). As with Tier II of the recommended project, there would be no impacts to population and housing with the No Tier II Alternative, and no mitigation measures would be required. Impacts related to population and housing would be expected to be less than significant.

- Public Services

Tier I - Like the recommended project, Tier I of the No Tier II Alternative would not have the potential to result in significant impacts to public services. As with Tier I of the recommended project as described in Section 3.11 of this EIR, the No Tier II Alternative would not result in impacts related to public services. This alternative would not require the development of residential units. Unlike the recommended project, there would be no Tier II development. There would not be an increase in the need for additional fire protection, police protection, parks, schools, and other public services, like the recommended project. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. However, this alternative would not contribute to regional housing and employment goals (i.e., SCAG Compass Blueprint, 2% Strategy Opportunity Area) as discussed for Tier II of the recommended project. However, like the recommended project, this alternative would not result in significant impacts related to public services and no mitigation measures would be required. Impacts related to public services would be expected to be less than significant.

Tier II - As with Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to public services. The No Tier II Alternative would not result in the need for additional fire protection, police protection, schools, parks, and other public services. Section 3.10 of this EIR provides a discussion of the potential impact to public services related to Tier II of the recommended project. Like Tier II of the recommended project, the No Tier II Alternative would not create a significant net increase in public services and would require the implementation of the mitigation measures. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to public services with the No Tier II Alternative, and no mitigation measures would be required. Impacts related to public services would be expected to be less than significant.

- Recreation

  Tier I - Like the recommended project, Tier I of the No Tier II Alternative would not have the potential to result in significant impacts to recreation. Under the No Tier II Alternative, Tier I of the recommended project would be developed as discussed in Section 3.10 of this EIR, but Tier II building components would not be constructed. The No Tier II Alternative would result in no residential units built. Like the recommended project, this alternative would not be expected to result in impacts related to recreation. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, there would be no impacts to recreation with this alternative, and no mitigation measures would be required. Impacts related to recreation would be expected to be less than significant.

  Tier II - As with Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to recreation. The No Tier II Alternative would not result in impacts to parks and recreational facilities. The No Tier II Alternative would also not create an additional demand for the County's parks. Tier II of the recommended project would not result in significant impacts to existing parks or recreational facilities given the limited number of residential units recommended under Tier II and the availability and location of existing recreational facilities. Like Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. As with Tier II of the recommended project, there would be no impacts to recreation with the No Tier II Alternative, and no mitigation measures would be required. Impacts related to recreation would be expected to be less than significant.

- Transportation and Traffic

  Tier I - Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in significant impacts to transportation and traffic. The No Tier II Alternative would result in a smaller development scenario than that of the recommended development components of Tier II for the recommended project. The total development under this alternative would be significantly less than that of the recommended project, as it would only entail Tier I of the recommended project and would generate substantially fewer traffic trips given the reduced development. Construction-related Tier I impacts would occur as discussed in Section 3.12, Transportation and Traffic, of this EIR, and the Tier I mitigation measures would be required. Tier I trip generation for Tier I of this alternative would be the same as that of the Tier I of the recommended project. Tier I would result in 2,586 daily trips of which

176 trips would occur in the morning peak hour and 179 trips would occur in the evening peak hour. Since Tier I also involves removal of existing uses, a net reduction in trips of approximately 4,905 daily trips, 332 AM trips, and 338 PM trips would occur. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. As with the recommended project, implementation of measure Traffic-1 specified for Tier I of the recommended project would be required to reduce the anticipated impacts to below the level of significance.

Tier II - As with Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to recreation. The No Tier II Alternative would not result in impacts to parks and recreational facilities. The No Tier II Alternative would also not create an additional demand for the County's parks. Tier II of the recommended project would not result in significant impacts to existing parks or recreational facilities given the limited number of residential units recommended under Tier II and the availability and location of existing recreational facilities. Since this alternative would not contain Tier II development but involves vacation of existing buildings, this alternative would result in fewer trips than that projected for the recommended project. This alternative would result in the net reduction of trips on the street system since it would not generate any net new trips. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no Tier II impacts to transportation and traffic with the No Tier II Alternative, implementation of measures Traffic-1 though Traffic-3 specified for Tier II of the recommended project would not be required to reduce the anticipated impacts to below the level of significance.

- Utilities and Service Systems

Tier I - Like the recommended project, Tier I of the No Tier II Alternative would have the potential to result in significant impacts to utilities and service systems. The No Tier II Alternative would result in greater impacts that are comparable to Tier I of the recommended project as discussed in Section 3.13, Utilities and Service Systems, of this EIR. However, the impacts from Tier II development would be avoided as this alternative would not entail additional development recommended in the Tier II components (i.e., no residential, retail, commercial uses, etc). The total development under this alternative would be less than that of the recommended project; therefore, this alternative would result in less demand on water supply, wastewater treatment facilities, landfills, and recycling facilities. Like Tier I of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no Tier II impacts to utilities and service systems with the No Tier II Alternative, implementation of mitigation measures specified for Tier II of the recommended project would not be required to reduce the anticipated impacts to below the level of significance.

Tier II - Unlike Tier II of the recommended project, Tier II of the No Tier II Alternative would not have the potential to result in significant impacts to utilities and service systems. The No Tier II (in Tier I) Alternative avoids potential impacts to utilities and service systems that could result from the implementation of Tier II of the recommended project. The No Tier II Alternative would not result in the short- or long-term construction and operation impacts that would occur as a result of the recommended project. Unlike the recommended project, this alternative would entail no additional construction of buildings and would not require additional use of existing infrastructure (i.e., sewer, water, etc.). With the No Tier II Alternative, mitigation measures would not be required. Unlike Tier II of the recommended project, this alternative would not result in cumulatively considerable impacts. Since there would be no impacts to utilities and service systems with the No Tier II Alternative, implementation of Measures Utilities-1 through Utilitites-2 specified for Tier II of the recommended project would not be required to reduce the anticipated impacts to below the level of significance.

Feasibility: This alternative is considered infeasible.

Facts: The above feasibility finding is based on the following:

- The No Tier II Alternative would be capable of meeting all Tier I objectives identified by the County, but would not meet any of the Tier II objectives.
- Alternative 5 would not meet the campus-wide objectives and the improvements and development would occur but the shifts would make this alternative infeasible.

SECTION VI
FINDINGS REGARDING MITIGATION MONITORING PROGRAM

VI.A REQUIREMENTS OF MITIGATION MONITORING PROGRAM

According to Section 21081.6 of the Public Resources Code, the California Environmental Quality Act requires that when a public agency is making the findings required by Sections 21081, the public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted to mitigate or avoid significant effects on the environment.

The County of Los Angeles (County) through its governing Board of Supervisors hereby finds that the Mitigation Monitoring Program meets the requirements of Section 21081.6 of the Public Resources Code by providing a monitoring program designed to ensure compliance during project implementation with mitigation measures adopted by the County.

SECTION VII
FINDINGS REGARDING LOCATION AND CUSTODIAN OF DOCUMENTS

VII.A LOCATION AND CUSTODIAN OF DOCUMENTS

Section 15091(e) of the California Code of Regulations, California Environmental Quality Act Guidelines requires the public agency to specify the location and custodian of the documents or other materials that constitute the record of proceedings upon which the decision is based. Section 11.0 of the Environmental Impact Report (EIR) contains a list of all references used in the preparation of the environmental analysis. Unless otherwise noted, reference materials are located at the County of Los Angeles, Chief Executive Office, which shall also serve as the custodian of the documents constituting the record of proceedings upon which the County Board of Supervisors, the governing board for the County, has based its decision related to the project. The designated location and custodian of documents is as follows:

County of Los Angeles
Chief Executive Office
Kenneth Hahn Hall of Administration
Attention: Ms. Sabra White
500 West Temple Street, Room 754
Los Angeles, California 90012
E-mail: swhite@ceo.lacounty.gov

References associated with the EIR, and technical analysis related to the EIR for this project that are not available from the County of Los Angeles, Chief Executive Office are located at Sapphos Environmental, Inc. by contacting:

Sapphos Environmental, Inc.
Ms. Eimon Raoof
430 North Halstead Street
Pasadena, California 91107
Phone: (626) 683-3547
E-mail: eraoof@sapphosenvironmental.com

SECTION VIII
CERTIFICATION REGARDING INDEPENDENT JUDGMENT

Pursuant to Section 21082.1(c) of the Public Resources Code, the County of Los Angeles (County) certifies that the County Board of Supervisors, as the governing board for the County, has independently reviewed and analyzed the Final Environmental Impact Report (EIR) on behalf of the County. The County Chief Executive Office reviewed the Draft EIR and supporting technical appendices and required changes to those documents prior to circulation for public review. The Draft EIR circulated for public review reflected the independent judgment of the County. The Final EIR similarly has been subject to review and revision by the County Chief Executive Office staff and reflects the independent judgment of the County.

SECTION IX
STATEMENT OF OVERRIDING CONSIDERATIONS

Section 15093 of State CEQA Guidelines allows for overriding considerations where "economic, legal, social, technological or other benefits, including region-wide or statewide environmental benefits" outweigh the unavoidable environmental impacts, or unavoidable significant adverse effects, of the recommended project. In accordance with this CEQA guidance for overriding considerations, the County of Los Angeles (County) Board of Supervisors, as the governing board for the County, finds that for this recommended project the social and community relevance, economic potential, educational opportunities, sustainable facilities, and health care needs related benefits of the project outweigh the unavoidable adverse environmental impacts. The Final Environmental Impact Report (EIR) identified and evaluated impacts to: aesthetic resources, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, population and housing, public services, recreation, traffic and transportation and utilities and services systems, that were determined in the Initial Study to have the potential to result from implementing the Martin Luther King, Jr. Medical Center Campus Redevelopment project (project). The Final EIR determined that Tier I of the project would be expected to result in less than significant impacts related to: population and housing, public services, recreation, and utilities and service systems. Tier II of the project was expected to result in less than significant impacts to population and housing, public services, and recreation. With the implementation of the mitigation measures specified in the Final EIR, Tier I impacts to aesthetic resources, air quality, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, and transportation and traffic, would be mitigated to below the level of significance. Tier II impacts to aesthetic resources, geology and soils, hazards and hazardous materials, hydrology and water quality, transportation and traffic, and utilities and services systems would be mitigated to below the level of significance with the implementation of the mitigation measures specified in the Final EIR.

IX.A UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

The EIR determined that Tier I of the project is expected to result in significant unavoidable impacts with regard to greenhouse gas emissions and construction noise.

The EIR determined that the project would be expected to result in significant unavoidable impacts to air quality, cultural resources, greenhouse gas emissions, and noise.

Air Quality

Tier II

Section 3.02, *Air Quality,* of the Final EIR identified and evaluated the anticipated Tier II significant impacts related to air quality. Implementation of mitigation measures Air-1 to Air-11 would be expected to reduce significant air quality impacts with regard to air emission standards, sensitive receptors, and cumulative impacts during construction and operation of the project to the maximum extent feasible. Specifically each of these: air emission standards, sensitive receptors, and cumulative impacts would remain significant adverse impacts.

Cultural Resources

Tier II

Section 3.03, *Cultural Resources,* of the Final EIR identified and evaluated the anticipated Tier II significant impacts related to cultural resources. Implementation of mitigation measures Cultural-1 to Cultural-5 would be expected to reduce significant impacts related to the alternation or removal of structures or character-defining features that may be identified as historic resources; as well as the excavation of undisturbed soils that may result in the discovery of paleontological resources or human remains during construction of the project to the maximum extent feasible. However, these impacts would still remain significant adverse impacts.

Greenhouse Gas Emissions

Tier I

Section 3.05, *Greenhouse Gas Emissions*, of the Final EIR identified and evaluated the anticipated Tier I significant impacts related to greenhouse gas emissions. Implementation of mitigation measure GHG-1 would be expected to reduce significant direct, indirect, and cumulative impacts to greenhouse gas emissions to the maximum extent feasible, in terms of construction related emissions. However, the construction related emissions would still remain a significant adverse impact.

Tier II

Section 3.05, *Greenhouse Gas Emissions*, of the Final EIR identified and evaluated the anticipated Tier II significant impacts related to greenhouse gas emissions. Implementation of mitigation measure GHG-1 would be expected to reduce significant direct, indirect, and cumulative impacts to greenhouse gas emissions to the maximum extent feasible, in terms of construction related emissions. However, the construction related emissions would still remain a significant adverse impact.

Noise

Tier I

Section 3.08, *Noise*, of the Final EIR identified and evaluated the anticipated Tier I significant impacts related to greenhouse gas emissions. Implementation of mitigation measures Noise-1 to Noise-4 would be expected to reduce significant temporary increases in ambient noise levels that would exceed the established thresholds during construction of the project to the maximum extent feasible. However, the noise related impacts would still remain a significant adverse impact.

