

Carol Kimmelman Athletic and Academic Campus Final EIR

State Clearinghouse No. 2018071074

Prepared for:

County of Los Angeles
Department of Public Works
Project Management Division II
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Alhambra, California 91803
Contact: Ryan Kristan

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JULY 2019

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CHAPTER 1

PREFACE

1.1 PURPOSE

This Final Environmental Impact Report (EIR) has been prepared by the County of Los Angeles (County) for the Carol Kimmelman Athletic and Academic Campus Project (proposed project). This Final EIR has been prepared in conformance with the California Environmental Quality Act of 1970 (CEQA) statutes (Cal. Pub. Res. Code, Section 21000 et. seq., as amended) and implementing guidelines (Cal. Code Regs., Title 14, Section 15000 et. seq.).

Before approving a project, CEQA requires the lead agency to prepare and certify a Final EIR. The County has the principal responsibility for approval of the proposed project and is therefore considered the lead agency under CEQA Section 21067. According to the CEQA Guidelines, Section 15132, the Final EIR shall consist of:

- The Draft EIR or a revision of the Draft;
- Comments and recommendations received on the Draft EIR either verbatim or in summary;
- A list of persons, organizations, and public agencies commenting on the Draft EIR;
- The responses of the lead agency to significant environmental points raised in the review and consultation process; and
- Any other information added by the lead agency.

1.2 FORMAT OF THE FINAL EIR

This Final EIR consists of the May 2019 Draft EIR and the following four chapters:

Chapter 1 – Preface. This chapter summarizes the contents of the Final EIR, the environmental review process, and minor updates that occurred in the Draft EIR subsequent to the release of the Draft EIR for public review.

Chapter 2 – Response to Comments. During the public review period for the Draft EIR, written comment letters were received by the County. This chapter contains a copy of comment letters received and the County’s responses to the comments.

Chapter 3 – Errata. Comments that are addressed in Chapter 2.0 resulted in minor revisions to the information contained in the May 2019 Draft EIR. Other revisions have been made to correct typographical errors. These revisions are shown in strikeout and underline text in this chapter.

Chapter 4 – Mitigation Monitoring and Reporting Program. This section of the Final EIR provides the mitigation monitoring and reporting program (MMRP) for the proposed project. The MMRP is presented in table format and identifies mitigation measures for the proposed project, the implementation period for each measure, the monitoring period for each measure, and the enforcing agency. The MMRP also provides a section for recordation of mitigation reporting.

1.3 ENVIRONMENTAL REVIEW PROCESS

1.3.1 Notice of Preparation

The County determined that an EIR would be required for the proposed project and issued a Notice of Preparation (NOP), which was distributed to the State Clearinghouse, interested agencies, individuals, and groups on July 31, 2018. Pursuant to Section 15082 of the CEQA Guidelines, recipients of the NOP were requested to provide responses during the public review period after their receipt of the NOP. The NOP public review period ended August 31, 2018. Comments received during the NOP public review period were considered during the preparation of this EIR. The NOP and NOP comments are included in Appendix A of the Draft EIR.

A public agency scoping meeting was held at the Victoria Community Regional Park, 419 Martin Luther King Jr. Street on August 14, 2018. The purpose of this meeting was to seek input from public agencies and the general public regarding the environmental issues and concerns that may potentially result from the proposed project. Approximately 35 people attended the scoping meeting. A list of attendees and copies of comment cards submitted at the public scoping meeting are included in Appendix A of the Draft EIR.

1.3.2 Noticing and Availability of the Draft EIR

The Draft EIR was made available for public review and comment pursuant to CEQA Guidelines Section 15087. The public review period for the Draft EIR started on May 15, 2019. The public review period ended on July 1, 2019. At the beginning of the public review period, 15 copies of the Draft EIR and one copy of the Notice of Completion (NOC) were submitted to the State Clearinghouse. A Notice of Availability (NOA) and an electronic copy of the Draft EIR was mailed to a total of 1,931 agencies, organizations, and property owners and occupants within a 500-foot radius of the project site. An NOA was also sent to individuals who had previously requested such notice in writing. The NOA was filed with the Los Angeles County Clerk and published in the Los Angeles Times on May 15, 2019. The NOA described where the document was available and how to submit comments on the Draft EIR. The NOA and Draft EIR were also made available for public review at the County of Los Angeles Department of Public Works, Project Management Division II (900 South Fremont Avenue, 5th Floor, Alhambra, California 91803), at the Dr. Martin Luther King Jr. Library (17906 South Avalon Boulevard, Carson, California 90746), and on the County's Department of Parks and Recreation website. The public

review period provided interested public agencies, groups, and individuals the opportunity to comment on the contents of the Draft EIR.

1.3.3 Final EIR

The Final EIR addresses comments received during the public review period and includes minor changes to the text of the Draft EIR in accordance with comments that necessitated revisions. This Final EIR will be presented to the County Board of Supervisors for potential certification as the environmental document for the proposed project. All persons who commented on the Draft EIR will be notified of the availability of the Final EIR prior to the Board of Supervisors hearing, and all agencies who commented on the Draft EIR will be provided with a copy of the Final EIR at least 10 days before the Board considers certifying the EIR, pursuant to CEQA Guidelines Section 15088(b). The Final EIR will also be posted on the County’s Department of Parks and Recreation website: at <http://parks.lacounty.gov/environmental-documents/>.

Pursuant to CEQA Guidelines Section 15091, the County shall make findings for each of the significant effects identified in this EIR and shall support the findings with substantial evidence in the record. After considering the Final EIR in conjunction with making findings under Section 15091, the lead agency may decide whether or how to approve or carry out the project. The Final EIR for the proposed project identified potentially significant effects that could result from project implementation, specifically related to construction air quality, operational air quality, construction noise, and operational transportation impacts. However, the County finds that the inclusion of certain mitigation measures as part of project approval will reduce all other potentially significant effects to less than significant. As such, a statement of overriding considerations prepared pursuant to CEQA Guidelines Section 15093 is required for this project.

In addition, when approving a project, public agencies must also adopt a mitigation monitoring and reporting program describing the changes that were incorporated into the proposed project or made a condition of project approval in order to mitigate or avoid significant effects on the environment (CEQA Guidelines Section 15097). The mitigation monitoring and reporting program is adopted at the time of project approval and is designed to ensure compliance during project implementation. Upon approval of the proposed project, the County will be responsible for implementation of the proposed project’s mitigation monitoring and reporting program.

1.4 REVISIONS TO THE DRAFT EIR

The comments received during the public review period for the Draft EIR resulted in minor clarifications and modifications in the text of the May 2019 Draft EIR. In addition, minor editorial corrections have been made in sections of the Draft EIR. These changes are included as part of the Final EIR, to be presented to Board of Supervisors as the County decision makers prior to certification and project approval.

CEQA Guidelines Section 15088.5 sets forth requirements for when a lead agency must recirculate an EIR. A lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the Draft EIR but before certification of the Final EIR. New information may include changes in the project or environmental setting as well as additional data or other information. New information added to an EIR is not considered significant unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project's proponents have declined to implement. As defined in CEQA Guidelines Section 15088.5(a), significant new information requiring recirculation includes the following:

1. A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
2. A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
3. A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.
4. The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

The minor clarifications, modifications, and editorial corrections that were made to the Draft EIR are shown in Chapter 3.0 of this Final EIR. None of the revisions that have been made to the EIR resulted in new significant impacts; none of the revisions resulted in a substantial increase in the severity of an environmental impact identified in the Draft EIR; and none of the revisions introduced a feasible project alternative or mitigation measure that is considerably different from those set forth in the Draft EIR. Furthermore, the revisions do not cause the Draft EIR to be so fundamentally flawed that it precludes meaningful public review. As none of the CEQA criteria for recirculation have been met, recirculation of the EIR is not warranted. As stated in CEQA Guidelines Section 15088.5(b), "recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR."

CHAPTER 2 RESPONSE TO COMMENTS

A draft version of the Environmental Impact Report (EIR) for the proposed Project was circulated for public review from May 15, 2019, to July 1 2019. This chapter of the Final EIR includes a copy of comment letters provided during the 45-day public review period for the Draft EIR. The County of Los Angeles (County) has prepared responses to the comments, which are included in this chapter. The comments are ordered numerically, and the individual issues within each comment letter are bracketed and numbered. The County's responses to comments on the Draft EIR represent a good-faith, reasoned effort to address the environmental issues identified by the comments. Under the CEQA Guidelines, the Lead Agency is required to evaluate and provide written responses to comments received on the Draft EIR (CEQA Guidelines, Section 15088).

As shown in Table 2-1, the County received comment letters from eight agencies: State of California Governor's Office of Planning and Research, State of California Department of Toxic Substances Control (DTSC), State of California Department of Transportation (Caltrans), South Coast Air Quality Management District (SCAQMD), Goodyear Airship Operations, County Sanitation Districts of Los Angeles County, County of Los Angeles, Public Health, and Los Angeles Unified School District (LAUSD). Additionally, eight organizations and three individuals submitted comments on the Draft EIR. To finalize the EIR for the proposed project, responses have been prepared to comments that were received during the public review period. In accordance with the requirements of CEQA Guidelines Section 15088(b), the County will provide a written response on comments submitted by public agencies to each respective public agency at least 10 days prior to certifying the Final EIR.

**Table 2-1
List of Commenters**

Comment Letter	Name	Address
<i>Agencies</i>		
1	State of California, Governor's Office of Planning and Research	1400 Tenth Street PO Box 3044 Sacramento, California 95812-3044
2	State of California, Department of Toxic Substances Control	9211 Oakdale Avenue Chatsworth, California 91311
3	State of California, Department of Transportation, District 7	100 South Main Street, MS 16 Los Angeles, California 90012
4	South Coast Air Quality Management District	21865 Copley Drive Diamond Bar, California 91765-4178
5	Goodyear Airship Operations	19200 South Main Street Gardena, California 90248
6	County Sanitation Districts of Los Angeles County	1955 Workman Mill Road Whittier, California 90607-4998