Tier II

Section 3.08, *Noise*, of the Final EIR identified and evaluated the anticipated Tier II significant impacts related to greenhouse gas emissions. Implementation of mitigation measures Noise-1 to Noise-4 would be expected to reduce significant temporary increases in ambient noise levels that would exceed the established thresholds during construction of the project to the maximum extent feasible. However, the noise related impacts would still remain a significant adverse impact.

IX.B OVERRIDING CONSIDERATIONS

The County Board of Supervisors determined that the social and community relevance, economic potential, educational opportunities, sustainable facilities, and health care needs related benefits of implementing the project, when balanced against all adverse effects, outweigh and override the unavoidable adverse effects of the project and cause those effects remaining after mitigation to be acceptable due to several considerations. Furthermore, the project offers significant opportunities and benefits that are not currently accessible or available in the surrounding community.

Social and Community Relevance

The project would provide the community and future generations with an opportunity to reflect on and to learn about the cultural significance of the site through the architecture, campus designs, and programming. It is the County's intent to incorporate a presentation of relevant historic figures such as Martin Luther King, Jr. the namesake of the campus; culturally relevant architects; and through portraying defining moments in the history of this Country, such as the Civil Rights Movement through displays and artwork installed throughout the campus.

The site would encourage the value in the community history, traditions, celebrations and cultural practices located in this community to gather at a central location to share, learn, and grow in a positive environment.

The project provides services to individuals in the central and southern area of the County, as well as to the neighboring communities and cities of Lynwood, Compton, and Los Angeles. As previously discussed, the project would offer social programs (such as health care services, family resources, and health seminars) to accommodate at the needs of the community. The programming at the site would encourage positive social and health related opportunities to this diverse community. The programming would further encourage positive interactions and healthy, productive lifestyles for all individuals accessing the hospital.

Economic Potential

The project would provide the potential for jobs and business development that could stimulate stability and growth in an economically challenged neighborhood. As discussed in the Final EIR, the community surrounding the project site is growing which is in line with the projected housing and populations projected by the Southern California Association of Governments (SCAG). The project area is located in a SCAG Compass Blueprint 2% Strategy area. This designation is provided to encourage growth and sustainable communities by locating new housing near existing jobs and new jobs near existing housing; creating a mix of uses; promoting redevelopment; and focusing growth along major transportation corridors, near a major transit station, with a variety of travel choices. This designation encourages development in identified areas throughout the county.

Programming at the facility would be developed to target the economic needs of the community by providing heath care research (as was once associated with the campus) and training as well as providing opportunities for other professional development classes, workshops, and the potential for business development. The project would create new jobs in the community during construction and throughout the operation and maintenance of the center. Development in Tier II would allow for mixed-use development, including retail, office, and employee residential facilities that satisfy a demand in the area and also provide for a more sustainable development where some employees could live, work and shop on one site, reducing the need for commuting. Further the modern and sustainable development of campus improvements would replace outdated facilities with state-of-the-art facilities which would also contribute to and highlight the aesthetics of the campus and encourage additional and similar improvements and reinvestments in existing development on neighboring lots and in the area surround the project site.

Educational Opportunities

The project would present educational opportunities for business professionals as well as professionals in the health care field that are expected to support the community surrounding the project site. As discussed in the Final EIR, in recent years, there have been increases in both these fields. The project would have the ability to provide educational programming and services (i.e., research and training, workshops, seminars, business development opportunities) that are specifically designed to respond to the needs of the labor force at the hospital facility.

It is anticipated that the educational programming available at the facility would be developed to the needs and specification of the individuals working at and accessing the facility. The educational prospects and professional growth of these individuals would be enhanced by the opportunities available at the campus.

Sustainable Facilities

The project would consist of a sustainable facility that reflects the requirements of the Countywide Energy and Environmental Policy. As discussed in the EIR, development of the new MACC Building and the Ancillary Building under Tier I of the proposed project are currently registered with the U.S. Green Building Council under LEED for New Construction (LEED-NC) and the County requires that all new County buildings (greater than 10,000 square feet) under the County's Capital Project Program, which includes capital improvement and development projects, shall be Leadership in Energy and Environmental Design (LEED) certified at the silver level.

The project would implement environmentally sustainable practices during construction and throughout the life of the project. The environmental values embodied in this project reflect the County's commitment to sustainable development throughout the County and would serve to shape the environmental education process for the County by exposing residents to the project and to its benefits.

Health Care Needs

The project would provide health care services and programs that are responsive to the health and medical needs of the community. As discussed in the Final EIR, it is the goal of this project to establish the campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development that is responsive to the community needs.

It is understood that the programming at the campus would continue to develop in response to the health care needs of the community as funds and opportunities become available.

IX.C OVERRIDING CONSIDERATIONS FOR UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

The project is consistent with the County's commitment to enrich lives through effective and caring service by being responsive to the needs of its residents and neighbors by providing quality health care service to its diverse community. The social and community relevance, economic potential, educational opportunities, sustainable facilities, and health care needs related benefits of the project, as discussed above, outweigh and override the unavoidable impacts related to greenhouse gas emissions and noise for Tier I of the project as well as the air quality, cultural resources, greenhouse gas emissions, and noise for Tier II of the project.

Air Quality

Tier II

The social and community relevance, economic potential, educational opportunities, sustainable facilities, and health care needs related benefits achieved through development of the project associated with the opportunities and services for residents of the County and the surrounding areas override the air quality standards, sensitive receptor, and cumulative impacts associated with air quality during construction and operation of the project. The air quality standards and levels may be exceeded temporarily construction and periodically during operation of the project. The project specifies mitigation measures Air-1 to Air-9 to reduce these Tier II impacts to the maximum extent possible, however, these impacts remain significant after the implementation of mitigation. The air quality significant impacts are overridden by the project's ability to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care and establishes the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development.

Cultural Resources

Tier II

The social and community relevance, economic potential, educational opportunities, sustainable facilities, and health care needs related benefits achieved through development of the project associated with the opportunities and services for residents of the County and the surrounding areas override the potential construction related activities, which may include excavation, and the removal of historic resources related impacts associated with cultural resources. The project may result in impacts from the significant alternation or removal of structures or character-defining features that may be identified as historic resources; as well as the excavation of undisturbed soils that may result in the discovery of paleontological resources or human remains during construction of the project. The project specifies mitigation measures Cultural-1 to Cultural-5 reduce these Tier II impacts to the maximum extent possible, however, these impacts remains significant after the implementation of mitigation. The cultural resources significant impacts are overridden by the project's ability to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care and establishes the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development.

Greenhouse Gas Emissions

Tier I

The social and community relevance, economic potential, educational opportunities, sustainable facilities, and health care needs related benefits achieved through development of the project associated with the opportunities and services for residents of the County and the surrounding areas override the construction related impacts associated with greenhouse gas emissions. The temporary greenhouse gas emissions levels would exceed the established thresholds during construction of the project. The project specifies mitigation measure GHG-1 to reduce this Tier I impact to the maximum extent possible, however, this impact remains significant after the implementation of mitigation. The greenhouse gas emissions significant impact is overridden by the project's ability to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care and establishes the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development.

Tier II

The social and community relevance, economic potential, educational opportunities, sustainable facilities, and health care needs related benefits achieved through development of the project associated with the opportunities and services for residents of the County and the surrounding areas override the construction related impacts associated with greenhouse gas emissions. The temporary greenhouse gas emissions levels would exceed the established thresholds during construction of the project. The project specifies mitigation measure GHG-1 to reduce this Tier II impact to the maximum extent possible, however, this impact remains significant after the implementation of mitigation. The greenhouse gas emissions significant impact is overridden by the project's ability to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care and establishes the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development.

Noise

Tier I

The social and community relevance, economic potential, educational opportunities, sustainable facilities, and health care needs related benefits achieved through development of the project associated with the opportunities and services for residents of the County and the surrounding areas override the construction related impacts associated with ambient noise levels. The temporary increase in ambient noise levels would exceed the established thresholds during construction of the project. The project specifies mitigation measures Noise-1 to Noise-4 to reduce this Tier I impact to the maximum extent possible, however, this impact remains significant after the implementation of mitigation. The noise significant impact is overridden by the project's ability to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care and establishes the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development.

Tier II

The social and community relevance, economic potential, educational opportunities, sustainable facilities, and health care needs related benefits achieved through development of the project associated with the opportunities and services for residents of the County and the surrounding areas override the construction related impacts associated with ambient noise levels. The temporary increase in ambient noise levels would exceed the established thresholds during construction of the project. The project specifies mitigation measures Noise-1 to Noise-4 to reduce this Tier II impact to the maximum extent possible, however, this impact remains significant after the implementation of mitigation. The noise significant impact is overridden by the project's ability to provide new campus improvements and to reopen a fully functional medical campus that meets the community needs for quality health care and establishes the Martin Luther King, Jr. Medical Center Campus as a center of excellence for health care delivery, urban health promotion and prevention, health workforce development, academic research and teaching, and economic development.

SECTION X
SECTION 15091 FINDINGS

Based on the foregoing findings and the information contained in the record, the County of Los Angeles (County) Board of Supervisors has made the following findings with respect to the significant impacts on the environment resulting from the Martin Luther King, Jr. Medical Center Campus Redevelopment project pursuant to Section 15091 of the State California Environmental Quality Act (CEQA) Guidelines.

- Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effects as identified in the Final Environmental Impact Report (EIR).
- The changes and alterations are within the responsibility and jurisdiction of the County. The County Board of Supervisors, as the governing board for the County may designate the County Chief Executive Office, Department of Public Works, or other County departments to implement certain measures as part of pre-construction, construction, and post-construction activities. Pursuant to Section 15091(c) of the State CEQA Guidelines, the Mitigation Monitoring Program identifies responsible agencies for the mitigation measures.
- The mitigation measures identified in the Final EIR are feasible and will be required as conditions of approval.

Based on the foregoing findings and the substantial evidence contained in the record, and as conditioned by the foregoing findings:

- All significant effects on the environment due to the project have been eliminated or substantially lessened where feasible.
- Any remaining significant effects on the environment found to be unavoidable are acceptable due to the overriding concerns set forth in the foregoing Statement of Overriding Considerations.

MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT

MITIGATION MONITORING PROGRAM

(SCH #2010031040)

PREPARED FOR:

COUNTY OF LOS ANGELES
CHIEF EXECUTIVE OFFICE
KENNETH HAHN HALL OF ADMINISTRATION
500 WEST TEMPLE STREET, ROOM 754
LOS ANGELES, CALIFORNIA 90012

PREPARED BY:

SAPPHOS ENVIRONMENTAL, INC.
430 NORTH HALSTEAD STREET
PASADENA, CALIFORNIA 91107

FEBRUARY 2011

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SECTION I
INTRODUCTION

The California Environmental Quality Act [CEQA; Public Resources Code (PRC), Section 21000 et seq.] requires a Lead Agency or Responsible Agency that approves or carries out a project, where an Environmental Impact Report (EIR) has identified significant environmental effects, to adopt a ″reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment″ [PRC, Section 21081.6 (a) (1)]. The County of Los Angeles (County) is the Lead Agency for the Martin Luther King, Jr. Medical Center Campus Redevelopment project. A public agency shall ″provide that measures to mitigate or avoid significant impacts to the environment are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures or, in the case of the adoption of a plan, policy, regulation, or other public project, by incorporating the mitigation measures into the plan, policy, regulation, or project design″ [PRC, Section 21081.6 (b)].

SECTION II
PROJECT DESCRIPTION

The Martin Luther King, Jr. Medical Center Campus Redevelopment project (project) will involve the following improvements.

II.1 PROJECT ELEMENTS

The project entails two tiers. Tier I would involve development of the new Multi-Service Ambulatory Care Center (MACC) Building and the Ancillary Building. Tier I would also include tenant improvements to the following existing buildings: North Support Building, South Support Building, and the Plant Management Building; site improvements; and potential relocation of the MRI Building.

Tier II of the project would entail the reuse, replacement, or removal of the existing MACC Building (which will be vacant following construction of the new MACC Building in Tier I) and reuse, replacement, or removal of the following: Emergency Room, Storage Building, and Cooling Towers.[1] Tier II construction may entail additional master-planned mixed-use development, which may include the potential for medical offices, general offices, commercial and retail space, residential units, recreational areas, and other development that is appurtenant to and compatible with the primary land use, in support of the campus.

To establish a program of development level for the mixed-use portion of Tier II, the currently undeveloped areas of the campus (undeveloped in this case includes parking lots and structures, such as parking structures and certain storage or loading areas, but not buildings) were calculated, and adjustments were made for buildings to be reused, replaced, or removed and developed, to obtain a surface area from which to calculate allowable build-out. A maximum build-out of this remaining area was calculated using maximum build-out criteria from the Los Angeles County Zoning Code restrictions applicable to the site. Initially, this maximum build-out number was in excess of 2 million square feet and included zoning code allowances of a maximum of three stories in building height and a minimum of 10-percent open space (i.e., areas without structures). To determine a more accurate level of development for Tier II, the following assumptions were added: (1) open space site-wide would remain a minimum of 10 percent to maintain some of the current character of the site as an open and landscaped campus; (2) the site area to be set aside for the potential development of an up to 100-unit residential component, parking structures or parking lots, and walkways would be a maximum of 40 percent of the entire site; and (3) although a maximum of three stories would be allowed for new buildings, an average height of 2.5 stories was assumed.[2] With these assumptions added in, the maximum programmed development for Tier II could consist of up to 1,814,696 square feet.

Tier I of the project will result in a decrease of the existing square feet, as the functions of several existing buildings would be removed. Tier II of the project has the potential to result in a total floor area of up to 1,814,696 square feet (or a footprint of up to approximately 725,878 square feet) of new development. Given the net reduction in building floor area in Tier I, the net new development after completion of Tier I plus Tier II is 1,476,010 square feet of floor area.

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[1] However, the functions of these buildings would be substituted.

[2] An average building size of 2.5 was used, although it is anticipated that the Tier II buildings would vary in size and may be taller than 2.5 stories.

Tier I Project Development

Tier I of the proposed project would entail the development of two new buildings: the new MACC Building and the Ancillary Building, tenant improvements in existing buildings, site improvements, and potential relocation of the MRI Building. Project-level environmental impact report (EIR) analysis is provided for Tier I.

Multi-Service Ambulatory Care Center Building

The proposed MACC Building would be a four-story building consisting of approximately 132,000 square feet of floor area. This building would house the walk-in clinic, outpatient imaging, outpatient surgery, and various other outpatient clinics that are currently operating in the existing MACC. The proposed building would most likely be of structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. Similar to the proposed Ancillary Building, the lateral-force-resisting system of the MACC Building can be any one of the following: moment frames, braced frames, or a combination of the two. The lateral-force-resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

Ancillary Building

The proposed Ancillary Building would be a two-story structure consisting of approximately 24,700 square feet of floor area. This building would house the campus kitchen and cafeteria, and administrative offices. The building would be constructed to the east of the new MACC. A new pedestrian footbridge would be provided at the east end of the building for connection to the existing Inpatient Tower for the transportation of materials and supplies. The bridge would most likely be constructed of steel with a seismic joint at the Inpatient Tower.

The new building would most likely be structural steel construction. The gravity system of the building would consist of lightweight fill over metal decking supported by steel beams and columns. The lateral-force-resisting system for the building can be any one of the following: moment frames, braced frames, or a combination of the two. It is anticipated that the lateral-force-resisting system, whether moment frames or braced frames, would be located along the perimeter of the building, which would accommodate maximum flexibility for planning and space layout. The foundation for the new building would likely be a cast-in-place drilled pile foundation system.

Tenant Improvements

The tenant improvements would be performed in the North Support Building to provide space for the MACC administrative departments. The South Support Building would be reorganized to serve as the main warehouse for the MACC. The South Support Building may also serve as a central distribution center for other Los Angles County healthcare facilities in the area. Other tenant improvements would be performed in the Interns and Physicians and Plant Management Buildings for support functions to the MACC.

Site Improvements

The site work would consist of a new parking terrace, relocated entrance to the facility, new parking lots, restriping of existing lots, and new landscaping at the entry of the new MACC and its surrounding area. A space for an emergency generator and a service yard with technical (tech) dock positions that connect mobile radiology equipment would also be provided.

In addition, site work would include improvements at 120th Street at the northern boundary of the proposed project site. These site improvements would entail removing the existing cross walk and traffic signal at the new Oasis Clinic; adding a new crosswalk and traffic signal at the new campus (Medical Center Drive) entry; prohibiting curbside parking on both sides of 120th Street for a distance of approximately 300 feet east and 200 west of the new Medical Center Drive entrance;[3] adding a left-turn lane westbound at the new Medical Center Drive entrance; removing and replacing approximately 500 linear feet of street at Medical Center Drive entrance and/or constructing inlets and extending the public storm drain to remedy potential drainage defects; repairing and/or replacing the curb, gutter, and sidewalk where necessary; and planting additional street trees and landscape.

Tier I would be expected to generate approximately 150 temporary construction jobs and no new permanent or operational staff positions, as Tier I would require only existing staff to be shifted into the new Tier I facilities.

Tier II Master Plan Development

Tier II of the project would entail the development of a campus-wide Master Plan. It is anticipated that the development described in the Master Plan would seek to prepare the project site for future mixed-use campus support development that would provide the health services necessary to respond to and address the needs of the community. Tier II would have the potential to build out approximately 1,814,696 square feet of development on the proposed project site with mixed uses, including medical office, commercial, retail, office space, recreation, and other development in support of the campus. In addition, up to 100 residential units, to be developed at a multifamily density consistent with surrounding residential area multifamily development densities, are proposed in Tier II. Although these buildings would be vacated as a component of Tier I, the Tier II components would entail the reuse, replacement, or removal of the existing MACC Building, Emergency Room, Storage Building, and Cooling Towers.

The Tier II components are conceptual at this time and, therefore, will be discussed only at a programmatic level in the EIR, as permitted under CEQA. Once the detailed future development plans for Tier II components are prepared, consistent with the guidelines for programmatic EIRs under CEQA, the projects will be examined in light of the program EIR analysis, to determine whether additional environmental document(s) must be prepared.

In accordance with §15168 of the State CEQA Guidelines, the program-level analysis that is provided in this EIR document for Tier II of the proposed project is intended to be prepared for a series of actions that can be characterized as one large project, such as a master plan. Through a programmatic EIR, the County seeks to provide the public, responsible agencies, and interested parties an opportunity for a more exhaustive consideration of the Tier II effects and alternative than would be practical in an EIR for each individual action; furthermore, the County can consider broad program-

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[3] This would remove approximately 30 curbside parking spaces on 120th Street. Adequate off-street parking is proposed to be provided on-site at the campus to account for the removal of these curbside-parking spaces.

wide mitigation measures at an early time when there is greater flexibility to deal with basic problems or cumulative impacts. It is understood, however, that subsequent activities described within Tier II of the proposed project must be evaluated in light of the programmatic EIR to determine whether additional environmental document(s) must be prepared.

Although some variation in the distribution of these uses (i.e., percentage of the total) may occur when the project is implemented, the description of Tier II elements are a reasonable projection at this time of the land use distribution for the purposes of environmental impact assessment.

Tier II development would be expected to generate approximately 150 temporary construction jobs that would vary according to the development and will be determined in the future Master Plan. Tier II also has the potential to result in a range of new permanent or operational staff positions. The County has estimated a conservative number of 100 jobs that could be associated with Tier II of the project.[4]

Leadership in Energy and Environmental Design Elements

On January 16, 2007, the County of Los Angeles Board of Supervisors approved the Countywide Energy and Environmental Policy. The Countywide Energy and Environmental Policy consists of programs that are designed to institute energy conservation and environmental stewardship into all County efforts.[5] As part of the Countywide Energy and Environmental Policy, the County has established requirements for capital construction. The County requires that all new County buildings (greater than 10,000 square feet) under the County's Capital Project Program, which includes capital improvement and development projects, shall be Leadership in Energy and Environmental Design (LEED) certified at the silver level.[6]

Development of the new MACC Building and the Ancillary Building under Tier I of the proposed project are currently registered with the U.S. Green Building Council under LEED for New Construction (LEED-NC).[7] The County will seek LEED silver certification for the MACC Building and the Ancillary Building.[8] In addition, any County buildings that are more than 10,000 square feet that are developed under Tier II of the proposed project will be required to seek a minimum LEED silver certification. The LEED program recognizes and promotes a project's success in five areas: (1) sustainable sites, (2) water efficiency, (3) energy and atmosphere efficiencies, (4) materials and resources, and (5) indoor environmental quality. In addition, the federal government has a program titled Green Guide for Healthcare Construction (GGHC), which is designed to help hospitals navigate

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[4] This range is a conservative assessment based on coordination with the County. These numbers are based solely on estimates regarding what could occur as part of this project and do not reflect known or actual trends, although related labor forecasts completed by the U.S. Bureau of Labor Statistics (BLS) were reviewed. The U.S. BLS, November 2009 Monthly Labor Review (available at http://www.bls.gov/opub/mlr/2009/11/mlr200911.pdf) projected the following for the year 2018: jobs in the health care and service assistance field will account for approximately 12 percent; retail and trade would account for 10 percent; professional business would account for 14 percent; and leisure and hospitality would account for approximately 9 percent of the available nonfarm jobs in the United States in 2018.

[5] County of Los Angeles. Accessed August 2010. "Energy and Environmental Efforts." Web site. Available at: http://green.lacounty.gov/green_buildings.asp

[6] County of Los Angeles. Accessed August 2010. "Energy and Environmental Efforts." Web site. Available at: http://green.lacounty.gov/green_buildings.asp

[7] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

[8] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

through the LEED program. The proposed project would incorporate energy efficient and sustainable strategies throughout the construction, development, and operation of the proposed project.

The development of Tier I and Tier II of the proposed project would utilize and incorporate materials to ensure visual consistency and continuity at the proposed project site and within the surrounding area. The proposed project must adhere to the design goals presented in the campus planning and programming report that was prepared for the MLK Medical Center Campus by HMC Architects in 2009. The report stated that the proposed architecture should achieve the following:

- Respect the existing fabric of buildings;
- The selection of exterior material and architectural forms should make reference to the material palette of the existing campus while incorporating contemporary materials and building technologies to project the future vision of this campus;
- The juxtaposition and massing of the new buildings should be strategically located to allow visitors a pleasurable aesthetic experience; and
- The open spaces created in between the buildings are designed the variations in size, shape, and scale that are conducive to pedestrian travel through the campus.[9]

II.2 CONSTRUCTION SCENARIO

The information contained in the construction scenario for reasonably anticipated construction related activity for the proposed project tiers was developed based on assessments completed for projects of a comparable size and was used in the assessment of potential construction impacts to air quality, ambient noise levels, and traffic and circulation.

The construction of the proposed project would comply with all applicable code and ordinance requirements for construction, access, water main, fire flows, and fire hydrants. Specific fire and line safety requirements for the construction of the proposed project would be reviewed for approval during each building's fire plan check. It is understood that there may be additional fire and other safety requirements that result from the plan check.

It is anticipated that the site Emergency Response and Evacuation plans will be updated for both Tier I and Tier II of the proposed project as appropriate and that these plans will address all campus development, as each building is completed.

It is also understood that communication with the County Fire Department, Sheriff's Department, and other emergency response agencies will continue throughout the development of both tiers of the proposed project. It is further understood that the County of Los Angeles would coordinate with the respective service agencies for Tier II of the proposed project to review the specific proposed development during the planning phase of the proposed project to confirm whether Tier II of the proposed project adequately meets the requirements of the respective service provider.

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[9] HMC Architects. 18 September 2009. *Martin Luther King, Jr. Medical Center Campus—Campus Planning and Programming Report*. Los Angeles, CA.

Tier I Construction Scenario

Tier I of the proposed project—which consists of the construction of the new MACC Building, the Ancillary Building, tenant improvements, site improvements, and potential relocation of the MRI Building—would require approximately 37 months to complete (March 2011 to April 2014). Construction at the proposed project site is anticipated to be in accordance with all federal, state, regional, and county regulations, including the National Pollution Discharge Elimination System and the County General Plan.[10,11]

It is anticipated that construction related to Tier I for the proposed project may require the type of equipment listed below in Table II.2-1, *Anticipated Construction Equipment*. The information contained in Table II.2-1 will be used in the assessment of potential construction impacts to air quality, ambient noise levels, and traffic and circulation for Tier I of the proposed project. This information was prepared in consultation with the County of Los Angeles Department of Public Works, HMC Architects, and representatives from the American Institute of Architects.