Table 2-1
List of Commenters

Comment Letter	Name	Address
7	County of Los Angeles Public Health	5050 Commerce Drive Baldwin Park, California 91706
8	Los Angeles Unified School District, Office of Environmental Health and Safety	333 South Beaudry Avenue, 21 st Floor Los Angeles, California 90017
<i>Organizations</i>		
9	La Jolla Beach and Tennis Club	2000 Spindrift Drive La Jolla, California 92037
10	Let's Teach	479 South Marengo Avenue Pasadena, California 91101
11	First Break Academy	18400 Avalon Boulevard Carson, California 90746
12	Sloane Stephens Foundation	5109 Nagle Avenue Sherman Oaks, California 91423
13	Pasadena Tennis Association	P.O. Box 50606 Pasadena, California 91115
14	Pete Brown Jr. Tennis Program	P.O. Box 8114 Los Angeles, California 90008
15	CT Corporation System	1999 Bryan Street, Suite 900 Dallas, Texas 75201
16	CT Corporation System	1999 Bryan Street, Suite 900 Dallas, Texas 75201
<i>Individuals</i>		
17	Vincent Goshi	vincegoshi@cox.net
18	Richard Chang	rchang@rca4results.com
19	Vivian Hatcher	vhatch11@gmail.com

Comment Letter 1



Gavin Newsom
Governor

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Kate Gordon
Director

July 2, 2019

Ryan Kristan
Los Angeles County
900 S. Fremont Avenue, 5th Floor
Alhambra, CA 91803

Subject: Carol Kimmelman Athletic and Academic Campus
SCH#: 2018071074

Dear Ryan Kristan:

The State Clearinghouse submitted the above named EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on 7/1/2019, and the comments from the responding agency (ies) is (are) available on the CEQA database for your retrieval and use. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

"A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

Check the CEQA database for submitted comments for use in preparing your final environmental document: <https://ceqanet.opr.ca.gov/2018071074/2>. Should you need more information or clarification of the comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

cc: Resources Agency



1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL 1-916-445-0613 state.clearinghouse@opr.ca.gov www.opr.ca.gov

1-1


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Response to Comment Letter 1
State of California, Governor's Office of Planning and Research
July 1, 2019

- 1-1** This letter acknowledges the closure of the public review period for the Draft EIR and identifies how to obtain comment letters submitted by State Agencies. The County has visited the website referenced by the commenter and confirmed that comment letters from the State of California Department of Toxic Substances Control (DTSC) and State of California, Department of Transportation (Caltrans) were submitted to the County during the public review period for the Draft EIR. The comment letter from DTSC, and responses to those comments, are included in Letter 2, and the comment letter from Caltrans, and responses to those comments, are included in Letter 3 within this Final EIR. This letter is noted for the record and has been incorporated into the Final EIR for review and consideration by the decision-makers prior to any action on the project.

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Comment Letter 2

Department of Toxic Substances Control

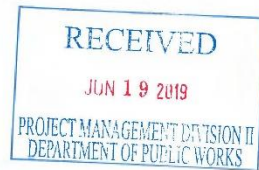
Meredith Williams, Ph.D.
Acting Director
9211 Oakdale Avenue
Chatsworth, California 91311



Gavin Newsom
Governor

June 7, 2019

Ryan Kristan
County of Los Angeles
Department of Public Works
Project Management Division II
900 S. Fremont Avenue, 5th Floor
Alhambra, California 91803



NOTICE OF AVAILABILITY OF AN ENVIRONMENTAL DOCUMENT FOR THE CAROL KIMMELMAN ATHLETIC AND ACADEMIC CAMPUS PROJECT (PROJECT)

Dear Mr. Kristan:

The Department of Toxic Substances Control (DTSC) has received the document for the above-mentioned project.

Based on the review of the document, the DTSC comments are as follows:

- 1) The document needs to identify and determine whether current or historic uses at the project site have resulted in any release of hazardous wastes/substances at the project area.
- 2) The document needs to identify any known or potentially contaminated site within the proposed project area. For all identified sites, the document needs to evaluate whether conditions at the site pose a threat to human health or the environment.
- 3) The document should identify the mechanism to initiate any required investigation and/or remediation for any site that may require remediation, and which government agency will provide appropriate regulatory oversight.
- 4) If during construction of the project, soil contamination is suspected, construction in the area should stop and appropriate health and safety procedures should be implemented. If it is determined that contaminated soil exists, the document should identify how any required investigation or remediation will be conducted, and which government agency will provide appropriate regulatory oversight.

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Mr. Ryan Kristan
June 7, 2019
Page 2

DTSC provides guidance for Preliminary Endangerment Assessment (PEA) preparation, and cleanup oversight through the Voluntary Cleanup Program (VCP). For additional information on the VCP, please visit DTSC's web site at www.dtsc.ca.gov. If you would like to meet and discuss this matter further, please contact me at (818) 717-6555 or Pete.Cooke@dtsc.ca.gov.

2-5

Sincerely,



Pete Cooke
Site Mitigation and Restoration Program - Chatsworth Office

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044

Dave Kereazis
Hazardous Waste Management Program, Permitting Division
CEQA Tracking
Department of Toxic Substances Control
P.O. Box 806
Sacramento, California 95812-0806

Response to Comment Letter 2
State of California, Department of Toxic Substances Control
June 7, 2019

- 2-1** The historical uses at the project site, and impacts due to hazardous wastes and substances in the project area, are discussed in Section 4.8, Hazards and Hazardous Materials of the Draft EIR. Specifically, pages 4.8-3 through 4.8-6 discuss the previous land uses and the Remedial Action Plan associated with former landfill operations at the project site.
- 2-2** Pages 4.8-3 through 4.8-6 discuss known contamination on the project site related to historical uses of the project site. Mitigation measures have been developed to reduce impacts of these conditions, including consultation with the Department of Toxic Substances Control (DTSC) prior to excavation or grading and soil screening during excavation in areas with known contamination, as discussed in Section 4.8.4 Impact Analysis, pages 4.8-17 through 4.8-25, and Section 4.8.5, Project Design Features and Mitigation Measures, pages 4.8-25 and 4.8-26 of the Draft EIR.
- 2-3** The site is a former landfill, as discussed on pages 4.8-3 through 4.8-6 of the Draft EIR. Remediation activities at the site are under regulatory oversight by DTSC, as discussed in the Site-Specific Regulatory Oversight section, page 4.8-6 of the Draft EIR. See also Response 2-4 below.
- 2-4** DTSC already oversees the remediation of the landfill, which encompasses the project site. As discussed in Response 2-3 and outlined in MM-HAZ-1, the DTSC will be consulted prior to excavation or grading. In addition, as outlined in MM-HAZ-2, an environmental professional will assist in the identification and management of contaminated soils, should they be encountered during construction on the project site.
- 2-5** The County acknowledges the comment and notes that it provides concluding remarks and contact information for questions. The comment does not raise new environmental issues concerning the adequacy of the Draft EIR. This comment is included in the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project.

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Comment Letter 3

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY

Gavin Newsom, Governor

DEPARTMENT OF TRANSPORTATION

DISTRICT 7 – Office of Regional Planning
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 897-9140
FAX (213) 897-1337
TTY 711
www.dot.ca.gov



Making Conservation
a California Way of Life.

June 27, 2019

Mr. Ryan Kristan
County of Los Angeles
900 South Fremont Ave, 5th Floor
Alhambra, CA 91803

RE: Carol Kimmelman Athletic and
Academic Campus – Draft
Environmental Impact Report
(DEIR)
SCH # 2018071074
GTS # 07-LA-2018-02469
LA-405/PM: 12.238

Dear Mr. Ryan Kristan:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above-mentioned Draft Environmental Impact Report (DEIR). The proposed project involves the development of the Carol Kimmelman Sports and Academic Campus on a site located at 340 Marin Luther King Jr. Street in the City of Carson, CA consisting of approx. 87 acres in the northeastern portion of the existing Victoria Golf Course and adjacent tennis courts (the Project Site). The Project Site is located northeast of the Dominguez Channel and east of the junction of the 405 and 110 Freeways. The Project site is bounded by Martin Luther King Jr. Street to the north, Avalon Blvd to the east, and the balance of the Victoria Golf Course property to the south and west. The proposed Project includes a tennis center and soccer center for underserved youth as well as programs for adults. The tennis center component would be a learning center that would provide academic counseling, mentorship, and enrichment services. The soccer center component would include soccer fields, multi-purpose fields and support buildings. The project site would be developed with up to approx. 75,000 sq. ft. of buildings, with possible expansion space for an additional 22,000 sq. ft. of buildings. Up to an additional 5,000 sq. ft. of miscellaneous support buildings, including maintenance facilities, restrooms, and sheds, would be constructed throughout the project.

3-1

After reviewing the DEIR Caltrans has the following comments:

1. Please consider providing the queuing analysis worksheets for verification.
2. Please consider including a scenario for Saturday Peak Hour Volume in the Queuing analysis.
3. The mitigation measure proposed for Intersection No. 16, I-405 SB Ramps at Avalon Blvd, to include right-turn overlap signal phasing will not enhance the operation at this location. Since

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3-4

*"Provide a safe, sustainable, integrated and efficient transportation system
to enhance California's economy and livability"*

Mr. Ryan Kristan
June 27, 2019
Page 2 of 2

the existing right turn movement is not prohibited on red, with or without the overlap phase, vehicles will be able to turn right, onto the southbound on-ramp continuously. Please consider investigating other appropriate mitigation measures.

4. On Appendix C, please correct the city name as some of the reports show the city name as Bakersfield, CA.

Further information included for your consideration;

Caltrans seeks to promote safe, accessible multimodal transportation. Methods to reduce pedestrian and bicyclist exposure to vehicles improve safety by lessening the time that the user is in the likely path of a motor vehicle. These methods include the construction of physically separated facilities such as sidewalks, raised medians, refuge islands, and off-road paths and trails, or a reduction in crossing distances through roadway narrowing.

Caltrans recommends the project to consider the use of methods such as, but not limited to, pedestrian and bicyclist warning signage, flashing beacons, crosswalks, signage and striping, be used to indicate to motorists that they should expect to see and yield to pedestrians and bicyclists. Visual indication from signage can be reinforced by road design features such as lane widths, landscaping, street furniture, and other design elements.

As a reminder, any transportation of heavy construction equipment and/or materials which requires use of oversized-transport vehicles on State highways will need a Caltrans transportation permit. We recommend large size truck trips be limited to off-peak commute periods.

If you have any questions, please contact Reece Allen, the project coordinator, at reece.allen@dot.ca.gov, and refer to GTS # 07-LA-2018-02469

Sincerely,



MIYA EDMONSON
IGR/CEQA Branch Chief
cc: Scott Morgan, State Clearinghouse

↑ 3-4
| Cont.