TABLE II.2-1
ANTICIPATED CONSTRUCTION EQUIPMENT

Approximate Quantity	Type of Equipment or Vehicle	Approximate Duration of On-Site Construction Activity (in months)
2	Man lift	3
4	Pickup truck	8
2	Hand compactor	5
2	Crane	3
1	Concrete mixer	4
1	Backhoe	3
40–60	Crew members	8
50	Crew vehicles (maximum)	8
1	Pile Driver	6
1	Large Bulldozer	3
2	Dozer	3
1	Front-end loader	1
1	Water truck	2
1	Grader	1
5	Dump truck	6
16	Concrete mix truck	9
1	Roller	1
3	Fork lift / grade all	3

Site preparation and construction of the proposed project would be in accordance with all federal, state, and county building codes. Daily construction activities would be subject to County noise regulations. All construction-related activities would be scheduled in compliance with the County Noise Ordinance, which prohibits construction activities and operation of construction equipment between the hours of 8:00 p.m. and 7:00 a.m., Monday through Friday, or at any time on Sunday or

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[10] U.S. Environmental Protection Agency. 2009. *National Pollution Discharge Elimination System*. Available at: http://cfpub.epa.gov/npdes/

[11] County of Los Angeles Department of Regional Planning. 1980. *County of Los Angeles General Plan*. Available at: http://planning.lacounty.gov/generalplan#gp-existing

holidays. Work conducted on Saturdays would commence at 7:00 a.m. and cease no later than 5:00 p.m. Noise levels exceeding 65 dBA (decibels, A-weighted sound levels) for single-family residences and 70 dBA for multifamily residences during construction hours are prohibited.

The construction contractor would ensure that source-reduction techniques and the development of recycling programs during construction and operation of the proposed project are considered and implemented whenever possible.[12] In addition, employee vehicles, construction equipment and vehicles, and storage and materials used throughout the proposed project site would be located in a designated staging area in an effort to minimize impacts to the site, pedestrians, and medical center employee or visitor traffic.

It is anticipated that there would be grading activities associated with the development of Tier I of the proposed project. It is anticipated that the approximately 40,000 cubic yards of material would be exported from the site during construction of the proposed project. It is further anticipated that excavation may exceed 20 feet but would not be expected to be greater than 45 feet deep. It is anticipated that a geotechnical engineer would be available for observation and testing of the earthwork-related tasks to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered would be evaluated by the proposed project engineering geologist and the soil engineer.[13] The existing access roads to and the streets surrounding the proposed project site would be used to transport import, export, and other construction related materials to and from the proposed project site. Specifically, construction-related vehicles would access the proposed project site from the north and south of the campus.

North Haul Route

The north hauling route would consist of the following: a vehicle would exit I-105 at Wilmington Avenue, travel south on Wilmington Avenue to East 120th Street, turn right on East 120th Street, and head west to the north parking lot entrance. A vehicle would exit the site at the north parking lot and turn right, travel east on 120th Street, turn left on Wilmington Avenue, and travel north to I-105.

South Haul Route

The south-hauling route would consist of the following: a vehicle would exit 1-105 at Wilmington Avenue, travel south to the alley at the southern border of the campus, and turn right onto the campus. A vehicle would exit the site by heading west toward Compton Avenue, turn right and travel north on Compton Avenue, turn right on East 120th Street, head east toward Wilmington Avenue, turn left on Wilmington Avenue, and travel north to I-105.

Further analysis regarding the structural integrity of the roads along the hauling routes may be required and reviewed by the County Department of Public Works. In the event that the designated roads described in the hauling routes do not meet the structural integrity required for the purposes of the proposed project, it is possible that reconstruction of these roadways would be required to increase the structural integrity, to handle increased loading.

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[12] *Los Angeles County Code*. Title 12, "Environmental Protection," Chapter 20.87.08.060, "Approval of Recycling and Reuse Plan." Available at: http://ordlink.com/codes/lacounty/index.htm

[13] URS. 14 May 2009. *Geotechnical Investigation*. Los Angeles, CA.

The construction contractor would be required to incorporate best management practices (BMPs) consistent with the guidelines provided in the California Storm Water Best Management Practice Handbooks: Construction.[14] Should the construction period continue into the rainy season, supplemental erosion measures would need to be implemented, including, but not limited to, the following:

- Mulching
- Geotextiles and mats
- Earth dikes
- Temporary drains and gullies
- Silt fence
- Straw-bale barriers
- Sandbag barrier
- Brush or rock filter
- Sediment trap

The anticipated construction period would begin in March 2011 and conclude in April 2014. BMPs to control surface runoff and soil erosion would be required for construction taking place during rainy periods.

Construction equipment would be turned off when not in use. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times. It is currently anticipated that an average of 150 construction workers would be on-site at any given time during the construction of the proposed project.

Construction-related ingress and egress to the proposed project site would occur primarily off East 120th Street to the north or Wilmington Avenue to the east. Construction-related traffic delays and other nuisance traffic would be anticipated on the street identified above in the haul routes, as well as on the streets surrounding the campus as a result of the proposed project. The County would maintain the roads as necessary throughout the operation and maintenance of the proposed project. Furthermore, it is understood that all construction-related plans—including, but not limited to, hauling routes, construction scheduling (regarding deliveries of material, import/export, use of equipment, or other construction-related scheduling), and access to the proposed project—would be subject to the review and approval of the County Department of Public Works, Traffic and Lighting Division, and all other relevant agencies. Potential impacts related to construction, including potential impacts to the roadways surrounding the proposed project site, are further analyzed in this EIR.

Tier II Construction Scenario

The Tier II of the proposed project consists of a campus-wide Master Plan including up to 1,814,696 square feet of development on the proposed project site. The potential construction scenario for Tier II may be envisioned as a multiphase process to be completed concurrently with Tier I. The construction scenario is to develop Tier II within an approximately 10-year timeframe, between 2010 and 2020. For the purposes of the analysis contained in this document, a build-out year of 2020 has been assumed for Tier II of the proposed project. This analysis approach of the construction scenario has been

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[14] California Stormwater Quality Association. 2009. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

developed based on an aggressive scenario (which allows the proposed project site to be developed to the maximum extent possible) to allow the consideration of a reasonable worst-case environmental impacts scenario, which encompasses the maximum anticipated impacts of the proposed project, in the event that the County chooses to complete up to 1,814,696 square feet of development.

The type and quantity of equipment that would potentially be used in construction of Tier II would vary for each component. However, for the purposes of this analysis, it is anticipated that development of Tier II would require multiple phases that would utilize equipment that is comparable to the equipment described in Table II.2-1 for each phase.

Site preparation and construction of the proposed project would be in accordance with all federal, state, and county building codes.

As with Tier I of the proposed project, the construction contractor would ensure that source-reduction techniques and the development of recycling programs during construction and operation of the proposed project are considered and implemented whenever possible.[15] The construction contractor would be required to incorporate BMPs consistent with the guidelines provided in the California Storm Water Best Management Practice Handbooks: Construction.[16]

BMPs to control surface runoff and soil erosion would be required for construction taking place during rainy periods.

Any construction equipment used during the potential development of Tier II would be turned off when not in use to reduce idling to the maximum extent possible. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times. It is currently anticipated that on average, up to 400 construction workers would be on-site at any given time during the construction of the Tier II portion of the proposed project. It is also anticipated that approximately 60 County project and construction management staff would be at the site during Tier II construction. However, this number could vary as a result of the type an amount of work being completed on-site throughout the tier.

Construction-related ingress and egress to the proposed project site would occur primarily off East 120th Street to the north or Wilmington Avenue to the east.

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[15] *Los Angeles County Code*. Title 12, "Environmental Protection," Chapter 20.87.08.060, "Approval of Recycling and Reuse Plan." Available at: http://ordlink.com/codes/lacounty/index.htm

[16] California Stormwater Quality Association. 2009. *California Stormwater Best Management Practice Handbooks: Construction*. Menlo Park, CA. Available at: http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

SECTION III
MONITORING PROGRAM

The mitigation monitoring program (MMP) contained herein satisfies the requirements of the California Environmental Quality Act (CEQA) as it relates to the Environmental Impact Report (EIR) for the Martin Luther King, Jr. Medical Center Campus Redevelopment project. The Draft EIR, dated August 31, 2010, was circulated for a 45-day public review and comment period.

The EIR identifies mitigation measures that have been incorporated into the project to avoid, reduce, and mitigate significant impacts for Tier I and Tier II of the Martin Luther King, Jr. Medical Center Campus Redevelopment project. Tier I mitigation measures were provided for the following impact areas: aesthetics, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, and transportation and traffic. Tier II mitigation measures include aesthetics, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, transportation and traffic, and utilities and service systems. This MMP has been designed to ensure compliance with mitigation measures defined in the EIR during implementation of the project. This MMP would be adopted by the County of Los Angeles (County). Table III-1, *Martin Luther King, Jr. Medical Center Campus Redevelopment Project Mitigation Monitoring Plan*, lists those mitigation measures required by the County to mitigate or avoid significant impacts anticipated in association with the EIR project description. It shall be the responsibility of the County to carry out the MMP by imposing the requirements of the mitigation measures throughout the implementation of the proposed project.

The Monitoring Program element of the MMP describes each required mitigation measure organized by impact area, with an accompanying delineation of the following:

- The Responsible Agency (agency or agencies (or private parties) responsible for implementation)
- The Implementation Period (period of the project during which implementation of the mitigation measure is to be monitored)
- The Enforcement Agency (the agency with the power to enforce the mitigation measure)
- The Monitoring Agency (the agency to whom the reports are made)

As the indicated mitigation measures are completed, the Monitoring Agency will sign and date the MMP to indicate that the required mitigation measure has been completed for the subject period. The Monitoring Agency will also note the documentation (title of the monitoring report) that was submitted for each mitigation measure.