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| 3-8

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to enhance California's economy and livability"*

Response to Comment Letter 3
State of California, Department of Transportation
June 27, 2019

- 3-1** The County acknowledges the comment as an introduction to the comments that follow. The comment restates information contained in the Draft EIR and does not raise any environmental issues requiring responses. This comment is included in the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project.
- 3-2** Caltrans is requesting that the queuing analysis worksheets be provided for verification. The queuing analysis worksheets are available as part of the Draft EIR; the worksheets are included within Appendix K, Traffic Study for the Carol Kimmelman Athletic and Academic Campus, of the Draft EIR. Specifically, the queuing analysis worksheets are included within Appendix H, Caltrans Analysis, within the Draft EIR's Appendix K. In preparing the response to this comment, the County noticed that the queue values provided as part of the Traffic Impact Study in Appendix K of the Draft EIR, Tables 21 and 22, as published in Traffic Impact Study, do not represent the most current data at Locations Q-3 and Q-8. As such, the values for Locations Q-3 and Q-8 have been updated in the tables included in Attachment 1 to these responses to the Caltrans comment letter and included within Section 3, Errata, of this Final EIR. The queue values of certain lane groupings have updated. The overall findings of the queuing analysis are not materially changed and the conclusions stated in the Draft EIR remain the same.
- 3-3** Caltrans suggested considering the inclusion of a Saturday peak hour volume queuing analysis within the EIR. A weekend operational queuing analysis was performed to correspond to the weekday queuing analyses presented in Appendix K, Traffic Study for the Carol Kimmelman Athletic and Academic Campus, of the Draft EIR. Within the Traffic Impact Study, the following conditions were analyzed: Existing Year conditions (Year 2018) and Future Operating conditions (Year 2020), consistent with those queuing analyses already presented in Appendix K of the Draft EIR; the analyses was performed at locations with available Saturday count data (Locations: Q-1, Q-2, Q-3, Q-4, Q-5, and Q-8).

As shown in the Existing Conditions analysis included within Attachment 2 to these responses to the Caltrans comment letter, without and with the addition of project traffic, the analyzed locations operate without exceeding the available queue storage within the marked lane or along the ramp. Similarly, the Future Conditions analysis

(Year 2020) also did not project operation that exceeded the available queue storage within the marked lane or along the ramp.

- 3-4** Caltrans indicates that the mitigation measure proposed for Intersection No. 16, Interstate 405 (I-405) southbound (SB) ramps at Avalon Boulevard, to include right-turn overlap signal phasing will not enhance operation at this location. Intersection No. 16, I-405 SB ramps at Avalon Boulevard was identified as cumulatively impacted using the Los Angeles County Department of Public Works' (LACDPW) Intersection Capacity Utilization methodology for Saturday conditions; no cumulative impact was identified during the weekday peak hours. The proposed mitigation was developed to address the projected cumulative impact for Saturday conditions. Based on the LACDPW methodology, the effects of the cumulative impact at 1.113 volume to capacity (V/C) ratio, level of service (LOS) F are projected to be reduced to 0.912 V/C ratio, LOS E with implementation of the southbound right-turn overlap phase. This is a projected operational improvement equivalent to approximately two levels of services (V/C ratio reduction of 0.201).

Using the Caltrans' Highway Capacity Manual methodology, this intersection is projected to operate at LOS A (9.3 seconds delay) in the AM peak hour, LOS A (9.7 seconds delay) in the PM peak hour, and LOS C (22.6 seconds delay) on the Saturday mid-day with the addition of project traffic. The implementation of the proposed mitigation is projected to result in operation at LOS A (8.8 seconds delay) in the AM peak hour, LOS A (9.9 seconds delay) in the PM peak hour, and LOS C (22.9 seconds delay) on the Saturday mid-day. While the proposed mitigation has minimal effect to the intersection delay/LOS, this intersection is projected to operate at acceptable levels of service, as shown in the table below, during all analyzed periods before and after implementation of the proposed mitigation.

No.	Intersection	Peak Hour	Future without Project Conditions		Future with Project Conditions		Future with Project with Mitigation Conditions	
			Delay	LOS	Delay	LOS	Delay	LOS
S-5.	Avalon Boulevard & I-405 SB Ramps (Intersection #16)	A.M.	9.3	A	9.3	A	8.8	A
		P.M.	9.6	A	9.7	A	9.9	A
		SAT.	21.6	C	22.6	C	22.9	C

In preparing the response to Caltrans Comment 2-4, a discrepancy in Traffic Impact Study Tables 19A and 20A, as published in Appendix K of the Draft EIR, was discovered. The LOS values during the AM peak hour at Locations S-4 and S-5 did not correctly reference the corresponding LOS values from the LOS worksheets provided

- in Traffic Impact Study's Appendix H. The LOS values for Locations S-4 and S-5 are now updated in the tables included in Attachment 3 to these responses to the Caltrans comment letter and Section 3, Errata, of this Final EIR. While the intersection delay and LOS are updated at these locations, the overall findings of the affected AM peak hour LOS analyses are not materially changed and the conclusions stated in the Draft EIR remain the same.
- 3-5** In response to Caltrans' comment, the city names of the intersection count locations have been corrected to the appropriate location in Appendix C, Traffic Counts, within Appendix K, Traffic Impact Study, of the Draft EIR. The corrections are included in Attachment 4 to these responses to the Caltrans comment letter and Section 3, Errata, of this Final EIR.
- 3-6** The proposed project site would be accessible to pedestrians and cyclists via sidewalks and bike routes on the surrounding street system and is well served by transit. The existing sidewalks that serve as routes to the project site provide proper connectivity and adequate widths for a comfortable and safe pedestrian environment. The sidewalks provide connectivity to pedestrian crossings at intersections within the study area. The site-adjacent signalized intersections provide pedestrian phasing, crosswalk striping, and Americans with Disabilities Act (ADA) wheelchair ramps. Avalon Boulevard includes an existing raised median. Further, the proposed project would include the addition of a sidewalk on the south side of Martin Luther King Jr. Street along the proposed project frontage to increase accessibility for pedestrians and would have safe and convenient bicycle parking. The school children attending the Learning Center will be arriving via bus. Teams competing at the tennis center and soccer center generally will be arriving via bus or carpool. The proposed project will include bus turn-out and parking areas to facilitate such bus travel to and from the site. In addition, the overall athletic and academic campus would include off-street recreational areas.
- 3-7** The project applicant will work with the County and other applicable jurisdictions in implementing the street improvements identified in Section 4.13, Transportation, of the Draft EIR to include pedestrian and bicyclist warning signage and striping, etc., as warranted with the street improvement.
- 3-8** To lessen the impact of traffic temporarily generated by project-related construction activities, the proposed project will implement Project Design Feature PDF-TRAF-2 – Construction Traffic Management Plan. Prior to issuance of a grading permit, a Construction Traffic Management Plan will be developed for construction activities that would impact public streets, and will include appropriate elements such as: *“Establish truck access and staging areas, and review haul route approved with the*

project”, which includes obtaining a Caltrans transportation permit for oversized-transport vehicles on State highways. And, the element of “Scheduling of construction-related deliveries, haul trips, etc., so as to occur outside the commuter peak hours to the extent feasible...” to limit large size truck trips to off-peak commute periods.

Attachment 1
Table 21 and Table 22

TABLE 21
EXISTING OPERATING CONDITIONS (YEAR 2018)
FREEWAY OFF-RAMP QUEUE ANALYSIS

ID	Freeway Off-Ramp	Ramp and Lane Description	Adjusted Vehicle Storage Capacity [a]	Existing Conditions				Existing with Project Conditions			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	I-405 Northbound Off-Ramp to Main Street (Intersection #2)	I-405 Northbound Off-Ramp									
		Shared Left/Through	405	94		64		98		66	
		Shared Through/Right	405	79		96		82		106	
		Ramp	400	0	NO	0	NO	0	NO	0	NO
Q-2.	I-405 Northbound Off-Ramp to Avalon Boulevard (Intersection #15)	I-405 Northbound Off-Ramp									
		Left	150	9		15		9		15	
		Shared Left/Through	125	9		15		9		15	
		Right (Channelized)	125	0		0		0		0	
		Ramp	455	0	NO	0	NO	0	NO	0	NO
Q-3.	I-405 Southbound Off-Ramp to Avalon Boulevard (Intersection #16)	I-405 Southbound Off-Ramp									
		Left	385	35		29		36		30	
		Left	925	35		29		36		30	
		Through	925	1		0 19		0 1		0 19	
		Through	250	1		0 19		0 1		0 19	
		Right (Channelized)	--	0		0		0		0	
		Ramp	885	0	NO	0	NO	0	NO	0	NO
Q-4.	SR 91 Westbound Off-Ramp to Main Street (Intersection #17)	SR 91 Westbound Off-Ramp									
		Left	490	134		61		138		65	
		Right	490	118		97		120		100	
		Ramp	1,035	0	NO	0	NO	0	NO	0	NO
Q-5.	I-110 Southbound Off-Ramp to 190th Street (Interseciton #22)	I-110 Southbound Off-Ramp									
		Left	295	34		101		36		110	
		Right	295	208		189		212		194	
		Ramp	2,235	0	NO	0	NO	0	NO	0	NO
Q-6.	I-110 Southbound Off-Ramp to Hamilton Avenue (Interseciton #25)	I-110 Southbound Off-Ramp									
		Left	355	324		57		326		57	
		Shared Left/Right	355	265		50		267		50	
		Ramp	540	0	NO	0	NO	0	NO	0	NO
Q-7.	I-110 Northbound Off-Ramp to Figueroa Street (Intersection #27)	I-110 Northbound Off-Ramp									
		Left	300	168		121		170		127	
		Shared Left/Right	355	164		114		166		120	
		Ramp	550	0	NO	0	NO	0	NO	0	NO
Q-8.	SR 91 Eastbound Off-Ramp to Albertoni Street (Intersection #28)	SR 91 Eastbound Off-Ramp									
		Left	885	79		497 114		497 79		497 114	
		Right	885	63		497 114		497 68		497 83	
		Ramp	350	0	NO	0	NO	0	NO	0	NO

[a] Storage length capacity is the distance from the freeway mainline gore point to the terminus of the off-ramp, expressed in feet.

[b] 95th Percentile queue results per Vistro 5 (HCM 6th Edition Methodology).