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Aesthetics						
Tier I						
Measure Aesthetics-1 All exterior lighting for building and on-site security lighting shall be shielded and directed downward to minimize the impacts on the surrounding land uses. New development shall not include large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) on three facade. In addition, any glazed north-facing facade shall be set over 200 feet from the street in order to ensure that it would not be subject to direct sunlight except very early and late in the day for a few winter days.	Preconstruction: County of Los Angeles Contract Architect; Construction: County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Field Monitoring Reports During Building Construction	____________________ (Signature/Date of Monitoring Agency)
Tier II						
Measure Aesthetics-1 All exterior lighting for building and on-site security lighting shall be shielded and directed downward to minimize the impacts on the surrounding land uses. New development shall not include large expanses of reflective or otherwise glare-producing surfaces (such as windows or walls) on three facade. In addition, any glazed north-facing facade shall be set over 200 feet from the street in order to ensure that it would not be subject to direct sunlight except very early and late in the day for a few winter days.	Preconstruction: County of Los Angeles Contract Architect; Construction: County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Field Monitoring Reports During Building Construction	____________________ (Signature/Date of Monitoring Agency)
Measure Aesthetics-2 The County of Los Angeles shall review all plans for the Tier II development. Contractors shall conform with all design features described in the Campus Planning and Programming Report, which is intended to serve as a guide for development at the project site to ensure visual consistency and continuity at the project site and within the surrounding area.	Preconstruction: County of Los Angeles Contract Architect; Construction: County of Los Angeles Construction Contractor	Tier II Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Campus Planning and Programming Report	____________________ (Signature/Date of Monitoring Agency)
Measure Aesthetics-3 All development shall be limited to three stories in height if the structure would be located along the western or eastern edge of the property. The existing setback includes the pediatric modular building/ oasis clinic located approximately 14 feet from the property line along the eastern boundary at Wilmington Avenue, Interns and Physicians Building at approximately 20 feet from property line along the western boundary at Compton Avenue, the Hawkins Building located at approximately 30 feet from property line along the northern boundary at 120th Street, and the Cooling Tower located at 44 feet from the property line along the south. Alternatively, if a structure would exceed three stories in height along the perimeter of the property (western or eastern perimeter only), at a minimum, the County of Los Angeles shall ensure that the building would be required stay within the approximately 20-foot and 14-foot existing campus respective western and eastern boundary setbacks to reduce shade and shadow impacts to adjacent land uses along Compton Avenue and Wilmington Avenue.	County of Los Angeles Contract Architect	Preconstruction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Measure Aesthetics-4 All development shall be limited to three stories in height if the structure would be located along the western or eastern edge of the property. The existing setback includes the pediatric modular building/ oasis clinic located approximately 14 feet from the property line along the eastern boundary at Wilmington Avenue, Interns and Physicians Building at approximately 20 feet from property line along the western boundary at Compton Avenue, the Hawkins Building located at approximately 30 feet from property line along the northern boundary at 120th Street, and the Cooling Tower located at 44 feet from the property line along the south.	Preconstruction: County of Los Angeles Contract Architect; Construction: County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Landscape Plans and Final Project Design Plans	____________________ (Signature/Date of Monitoring Agency)
Air Quality						
Tier I: Air quality mitigation measures are provided to reduce construction-phase criteria pollutant emissions to the maximum extent feasible and to ensure compliance with SCAQMD Rule 403 Fugitive Dust in order to reduce, prevent, or mitigate particulate matter emissions from the proposed project's construction phase.						
Measure Air-1 Water or a stabilizing agent shall be applied during Tier I to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the County of Los Angeles to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour as instantaneous gusts), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the County of Los Angeles. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. The County of Los Angeles shall also ensure that the plans and specifications for each element of the project include a requirement for ground cover to be replaced in disturbed areas as quickly as practicable and that the County of Los Angeles appoints a construction relations officer to act as a community liaison concerning on-site construction activity including addressing issues related to fugitive dust generation.	County of Los Angeles' Project Engineer; County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Weekly Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-2 Moistening or covering of excavated soil piles shall be required during Tier I to treat grading areas during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Measure Air-3 Discontinuing Tier I construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour as instantaneous gusts) shall be discontinued to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour as instantaneous gusts.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-4 Track-out during Tier I shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Track-out is defined by the South Coast Air Quality Management District as any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday. Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-5 A wheel washing system shall be installed during Tier I, and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site. Washing of wheels leaving the construction site during construction of each element shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-6 All haul trucks hauling soil, sand, and other loose materials during Tier I shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). All transport of soils to and from the project site for each element shall be conducted in a manner that avoids fugitive dust emissions and ensures compliance with current air quality standards. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Measure Air-7 Traffic speeds on unpaved roads during Tier I shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-8 Heavy-equipment Tier I operations shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure heavy-equipment operations be suspended during first- and second-stage smog alerts.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-9 All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized and/or limited to no more than five minutes in accordance with state law. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria. All on-site construction equipment shall be required to meet U.S. EPA Tier 2 or higher emissions standards according to the following: • April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. • January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. • Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Measure Air-10 Wherever possible, contractors shall use materials that do not require painting or use pre-painted materials. In order to minimize emissions of volatile organic compounds, contractors shall use high-pressure, low-volume paint applicators with a minimum transfer efficiency of at least 50 percent and coatings and solvents with a volatile organic compound content lower than required under South Coast Air Quality Management District Rule 1113, Architectural Coatings: • Clear wood finishes: 275 grams/liter • Floor coatings: 50 grams/liter • Sealers: waterproofing sealers 100 grams/liter; sanding sealers 275 grams/liter; all other sealers 100 grams/liter • Shellacs: Clear 730 grams/liter; pigmented 550 grams/liter • Stains: 100 grams/liter	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-11 The following measures shall be implemented, wherever feasible, to reduce operational air quality impacts: • Improve traffic flow by signal synchronization • Ensure County-owned campus vehicles use clean fuels such as compressed natural gas and that shuttle buses for the campus are "clean" buses, such as 2010 compliant vehicles • Require all County of Los Angeles and County of Los Angeles contractor vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications • Provide services that promote ridesharing and vanpools • Provide charging stations or preferred parking for alternative technology vehicles • Provide preferred parking for carpools and vanpools • Reduce energy consumption by providing alternative energy sources on site and installing energy-efficient appliances	County of Los Angeles Construction Contractor	Operation	County of Los Angeles Department of Public Works (monitoring report review)	County of Los Angeles Department of Public Works	Operational Guidelines and Site Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Tier II						
Measure Air-1 Water or a stabilizing agent shall be applied during Tier I to exposed surfaces in sufficient quantity to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element, the plans and specifications shall be reviewed by the County of Los Angeles to ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions (when winds exceed 25 miles per hour as instantaneous gusts), in order to maintain a soil moisture content of 12 percent, as determined by American Society for Testing and Materials method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency. The construction contractor shall demonstrate compliance with this measure through the submission of weekly	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Weekly Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
monitoring reports to the County of Los Angeles. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. The County of Los Angeles shall also ensure that the plans and specifications for each element of the project include a requirement for ground cover to be replaced in disturbed areas as quickly as practicable and that the County of Los Angeles appoints a construction relations officer to act as a community liaison concerning on-site construction activity including addressing issues related to fugitive dust generation.						
Measure Air-2 Moistening or covering of excavated soil piles shall be required during Tier II to treat grading areas during construction of each element of the project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-3 Discontinuing Tier I construction activities that occur on unpaved surfaces during windy conditions (when winds exceed 25 miles per hour as instantaneous gusts) shall be discontinued to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour as instantaneous gusts.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-4 Track-out during Tier II shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Track-out is defined by the South Coast Air Quality Management District as any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday. Street sweepers should also comply with SCAQMD Rules 1186 and 1186.1 and use reclaimed water, if available.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Measure Air-5 A wheel washing system shall be installed during Tier II, and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site. Washing of wheels leaving the construction site during construction of each element shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-6 All haul trucks hauling soil, sand, and other loose materials during Tier II shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). All transport of soils to and from the project site for each element shall be conducted in a manner that avoids fugitive dust emissions and ensures compliance with current air quality standards. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-7 Traffic speeds on unpaved roads during Tier II shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-8 Heavy-equipment Tier II operations shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element include the requirement for the construction contractor to ensure heavy-equipment operations be suspended during first- and second-stage smog alerts.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Measure Air-9 All equipment shall be turned off when not in use. Engine idling of all equipment used during both construction and operation/maintenance shall be minimized and/or limited to no more than five minutes in accordance with state law. All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification. Prior to advertising for construction bids for each element of the project, the County of Los Angeles shall ensure that the plans and specifications for each element of the project include the requirement for the construction contractor to ensure the construction equipment meet the aforementioned criteria. All on-site construction equipment shall be required to meet U.S. EPA Tier 2 or higher emissions standards according to the following: • April 1, 2010, to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. • January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. • Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Measure Air-10 Wherever possible, contractors shall use materials that do not require painting or use pre-painted materials. In order to minimize emissions of volatile organic compounds, contractors shall use high-pressure, low-volume paint applicators with a minimum transfer efficiency of at least 50 percent and coatings and solvents with a volatile organic compound content lower than required under South Coast Air Quality Management District Rule 1113, Architectural Coatings: • Clear wood finishes: 275 grams/liter • Floor coatings: 50 grams/liter • Sealers: waterproofing sealers 100 grams/liter; sanding sealers 275 grams/liter; all other sealers 100 grams/liter • Shellacs: Clear 730 grams/liter; pigmented 550 grams/liter • Stains: 100 grams/liter	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); Construction: County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Final Plans and Specifications and Construction Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Measure Air-11 The following measures shall be implemented, wherever feasible, to reduce operational air quality impacts: • Improve traffic flow by signal synchronization • Ensure County-owned campus vehicles use clean fuels such as compressed natural gas and that shuttle buses for the campus are "clean" buses, such as 2010 compliant vehicles • Require all County of Los Angeles and County of Los Angeles contractor vehicles and equipment to be properly tuned and maintained according to manufacturers' specifications • Provide services that promote ridesharing and vanpools • Provide charging stations or preferred parking for alternative technology vehicles • Provide preferred parking for carpools and vanpools • Reduce energy consumption by providing alternative energy sources on site and installing energy-efficient appliances	County of Los Angeles Construction Contractor	Operation	County of Los Angeles Department of Public Works (monitoring plan review)	County of Los Angeles Department of Public Works	Operational Guidelines and Site Monitoring Reports	____________________ (Signature/Date of Monitoring Agency)
Cultural Resources: Implementation of the following mitigation measures are recommended to avoid, reduce, or eliminate the potential impacts related to cultural resources.						
Tier I						
Measure Cultural-1, Paleontological Resources The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the proposed project shall be reduced to below the level of significance by monitoring, salvage, and curation of unanticipated paleontological resources discovered during ground-disturbing activities in previously undisturbed native soils located 15 or more feet below the ground surface that would have the potential to contact extant older Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology: • Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found. • Prior to any ground-disturbing activities, the County of Los Angeles shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. • A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources. • Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological	County of Los Angeles	Construction	County of Los Angeles Department of Public works (monitoring log and report review)	County of Los Angeles Department of Public Works	Daily Monitoring Log Mitigation Report and Technical Report if fossil localities are discovered	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find. - If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing. - Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored, the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered, fossil specimens recovered, and associated specimen data. - All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository, regarding the final disposition, permanent storage, and maintenance of any significant fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written agreement shall specify the level of treatment (i.e., preparation, identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed. - Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended, itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, signify the completion of the program to mitigate impacts to paleontological resources.						
Measure Cultural-2, Human Remains Although the discovery of human remains is not anticipated during ground-disturbing activities for the proposed project, a process has been delineated for addressing the unanticipated discovery of human remains: - Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met: ▪ The Los Angeles County Coroner has determined that no investigation of the cause of death is required ▪ Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences in writing to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98	County of Los Angeles	Construction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	N/A	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Tier II						
Measure Cultural-1, Paleontological Resources The impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource from the proposed project shall be reduced to below the level of significance by monitoring, salvage, and curation of unanticipated paleontological resources discovered during ground-disturbing activities in previously undisturbed native soils located 15 or more feet below the ground surface that would have the potential to contact extant older Quaternary Alluvium. Ground-disturbing activities include, but are not limited to, drilling, excavation, trenching, and grading. If paleontological resources are encountered during ground-disturbing activities, the County of Los Angeles shall require and be responsible for salvage and recovery of those resources consistent with standards for such recovery established by the Society of Vertebrate Paleontology: • Paleontological Resources Sensitivity Training is required for all project personnel prior to the start of ground-disturbing activities. This brief (approximately 15 minute) field training reviews what fossils are, what fossils might potentially be found, and the appropriate procedures to follow if fossils are found. • Prior to any ground-disturbing activities, the County of Los Angeles shall be responsible for creating a site plan that indicates all locations of ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. • A qualified paleontologist shall be retained to implement a monitoring and recovery program in any area identified as having the potential to contain unique paleontological resources. • Construction monitoring by a qualified paleontological monitor shall be implemented during all ground-disturbing activities that affect previously undisturbed native soils in areas located 15 feet below the ground surface or further and have the potential to contact older Quaternary Alluvium. Should a potentially unique paleontological resource be encountered, ground-disturbing activities within 100 feet shall cease until a qualified paleontologist assesses the find. • If fossil localities are discovered, the paleontologist shall assess the find and proceed accordingly. This includes the controlled collection of fossil and geologic samples for processing. • Daily logs shall be kept by the qualified paleontological monitor during all monitoring activities. The daily monitoring log shall be keyed to a location map to indicate the area monitored the date, and assigned personnel. In addition, this log shall include information of the type of rock encountered; fossil specimens recovered, and associated specimen data. • All significant specimens collected shall be appropriately prepared, identified, and catalogued prior to their placement in a permanent accredited repository. The qualified paleontologist shall be required to secure a written agreement with a recognized repository, regarding the final disposition, permanent storage, and maintenance of any significant fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the specified monitoring program. The written agreement shall specify the level of treatment (i.e., preparation,	County of Los Angeles	Construction	County of Los Angeles Department of Public Works (monitoring log and report review)	County of Los Angeles Department of Public Works	Daily Monitoring Log Mitigation Report and Technical Report if fossil localities are discovered	______________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
identification, curation, cataloguing, etc.) required before the fossil collection would be accepted for storage. In addition, a technical report shall be completed. • Within 90 days of the completion of any salvage operation or monitoring activities, a mitigation report shall be submitted to the County of Los Angeles with an appended, itemized inventory of the specimens. The report and inventory, when submitted to the County of Los Angeles, signify the completion of the program to mitigate impacts to paleontological resources.						
Measure Cultural-2, Human Remains Although the discovery of human remains is not anticipated during ground-disturbing activities for the proposed project, a process has been delineated for addressing the unanticipated discovery of human remains: • Unanticipated Discovery of Human Remains (Public Resources Code 5097). The Los Angeles County Coroner shall be notified within 24 hours of the discovery of human remains. Upon discovery of human remains, there shall be no further excavation or disturbance of the site or any of that area reasonably suspected to overlie adjacent human remains until the following conditions are met: ▪ The Los Angeles County Coroner has determined that no investigation of the cause of death is required, and ▪ Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the Los Angeles County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. If the remains are of Native American origin, the descendants from the deceased Native Americans shall complete their inspection and make recommendations or preferences in writing to the landowner or the person responsible for the excavation work, for treatment or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.	County of Los Angeles	Construction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	N/A	____________________ (Signature/Date of Monitoring Agency)