TABLE 22
FUTURE OPERATING CONDITIONS (YEAR 2020)
FREEWAY OFF-RAMP QUEUE ANALYSIS

ID	Freeway Off-Ramp	Ramp and Lane Description	Adjusted Vehicle Storage Capacity [a]	Future without Project Conditions				Future with Project Conditions			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	I-405 Northbound Off-Ramp to Main Street (Intersection #2)	I-405 Northbound Off-Ramp									
		Shared Left/Through	405	107		90		111		94	
		Shared Through/Right	405	90		125		93		137	
		Ramp	400	0	NO	0	NO	0	NO	0	NO
Q-2.	I-405 Northbound Off-Ramp to Avalon Boulevard (Intersection #15)	I-405 Northbound Off-Ramp									
		Left	150	16		43		16		43	
		Shared Left/Through	125	16		43		16		43	
		Right (Channelized)	125	0		0		0		0	
		Ramp	455	0	NO	0	NO	0	NO	0	NO
Q-3.	I-405 Southbound Off-Ramp to Avalon Boulevard (Intersection #16)	I-405 Southbound Off-Ramp									
		Left	385	51		58		51		59	
		Left	925	51		58		51		59	
		Through	925	3		<u>0 36</u>		<u>0 3</u>		<u>0 36</u>	
		Through	250	3		<u>0 36</u>		<u>0 3</u>		<u>0 36</u>	
		Right (Channelized)	--	0		0		0		0	
		Ramp	885	0	NO	0	NO	0	NO	0	NO
Q-4.	SR 91 Westbound Off-Ramp to Main Street (Intersection #17)	SR 91 Westbound Off-Ramp									
		Left	490	153		73		158		76	
		Right	490	127		108		129		111	
		Ramp	1,035	0	NO	0	NO	0	NO	0	NO
Q-5.	I-110 Southbound Off-Ramp to 190th Street (Interseciton #22)	I-110 Southbound Off-Ramp									
		Left	295	50		153		52		164	
		Right	295	262		215		267		219	
		Ramp	2,235	0	NO	0	NO	0	NO	0	NO
Q-6.	I-110 Southbound Off-Ramp to Hamilton Avenue (Interseciton #25)	I-110 Southbound Off-Ramp									
		Left	355	355		123		355		123	
		Shared Left/Right	355	355		95		355		95	
		Ramp	540	95	NO	0	NO	99	NO	0	NO
Q-7.	I-110 Northbound Off-Ramp to Figueroa Street (Intersection #27)	I-110 Northbound Off-Ramp									
		Left	300	198		159		200		165	
		Shared Left/Right	355	196		151		199		158	
		Ramp	550	0	NO	0	NO	0	NO	0	NO
Q-8.	SR 91 Eastbound Off-Ramp to Albertoni Street (Intersection #28)	SR 91 Eastbound Off-Ramp									
		Left	885	83		<u>497 117</u>		<u>497 81</u>		<u>497 117</u>	
		Right	885	85		<u>497 89</u>		<u>497 81</u>		<u>497 98</u>	
		Ramp	350	0	NO	0	NO	0	NO	0	NO

[a] Storage length capacity is the distance from the freeway mainline gore point to the terminus of the off-ramp, expressed in feet.

[b] 95th Percentile queue results per Vistro 5 (HCM 6th Edition Methodology).

Attachment 2
Saturday Queuing Analysis

TABLE A
EXISTING OPERATING WEEKEND CONDITIONS (YEAR 2018)
FREEWAY OFF-RAMP QUEUE ANALYSIS

ID	Freeway Off-Ramp	Ramp and Lane Description	Adjusted Vehicle Storage Capacity [a]	Existing Conditions		Existing with Project Conditions	
				Saturday Peak Hour		Saturday Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	I-405 Northbound Off-Ramp to Main Street (Intersection #2)	I-405 Northbound Off-Ramp					
		Shared Left/Through	405	19		23	
		Shared Through/Right	405	18		22	
		Ramp	400	0	NO	0	NO
Q-2.	I-405 Northbound Off-Ramp to Avalon Boulevard (Intersection #15)	I-405 Northbound Off-Ramp					
		Left	150	15		15	
		Shared Left/Through	125	15		15	
		Right (Channelized)	125	0		0	
		Ramp	455	0	NO	0	NO
Q-3.	I-405 Southbound Off-Ramp to Avalon Boulevard (Intersection #16)	I-405 Southbound Off-Ramp					
		Left	385	71		77	
		Left	925	71		77	
		Through	925	2		2	
		Through	250	2		2	
		Right (Channelized)	--	0		0	
		Ramp	885	0	NO	0	NO
Q-4.	SR 91 Westbound Off-Ramp to Main Street (Intersection #17)	SR 91 Westbound Off-Ramp					
		Left	490	15		16	
		Right	490	15		15	
		Ramp	1,035	0	NO	0	NO
Q-5.	I-110 Southbound Off-Ramp to 190th Street (Intersection #22)	I-110 Southbound Off-Ramp					
		Left	295	35		42	
		Right	295	65		69	
		Ramp	2,235	0	NO	0	NO
Q-8.	SR 91 Eastbound Off-Ramp to Albertoni Street (Intersection #28)	SR 91 Eastbound Off-Ramp					
		Left	885	45		45	
		Right	885	23		31	
		Ramp	350	0	NO	0	NO

[a] Storage length capacity is the distance from the freeway mainline gore point to the terminus of the off-ramp, expressed in feet.