Measure Cultural-3, Historical Resources Potentially significant adverse impacts to historical resources have been identified in relation to five historical resources as a result of implementation of the Tier II project:, the Martin Luther King, Jr. Medical Center Campus Historic District, MACC, Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium. Three mitigation measures have been identified in association with Tier II to reduce impacts to the maximum extent practicable. In the event that the five historical resources are not removed or otherwise impacted through significant modifications or alterations to the character-defining features of these resources, this impact would be less than significant and would not require mitigation. Tier II impacts to four significant historical resources (Multi-Service Ambulatory Care Center [MACC], Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and Dr. H. Claude Hudson Auditorium) and the integrity of the Martin Luther King, Jr. Medical Center Campus Historic District (a fifth historic resource) shall be reduced to below the level of significance through utilization of the Secretary of the Interior's Standards for the	County of Los Angeles Architectural Historian	Preconstruction	Preconstruction: County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Treatment of Historic Properties with Guidelines of Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings for any proposed alterations, including all site work, structural upgrades, architectural, and mechanical systems improvements and repairs. The work shall conform to the standards and guidelines for "rehabilitation." Conformance with the Secretary of the Interior's Standards shall be monitored by an architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualification Standards. Completion of this mitigation measure shall be monitored and enforced by the County of Los Angeles.						
Measure Cultural-4, Historical Resources Tier II impacts resulting from demolition or substantial alteration of significant historical resources not in conformance with the Secretary of the Interior's Standards shall be reduced to the maximum extent feasible through archival documentation of as-found condition. Prior to the initiation of construction activities, the County of Los Angeles shall ensure that documentation of the Martin Luther King, Jr. Medical Center Campus Historic District, Multi-Service Ambulatory Care Center (MACC), Augustus F. Hawkins Comprehensive Medical Health Center, Interns and Physicians Building, and/or Dr. H. Claude Hudson Auditorium is completed in accordance with Historic American Buildings Survey (HABS) requirements for donated material. The documentation shall be in the form of a Historic American Building Survey and shall comply with the Secretary of the Interior's Standards for Architectural and Engineering Documentation. The documentation shall include large-format photographic recordation, detailed historic narrative report, measured architectural drawings, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be offered as donated material to Historic American Building Survey for inclusion in the Library of Congress. Archival copies of the documentation also would be available at the Martin Luther King, Jr. Medical Center campus and maintained by the County of Los Angeles.	County of Los Angeles Architectural Historian	Preconstruction		County of Los Angeles Department of Public Works	Historic American Building Survey	____________________ (Signature/Date of Monitoring Agency)
Measure Cultural-5, Historical Resources Impacts resulting from the loss of integrity of the Martin Luther King, Jr. Medical Center Campus Historic District such that its significance is materially impaired will be reduced to the maximum extent feasible through the development of a retrospective exhibit detailing the history of the Martin Luther King, Jr. Medical Center Campus Historic District, its significance, and its important details and features. The retrospective exhibit shall be in the form of a physical exhibit installed on the Martin Luther King, Jr. Medical Center Campus, which is located either within a building or on a freestanding kiosk or comparable structure or installation on the property. The exhibit should commemorate the historic appearance of the district and provide the public with sufficient information to understand its historic significance. The exhibit shall be prepared by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The exhibit should be completed within a period of no more than two years from the date of completion of Tier II of the proposed project.	County of Los Angeles Architectural Historian	Construction and Post Construction	County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	Retrospective Exhibit in the form of a physical exhibit Commemorative Kiosk Imaging models of the buildings, as incorporated into exhibit	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Geology and Soils: Implementation of the following mitigation measures are recommended to avoid, reduce, or eliminate the potential impacts related to geology and soils. Potential impacts to soil erosion or loss of topsoil, unstable geologic unit or soil, and expansive soil would be reduced to below the level of significance through the implementation of California Building Code and other standard design measures required for permit approval.						
Tier I						
Measure Geology-1 The construction contractor shall incorporate best management practices consistent with the guidelines provided in the California Storm Water Best Management Practice Handbooks: Construction. As discussed in the Geotechnical Investigation that was prepared for the project site, earthwork at the project site should be performed in conformance with the Los Angeles County Building Code and other guidelines provided in the geotechnical study, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Measure Geology-2 Due to seismic compliance standards established by the Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or as required, the construction contractor shall incorporate project design elements consistent with Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or required standards, and thus further reduce any potential for impacts resulting from unstable geologic units and soils. The County of Los Angeles shall conform to measures described in the project geotechnical study(ies) to ensure compliance throughout the construction and development of the project.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Measure Geology-3 A geotechnical engineer shall be present on site for observation of earth-moving activities (such as site preparation, excavation) to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered shall be evaluated by the project engineering geologist and the soil engineer.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Tier II						
Measure Geology-1 The construction contractor shall incorporate best management practices consistent with the guidelines provided in the California Storm Water Best Management Practice Handbooks: Construction. As discussed in the Geotechnical Investigation that was prepared for the project site, earthwork at the project site should be performed in conformance with the Los Angeles County Building Code and other guidelines provided in the geotechnical study, and under the observation and testing of a geotechnical engineer, in order to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Measure Geology-2 Due to seismic compliance standards established by the Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or as required, the construction contractor shall incorporate project design elements consistent with Office of Statewide Health Planning and Development, California Building Code, Uniform Building Code, or required standards, and thus further reduce any potential for impacts resulting from unstable	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
geologic units and soils. The County of Los Angeles shall conform to measures described in the project geotechnical study(ies) to ensure compliance throughout the construction and development of the project.						
Measure Geology-3 A geotechnical engineer shall be present on site for observation of earth-moving activities (such as site preparation, excavation) to ensure proper subgrade preparation, selection of satisfactory materials, and placement and compaction of structural fills. Any unanticipated adverse conditions encountered shall be evaluated by the project engineering geologist and the soil engineer.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Greenhouse Gases: The incorporation of GHG emission mitigation measure GHG-1 would ensure a full implementation of sustainable building design for the proposed project to assist the County in attaining the goal of reducing GHG emissions to 1990 levels by the year 2020 as required by AB 32. The California Office of Attorney General's guidance to local agencies for addressing GHG emission impacts is recommended for consideration by the County to increase sustainability and reduce GHG emission impacts associated with operation of the proposed project. Among the 52 general applicable project-level measures that can be applied to a diverse range of projects, seven (7) measures have been incorporated into the design of Tier I of the proposed project. It is anticipated that these measures would also be incorporated in the design for Tier II of the proposed project. The CARB's guidance on 44 early action measures to reduce GHG emissions has been considered by the County in order to reduce GHG emission impacts associated with implementation of the proposed project. In developing mitigation measures for the proposed project, only the feasible GHG emission reduction early action measures provided by the CARB that are also applicable to the proposed project have been recommended for incorporation.						
Tier I						
Measure Greenhouse Gases-1 Prior to construction of the proposed project, the final design plan and schemes for Tier I shall be reviewed to ensure that the County of Los Angeles conforms to its commitments pursuant to the California Climate Action Registry and the greenhouse gas emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven (7) of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide (CO2) emissions per capita: • Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use • Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings • Create water-efficient landscapes • Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site.) • Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods • Incorporate provisions for future public transit into project design • Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio The review shall further ensure that all applicable sustainable design measures or comparable measures have been incorporated into the final project design.	County of Los Angeles	Preconstruction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Tier II						
Measure Greenhouse Gases-1 Prior to construction of the proposed project, the final design plan and schemes for Tier II shall be reviewed to ensure that the County of Los Angeles conforms to its commitments pursuant to the California Climate Action Registry and the greenhouse gas emissions reduction targets established in Assembly Bill 32 are dependent on the incorporation of this mitigation measure, which is based on seven (7) of the sustainable design strategies or comparable measures recommended by the California Office of Attorney General to reduce carbon dioxide (CO2) emissions per capita: • Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use • Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings • Create water-efficient landscapes • Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site.) • Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods • Incorporate provisions for future public transit into project design • Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio The review shall further ensure that all applicable sustainable design measures or comparable measures have been incorporated into the final project design.	County of Los Angeles	Preconstruction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Hazards & Hazardous Materials: Implementation of the following mitigation measures are recommended to avoid, reduce, or eliminate the potential impacts related to hazards and hazardous materials.						
Tier I						
Measure Hazards-1 To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous	County of Los Angeles Construction Contractor	Preconstruction and Construction	California Department of Transportation California Regional Water Quality Control Board, Los Angeles Region	County of Los Angeles Department of Public Works California Department of Transportation California Regional Water Quality Control Board, Los Angeles Region	Spill Prevention Control and Countermeasures	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
materials during refueling, operations and maintenance and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.						
Measures Hazards-2 To avoid exposure to asbestos-containing materials and lead-based paints during demolition, construction, and remediation activities, the County of Los Angeles and the Office of Statewide Health Planning and Development shall require that all such materials and wastes be identified and an Operations and Maintenance Plan developed prior to the issuance of demolition permits for each structure constructed prior to 1979. The Operations and Maintenance Plan shall ensure compliance with all applicable federal, state, and local requirements and specify all work to be done, including lead and asbestos surveys of structures to be demolished, proper handling and storage of lubricants and fuels for construction equipment, and methods for remediation of asbestos-containing materials and lead-based paints, if necessary. The Operations and Maintenance Plan shall be submitted to the County of Los Angeles Department of Health Services for review and approval prior to initiation of construction and demolition activities for the Multi-Service Ambulatory Care Center building, emergency room, storage building, and cooling towers. The Operations and Maintenance Plan shall, as appropriate and necessary, conform to the requirements of the Los Angeles County Department of Health Services (Local Enforcement Agency), South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, and the Department of Toxic Substances Control. Compliance with the Operations and Maintenance Plan shall be monitored by the County of Los Angeles Regional Planning Department throughout construction and demolition. To reduce impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. These agencies shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.	Construction Contractor	Preconstruction and Construction	County of Los Angeles Department of Health Services	County of Los Angeles	Operations and Maintenance Plan	____________________ (Signature/Date of Monitoring Agency)
Measure Hazards-3 Prior to the issuance of grading permits for development, the County of Los Angeles shall ensure that a Soil Management Plan is prepared for the project site and that the Office of Statewide Health Planning and Development reviews the grading plans to ensure that the construction contractor is required to stop work and notify the Certified Unified Program Agency of the unanticipated encounter of underground storage tanks during grading activities. In the event that any leaking underground storage tanks are located or encountered, the County of Los Angeles Department of Public Works shall be notified and the underground storage tank shall be remediated in accordance with County of Los Angeles guidelines and consistent with specifications of the Department of Toxic Substances Control and other relevant standards. The County of Los Angeles Fire Department Health Hazardous Materials Division shall be notified of all other contaminated soils encountered during construction-related site activities.	County of Los Angeles	Preconstruction	Office of Statewide Health Planning and Development	County of Los Angeles Department of Public Works	Soil Management Plan	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Measure Hazards-4 To avoid exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the project, the County of Los Angeles shall require that the construction contractor store, use, and transport all hazardous materials in compliance with all relevant regulations and guidelines. The routine transport of hazardous materials to and from the Martin Luther King, Jr. Medical Center Campus during construction and operation of the elements of the project shall be accomplished via Wilmington Avenue, Compton Avenue, and 119th Street. Compliance shall be determined by monitoring by regulatory agencies. Transport, storage, and handling of construction-related hazardous materials shall be consistent with the guidelines provided by the California Department of Transportation, Los Angeles Regional Water Quality Control Board, the South Coast Air Quality Management District, and the Certified Unified Program Agency. Each agency shall regulate and enforce, through permitting and record keeping, the monitoring and enforcement of this mitigation measure.	Construction Contractor	Construction and Operation	California Department of Transportation Los Angeles Regional Water Quality Control Board South Coast Air Quality Management District Certified Unified Program Agency	County of Los Angeles Department of Public Works	Permits and Construction Logs / Records	____________________ (Signature/Date of Monitoring Agency)
Measure Hazards-5 At least 30 days prior to approval of Tier I final plans and specifications for development, the Office of Statewide Health Planning and Development shall review and provide comments on the plans and specifications to ensure compliance with all requirements of the Department of Toxic Substances Control and in order to verify that the site remains unlisted on the Hazardous Materials and Substance Sites List maintained by the California Environmental Protection Agency, Department of Toxic Substances Control.	County of Los Angeles	Preconstruction	Office of Statewide Health Planning and Development Department of Toxic Substances Control	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Tier II						
Measure Hazards-1 To reduce surface water quality impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. A Spill Prevention Control and Countermeasures Plan shall be developed as a part of these requirements to address the handling of petroleum or other hazardous materials during refueling, operations and maintenance and other construction-related activities. The agencies noted here shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.	County of Los Angeles Construction Contractor	Preconstruction and Construction	California Department of Transportation California Regional Water Quality Control Board, Los Angeles Region	County of Los Angeles Department of Public Works California Department of Transportation California Regional Water Quality Control Board, Los Angeles Region	Spill Prevention Control and Countermeasures	____________________ (Signature/Date of Monitoring Agency)
Measure Hazards-2 To avoid exposure to asbestos-containing materials and lead-based paints during demolition, construction, and remediation activities, the County of Los Angeles and the Office of Statewide Health Planning and Development shall require that all such materials and wastes be identified and an Operations and Maintenance Plan developed prior to the issuance of demolition permits for each structure constructed prior to 1979. The Operations and Maintenance Plan shall ensure compliance with all applicable federal, state, and local requirements and specify all work to be done, including lead and asbestos surveys of structures to be demolished, proper handling and	Construction Contractor	Preconstruction and Construction	County of Los Angeles Department of Health Services	County of Los Angeles Department of Public Works	Operations and Maintenance Plan	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
storage of lubricants and fuels for construction equipment, and methods for remediation of asbestos-containing materials and lead-based paints, if necessary. The Operations and Maintenance Plan shall be submitted to the County of Los Angeles Department of Health Services for review and approval prior to initiation of construction and demolition activities for the MACC building, emergency room, storage building or the cooling towers. The Operations and Maintenance Plan shall, as appropriate and necessary, conform to the requirements of the Los Angeles County Department of Health Services (Local Enforcement Agency), South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, and the Department of Toxic Substances Control. Compliance with the Operations and Maintenance Plan shall be monitored by the County of Los Angeles Regional Planning Department throughout construction and demolition. To reduce impacts related to the accidental release of hazardous materials during construction, the County of Los Angeles shall ensure through its construction permitting process, or through enforcement of contractual obligations for its own projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended by California Department of Transportation, and the California Regional Water Quality Control Board, Los Angeles Region (including National Pollution Elimination Discharge Permits for storm water prior to construction. These agencies shall regulate through the permitting process the monitoring and enforcement of this mitigation measure as required by law.						
Measure Hazards-3 Prior to the issuance of grading permits for development, the County of Los Angeles shall ensure that a Soil Management Plan is prepared for the project site and that the Office of Statewide Health Planning and Development reviews the grading plans to ensure that the construction contractor is required to stop work and notify the Certified Unified Program Agency of the unanticipated encounter of underground storage tanks during grading activities. In the event that any leaking underground storage tanks are located or encountered, the County of Los Angeles Department of Public Works shall be notified and the underground storage tank shall be remediated in accordance with County of Los Angeles guidelines and consistent with specifications of the Department of Toxic Substances Control and other relevant standards. The County of Los Angeles Fire Department Health Hazardous Materials Division shall be notified of all other contaminated soils encountered during construction-related site activities.	County of Los Angeles	Preconstruction	Office of Statewide Health Planning and Development	County of Los Angeles Department of Public Works	Soil Management Plan	____________________ (Signature/Date of Monitoring Agency)
Measure Hazards-4 To avoid exposure to asbestos-containing materials, lead-based paints, and petroleum hydrocarbon–contaminated soils during routine transport and disposal for both the construction phase and operational phase of the project, the County of Los Angeles shall require that the construction contractor store, use, and transport all hazardous materials in compliance with all relevant regulations and guidelines. The routine transport of hazardous materials to and from the Martin Luther King, Jr. Medical Center Campus during construction and operation of the elements of the project shall be accomplished via Wilmington Avenue, Compton Avenue, and 119th Street. Compliance shall be determined by monitoring by regulatory agencies. Transport, storage, and handling of construction-related hazardous materials shall be consistent with the guidelines provided by the California Department of Transportation, Los Angeles Regional Water Quality Control Board, the South Coast Air Quality Management District, and the Certified Unified Program Agency. Each agency shall regulate and enforce, through permitting and record keeping, the monitoring and enforcement of this mitigation measure.	Construction Contractor	Construction and Operation	California Department of Transportation Los Angeles Regional Water Quality Control Board South Coast Air Quality Management District Certified Unified Program Agency	County of Los Angeles Department of Public Works	Permits and Construction Logs / Records	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Measure Hazards-5 At least 30 days prior to approval of Tier II final plans and specifications for development, the Office of Statewide Health Planning and Development shall review and provide comments on the plans and specifications to ensure compliance with all requirements of the Department of Toxic Substances Control and in order to verify that the site remains unlisted on the Hazardous Materials and Substance Sites List maintained by the California Environmental Protection Agency, Department of Toxic Substances Control.	County of Los Angeles	Preconstruction	Office of Statewide Health Planning and Development Department of Toxic Substances Control	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Hydrology and Water Quality: Implementation of the following mitigation measures are recommended to avoid, reduce, or eliminate the potential impacts related to hydrology and water quality.						
Tier I						
Measure Hydro-1 The County of Los Angeles shall ensure that the construction, landscape features, and site grading for Tier I of the project comply with standard best management practices set forth by the Regional Water Quality Control Board. Prior to final plans and specifications for all elements of the project, the County of Los Angeles shall review the plans and specifications for all elements to ensure that the plans and specifications require the construction contractor to prepare a Standard Urban Stormwater Mitigation Plan for construction activities and implement best management practices for construction, materials, and waste handling activities, which will include, but not be limited to: • Scheduling excavation, grading, and paving activities for dry weather periods. • Controlling the amount of runoff crossing the construction site by means of berms and drainage ditches to divert water flow around the site. • Identifying potential pollution sources from materials and wastes that will be used, stored, or disposed of on the site. • Informing contractors and subcontractors about the clean storm water requirements and enforce their responsibilities in pollution prevention through a contractual agreement • Sweeping the streets surrounding the proposed project site daily and trash removal throughout the construction of the project to avoid degradation of water quality.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Standard Urban Stormwater Mitigation Plan	____________________ (Signature/Date of Monitoring Agency)
Measure Hydro-2 The construction contractor shall incorporate Standard Urban Stormwater Mitigation Plan requirements and best management practices to mitigate storm water runoff, which include the following: • The incorporation of bio-retention facilities located within the project area • The incorporation of catch basin filtration systems • The use of porous pavements to reduce runoff volume	Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Measure Hydro-3 In the event that groundwater is encountered during Tier I construction, the County of Los Angeles shall require the construction contractor complete the dewatering operations in accordance with the established National Pollution Discharge Elimination System permit requirements.	Construction Contractor	Construction	Construction Contractor	County of Los Angeles Department of Public Works	National Pollution Discharge Elimination System permit	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Tier II						
Measure Hydro-1 The County of Los Angeles shall ensure that the construction, landscape features, and site grading for Tier II of the project comply with standard best management practices set forth by the Regional Water Quality Control Board. Prior to final plans and specifications for all elements of the project, the County of Los Angeles shall review the plans and specifications for all elements to ensure that the plans and specifications require the construction contractor to prepare a Standard Urban Stormwater Mitigation Plan for construction activities and implement best management practices for construction, materials, and waste handling activities, which will include, but not be limited to: • Scheduling excavation, grading, and paving activities for dry weather periods. • Controlling the amount of runoff crossing the construction site by means of berms and drainage ditches to divert water flow around the site. • Identifying potential pollution sources from materials and wastes that will be used, stored, or disposed of on the site. • Informing contractors and subcontractors about the clean storm water requirements and enforce their responsibilities in pollution prevention through a contractual agreement • Sweeping the streets surrounding the proposed project site daily and trash removal throughout the construction of the project to avoid degradation of water quality.	County of Los Angeles Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Standard Urban Stormwater Mitigation Plan	____________________ (Signature/Date of Monitoring Agency)
Measure Hydro-2 The construction contractor shall incorporate Standard Urban Stormwater Mitigation Plan requirements and best management practices to mitigate storm water runoff, which include the following: • The incorporation of bio-retention facilities located within the project area • The incorporation of catch basin filtration systems • The use of porous pavements to reduce runoff volume	Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Measure Hydro-3 In the event that groundwater is encountered during Tier I construction, the County of Los Angeles shall require the construction contractor complete the dewatering operations in accordance with the established National Pollution Discharge Elimination System permit requirements.	Construction Contractor	Construction	Construction Contractor	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency))
Measure Hydro-4 To ensure that operational impacts associated with Tier II remain below the level of significance, the County of Los Angeles shall require that best management practices and sustainable practices, such as regularly removing vegetation and debris from curbs, catch basins, and outlets; limiting the amount of pesticides and fertilizers used in landscaping, and other best management practice as recommended by the Environmental Protection Agency or in the California Stormwater Best Management Practice Handbooks as ongoing maintenance measures, are implemented into a maintenance plan for the campus.	County of Los Angeles	Operation	County of Los Angeles Department of Public Works	County of Los Angeles Department of Public Works	N/A	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	**Signature/Date**
Noise: Implementation of the following mitigation measures are recommended to avoid, reduce, or eliminate the potential impacts related to noise.						
Tier I						
Measure Noise-1 The County of Los Angeles shall require that the plans and specifications require that construction equipment be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 dB. The height and length of the barriers or curtains shall be determined based on location of construction activity and receptor. Because of the close proximity of the source and receptors, the noise impact would be dependent on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during demolition and construction, and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noises shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall take into account the demolition and equipment mix that would be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels.	Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Noise Control Plan	____________________ (Signature/Date of Monitoring Agency)
Measure Noise-2 Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment.	County of Los Angeles	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Measure Noise-3 The distance at which impact pile driving would not exceed a peak particle velocity of 0.2 inch per second at a residence would be 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving shall be utilized.	Construction Contractor	Construction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Measure Noise-4 The County of Los Angeles shall ensure that mechanical noise generated by the project is less than 45 dBA at residences immediately south (approximately 50 feet) of the project. This shall be achieved by implementing one, or a combination of more than one of the following strategies: utilizing quiet mechanical systems; locating mechanical systems away from residences (mechanical systems that produce a noise level of 55 dBA at 50 feet would need to be located a minimum of 160 feet from residences to bring mechanical noise levels below 45 dBA at residences), or utilizing insulating screens to break the line-of-site between the mechanical systems and nearby residences.	Construction Contractor	Construction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Tier II						
Measure Noise-1 The County of Los Angeles shall require that the plans and specifications require that construction equipment be equipped with state-of-the-art noise-muffling devices. Barriers or curtains shall be required to be installed close to equipment to shield the equipment from the receptor. Barriers or curtains utilized at the project site shall be required to reduce A-weighted construction noise levels at nearby sensitive receptors by a minimum of 10 dB or to the maximum extent possible. The height and length of the barriers or curtains shall be determined based on the location of the construction activity and receptor. Because of the close proximity of the source and receptors, the noise impact would be dependent on the location of the noise sources. Prior to the start of demolition and construction, the contractor shall develop a noise control plan based on the actual equipment that will be used during demolition and construction, and the location of various demolition and construction activities. If the actual equipment noise levels are not available, equipment noises shall be measured in the field. The noise control plan shall predict the noise levels with actual equipment and with barriers or curtains in place. In addition, the plan shall take into account the demolition and equipment mix that would be operated at the same time. Equipment mix and/or the number of equipment operating shall be considered in reducing the noise levels.	Construction Contractor	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Noise Control Plan	____________________ (Signature/Date of Monitoring Agency)
Measure Noise-2 Prior to the completion of final plans and specifications, the County of Los Angeles shall ensure that the plans and specifications include a requirement that all demolition and construction equipment be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The County of Los Angeles shall monitor the use of heavy equipment during all demolition and construction activities to ensure conformance with the requirements of properly maintained heavy equipment.	County of Los Angeles	Preconstruction and Construction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Measure Noise-3 The distance at which impact pile driving would not exceed a peak particle velocity of 0.2 inch per second at a residence would be 55 feet. Therefore, the County of Los Angeles shall require that impact pile driving not be utilized within 55 feet of a residential structure. Should pile driving be necessary within 55 feet of a residence, sonic pile driving shall be utilized.	Construction Contractor	Construction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)
Measure Noise-4 The County of Los Angeles shall ensure that mechanical noise generated by the project is less than 45 dBA at residences immediately south (approximately 50 feet) of the project. This shall be achieved by implementing one, or a combination of more than one of the following strategies: utilizing quiet mechanical systems; locating mechanical systems away from residences (mechanical systems that produce a noise level of 55 dBA at 50 feet would need to be located a minimum of 160 feet from residences to bring mechanical noise levels below 45 dBA at residences), or utilizing insulating screens to break the line-of-site between the mechanical systems and nearby residences.	Construction Contractor	Construction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	Final Plans and Specifications	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Transportation and Traffic: Implementation of the following mitigation measures are recommended to avoid, reduce, or eliminate the potential impacts related to transportation and traffic.						
Tier I						
Measure Traffic-1 To reduce the traffic-related construction impacts, the County of Los Angeles shall require the construction contractor to provide a Construction Traffic Management Plan that is prepared in accordance with the California Department of Transportation's Construction Manual and Manual on Uniform Traffic Control Devices. The Construction Traffic Management Plan shall at the minimum address: • Timing of deliveries of heavy equipment and building materials • Directing construction traffic with a flag person • Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic • Identifying if improvements to the intersection of 120th Street, Wilmington Avenue, or Compton Avenue are necessary to accommodate the turning radii needed by large trucks accessing site • Identifying multiple alternate ingress/egress access point for the circulation of traffic and emergency response vehicles • Determining the need for construction work hours and arrival/departure times outside peak traffic periods • Ensuring access for emergency vehicles to the project site • Temporary closure of travel lanes or disruptions to street segments and intersections during materials delivery, transmission line stringing activities, or any other utility connections • Maintaining access to adjacent property • Specification of both construction-related vehicle travel and oversize load haul routes, the minimization of construction traffic during the AM and PM peak hour, distributing construction traffic flow across alternative routes to access the proposed project site, and avoiding residential neighborhoods to the maximum extent feasible • Identification of vehicle safety procedures for entering and exiting site access roads	Construction Contractor	Preconstruction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	Construction Traffic Management Plan	____________________ (Signature/Date of Monitoring Agency)
Tier II						
Measure Traffic-1 To reduce the traffic-related construction impacts, the County of Los Angeles shall require the construction contractor to provide a Construction Traffic Management Plan that is prepared in accordance with the California Department of Transportation's Construction Manual and Manual on Uniform Traffic Control Devices. The Construction Traffic Management Plan shall at the minimum address: • Timing of deliveries of heavy equipment and building materials • Directing construction traffic with a flag person • Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic • Identifying if improvements to the intersection of 120th Street, Wilmington Avenue, or Compton Avenue are necessary to accommodate the turning radii needed by large trucks accessing site	Construction Contractor	Preconstruction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	Construction Traffic Management Plan	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
• Identifying multiple alternate ingress/egress access point for the circulation of traffic and emergency response vehicles • Determining the need for construction work hours and arrival/departure times outside peak traffic periods • Ensuring access for emergency vehicles to the project site • Temporary closure of travel lanes or disruptions to street segments and intersections during materials delivery, transmission line stringing activities, or any other utility connections • Maintaining access to adjacent property • Specification of both construction-related vehicle travel and oversize load haul routes, the minimization of construction traffic during the AM and PM peak hour, distributing construction traffic flow across alternative routes to access the proposed project site, and avoiding residential neighborhoods to the maximum extent feasible • Identification of vehicle safety procedures for entering and exiting site access roads						
Measure Traffic-2 In order to address the Tier II project impacts, the County of Los Angeles shall complete the following improvements: • Compton Avenue / Imperial Highway, County of Los Angeles / City of Los Angeles: Re-stripe westbound approach to provide a separate right-turn lane. • I-105 / Imperial Highway: Provide a third northbound, left-turn lane by widening off-ramp by 10 feet for approximately 150 to 200 feet. • Wilmington Avenue / El Segundo Boulevard: Re-stripe eastbound and westbound approaches to have separate right-turn lanes. Allow buses to go through the intersection from the right-turn lanes. • Central Avenue / 120th Street: Re-stripe northbound approach to provide a separate right-turn lane. Also, widen the east leg by 3 feet on each curbside (i.e., reduce sidewalk along 120th Street east of Central Avenue by 3 feet for approximately 120 feet and re-stripe westbound 120th Street approach to provide a left-turn, two through lanes and a separate right-turn lane. • Wilmington Avenue / I-105 Eastbound Ramps, County of Los Angeles / California Department of Transportation: Provide an additional eastbound lane by widening (reducing the raised median on the ramp) the off-ramp. The eastbound approach shall have a left-turn lane, shared left-right turn lane, and a separate right-turn lane. The sidewalks on both sides of Wilmington Avenue (as noted above) shall be reduced by 2 feet and the Wilmington Avenue roadway shall be widened by 2 feet on both sides (a total of 4 feet) from the south leg of this intersection. Provide an additional northbound left-turn lane by widening (reducing the medians). • Wilmington Avenue / 118th Street, County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on both sides and re-stripe to provide two through lanes, a shared through right-turn lane and dual left-turn lanes along the southbound approach. Re-stripe the westbound approach to provide a separate right-turn lane and a shared left-through lane. Northbound approach shall have the same lane geometry as existing conditions. Under cumulative conditions, widen 118th Street roadway by 4 feet and re-	County of Los Angeles	Preconstruction	Preconstruction: County of Los Angeles Department of Public Works (plan check process); construction: Construction Contractor (plan implementation)	County of Los Angeles Department of Public Works County of Los Angeles Traffic and Lighting Division	Conceptual Signing and Striping Plans	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
stripe to provide a separate right-turn lane and shared left-through lane along the eastbound approach. • Wilmington Avenue / 120th Street–119th Street, County of Los Angeles: Widen Wilmington Avenue roadway by 2 feet on both sides and restripe the southbound approach to provide a separate right-turn lane, three through lanes, and a left-turn lane. Re-stripe northbound approach to provide a shared through-right turn lane, two through lanes, and a left-turn lane. Remove median adjacent to northbound approach to facilitate three southbound receiving lanes. Restrict parking along Wilmington Avenue roadway during morning and evening peak periods along the eastside of Wilmington between 120th Street and Martin Luther King, Jr. Hospital Driveway entrance. Widen 120th Street west of Wilmington Avenue for 250 feet, on the south side by 2 feet, and re-stripe the eastbound approach to provide a separate right-turn lane, dual left-turn lanes, and a through lane. The westbound approach of 119th Street would have the same lane geometry as existing conditions. • Wilmington Avenue / Martin Luther King, Jr. Hospital Entrance–120th Street, County of Los Angeles: Re-stripe southbound approach to provide a separate right-turn lane, two through lanes, and a left-turn lane. Provide three northbound receiving lanes and restrict on-street curb parking along the eastside of Wilmington Avenue between Martin Luther King, Jr. Hospital Driveway and 120th Street and 120th Street and 119th Street during morning and evening peak hours. Remove the median within the hospital entrance and re-stripe the driveway to provide dual left-turn lanes, a through lane, and a separate right-turn lane along the eastbound approach. Re-stripe to provide one receiving lane. The appropriate conceptual signing and striping plans shall be submitted to the County of Los Angeles Department of Public Works, Traffic and Lighting Division for review and approval during the planning phase.						
Measure Traffic-3 In order to address the Tier II cumulative projects impacts, using County of Los Angeles traffic study guidelines, the following mitigation measures shall be implemented to alleviate the cumulative significant impacts: • Avalon Boulevard / El Segundo Boulevard, County of Los Angeles: Widen northbound approach by 2 feet and re-stripe the approach to provide a left turn lane, two through lanes, and a separate right-turn lane (10 feet, 10 feet, 10 feet, 12 feet). The approach could be widened by narrowing the 5-foot-wide median to a 3-foot-wide median, or by reducing the 12-foot-wide sidewalk to a 10-foot-wide sidewalk. This widening would need to occur all the way to an alley located approximately 100 feet south of the intersection. The bus stop at this approach would continue to be located at the same location; however, buses would be allowed to go straight through the intersection. • Alameda Street / El Segundo Boulevard, County of Los Angeles / Compton: Re-stripe northbound/southbound approaches and provide a southbound right-turn lane. The lanes along the north leg shall be re-striped to provide 13-foot and 11-foot receiving lanes; 10-foot, 11-foot, 10-foot, and 12-foot approach lanes for southbound left-turn lane, southbound through lanes, and southbound right-turn lanes, respectively. The	Construction Contractor	Preconstruction	County of Los Angeles Department of Public Works County of Los Angeles Traffic and Lighting Division	County of Los Angeles Department of Public Works County of Los Angeles Traffic and Lighting Division	Conceptual Signing and Striping Plans	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
lanes along the south leg would have a 13-foot shared right through-way, 11-foot through lane, 10-foot left-turn lane, 12-foot receiving lane, and a 20-foot receiving lane. Remove two on-street parking spaces along the southbound approach during peak hours. • Alameda Street / 103rd Street, County of Los Angeles / Lynwood: Re-stripe eastbound approach to provide a 10-foot, left-turn lane and a 12-foot, left-right shared lane. The receiving lane would be re-striped for 18.5 feet. • Central Avenue / Rosecrans Avenue, County of Los Angeles / Compton: Re-stripe westbound approach to provide a separate right-turn lane. Allow buses to go through the intersection from the right-turn lane. • Central Avenue / El Segundo Boulevard, County of Los Angeles / Compton: Re-stripe southbound approach to provide a separate right-turn lane. Widen northbound approach by reducing median by 1 foot to 2 foot. Provide re-striping to show a separate northbound right-turn lane. Allow buses to go through the intersection from the right-turn lane. • Alameda Street / Imperial Highway, County of Los Angeles / City of Lynwood: Re-stripe southbound approach to provide the following roadway geometry: two left-turn lanes, two through lanes, and one right-turn lane. The appropriate conceptual signing and striping plans shall be submitted to the County of Los Angeles Department of Public Works, Traffic and Lighting Division for review and approval during the planning phase.						
Measure Traffic-4 Along the southbound approach of Alameda Street, the County of Los Angeles shall provide two left-turn lanes, two through lanes and one right-turn lane instead of one left-turn lane, two through lanes and a separate right-turn lane (i.e., add a second left turn lane). In addition, the County of Los Angeles shall provide the required signal hardware and supporting software to facilitate a right-turn arrow signal indication for southbound right-turn overlap with eastbound-westbound left-turns at the intersection.	County of Los Angeles Department of Traffic and Lighting	Construction and post-construction	County of Los Angeles Department of Public Works County of Los Angeles Traffic and Lighting Division	County of Los Angeles Department of Public Works County of Los Angeles Traffic and Lighting Division	Conceptual Signing and Striping Plans	
Utilities and Service Systems: Implementation of the following mitigation measures are recommended to avoid, reduce, or eliminate the potential impacts related to utilities and service systems.						
Tier II						
Measure Utilities-1 Prior to issuance of the permits to connect to the sewer system, the County of Los Angeles shall ensure payment of the connection fee for the capital facilities has been submitted to the appropriate Sanitation Districts of Los Angeles County for compliance with the California Health and Safety Code.	County of Los Angeles	Preconstruction	Sanitation Districts of Los Angeles County	Sanitation Districts of Los Angeles County	Payment of the connection fee	____________________ (Signature/Date of Monitoring Agency)

TABLE III-1
MARTIN LUTHER KING, JR. MEDICAL CENTER CAMPUS REDEVELOPMENT PROJECT MITIGATION MONITORING PLAN, Continued

Mitigation Measure	Responsible Implementation Party	Monitoring Period	Enforcement Agency	Monitoring Agency	Documentation of Compliance	
					Report	Signature/Date
Measure Utilities-2 The County of Los Angeles shall review the plans and specifications for the project and the parking facilities to ensure that adequate service areas are provided for trash and recycling receptacles for compliance with applicable federal, state, and local statutes related to solid waste, and to reduce direct and cumulative impacts from project operation and maintenance to below the level of significance. Prior to advertising for construction bids for the new building, the County of Los Angeles shall ensure that the plans and specifications designating locations for trash receptacles and recycling receptacles are in conformance with the California Solid Waste Reuse and Recycling Access Act of 1991. Wherever trash receptacles are provided throughout the project site, a recycling receptacle for plastic, aluminum, and metal shall also be provided. Signs encouraging patrons to recycle shall be posted near each recycling receptacle. To ensure conformance with the Solid Waste Management Act of 1989, the County of Los Angeles shall require the construction contractor to manage the solid waste generated during construction of each element of the project by diverting at least 50 percent of solid waste from disposal in landfills, particularly Class III landfills, through source reduction, reuse, and recycling of construction and demolition debris. The construction contractor shall submit a construction solid waste management plan to the County of Los Angeles for approval prior to initiation of demolition activities. The construction contractor shall demonstrate compliance with the solid waste management plan through the submission of monthly reports during construction and demolition activities that estimate total solid waste generated and diversion of 50 percent of the solid waste.	County of Los Angeles Construction Contractor	Preconstruction	County of Los Angeles Department of Public Works (plan check process)	County of Los Angeles Department of Public Works	Final Plans and Specifications Construction Solid Waste Management Plan	____________________ (Signature/Date of Monitoring Agency)