[b] 95th Percentile queue results per Vistro 5 (HCM 6th Edition Methodology).

Data not available for intersections #25 & #27

TABLE B
FUTURE OPERATING WEEKEND CONDITIONS (YEAR 2020)
FREEWAY OFF-RAMP QUEUE ANALYSIS

ID	Freeway Off-Ramp	Ramp and Lane Description	Adjusted Vehicle Storage Capacity [a]	Future without Project Conditions		Future with Project Conditions	
				Saturday Peak Hour		Saturday Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	I-405 Northbound Off-Ramp to Main Street (Intersection #2)	I-405 Northbound Off-Ramp					
		Shared Left/Through	405	50		58	
		Shared Through/Right	405	45		51	
		Ramp	400	0	NO	0	NO
Q-2.	I-405 Northbound Off-Ramp to Avalon Boulevard (Intersection #15)	I-405 Northbound Off-Ramp					
		Left	150	120		125	
		Shared Left/Through	125	120		125	
		Right (Channelized)	125	0		0	
		Ramp	455	0	NO	0	NO
Q-3.	I-405 Southbound Off-Ramp to Avalon Boulevard (Intersection #16)	I-405 Southbound Off-Ramp					
		Left	385	286		308	
		Left	925	286		308	
		Through	925	78		81	
		Through	250	78		81	
		Right (Channelized)	--	0		0	
		Ramp	885	0	NO	0	NO
Q-4.	SR 91 Westbound Off-Ramp to Main Street (Intersection #17)	SR 91 Westbound Off-Ramp					
		Left	490	20		23	
		Right	490	18		18	
		Ramp	1,035	0	NO	0	NO
Q-5.	I-110 Southbound Off-Ramp to 190th Street (Interseciton #22)	I-110 Southbound Off-Ramp					
		Left	295	63		74	
		Right	295	78		82	
		Ramp	2,235	0	NO	0	NO
Q-8.	SR 91 Eastbound Off-Ramp to Albertoni Street (Intersection #28)	SR 91 Eastbound Off-Ramp					
		Left	885	45		46	
		Right	885	35		44	
		Ramp	350	0	NO	0	NO

[a] Storage length capacity is the distance from the freeway mainline gore point to the terminus of the off-ramp, expressed in feet.

[b] 95th Percentile queue results per Vistro 5 (HCM 6th Edition Methodology).

Data not available for intersections #25 & #27

Intersection Level Of Service Report
Intersection 2: Main Street & I-405 NB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	7.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.423

Intersection Setup

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Base Volume Input [veh/h]	14	296	0	0	398	26	0	0	0	61	92	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	296	0	0	398	26	0	0	0	61	92	101
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	74	0	0	100	7	0	0	0	15	23	25
Total Analysis Volume [veh/h]	14	296	0	0	398	26	0	0	0	61	92	101
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	9	35	0	0	26	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C
C, Cycle Length [s]	23	23	23	23		23	23
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	10	5	5		4	4
g / C, Green / Cycle	0.02	0.43	0.22	0.22		0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.08	0.11	0.12		0.07	0.08
s, saturation flow rate [veh/h]	1781	3560	1870	1830		1829	1477
c, Capacity [veh/h]	37	1547	411	403		325	263
d1, Uniform Delay [s]	11.22	4.05	7.97	7.99		8.48	8.52
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	6.26	0.06	1.00	1.07		0.86	1.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.19	0.52	0.53		0.42	0.45
d, Delay for Lane Group [s/veh]	17.48	4.11	8.97	9.06		9.34	9.72
Lane Group LOS	B	A	A	A		A	A
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh]	0.11	0.13	0.62	0.63		0.43	0.39
50th-Percentile Queue Length [ft]	2.81	3.34	15.57	15.73		10.77	9.80
95th-Percentile Queue Length [veh]	0.20	0.24	1.12	1.13		0.78	0.71
95th-Percentile Queue Length [ft]	5.05	6.01	28.02	28.32		19.38	17.63

Movement, Approach, & Intersection Results

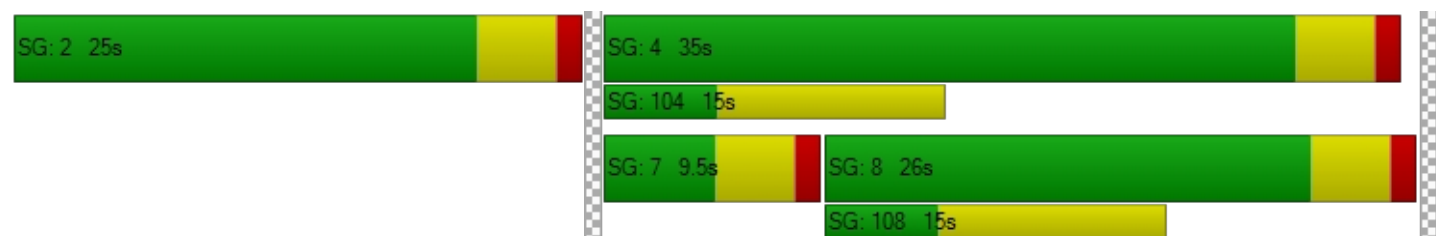
d_M, Delay for Movement [s/veh]	17.48	4.11	0.00	0.00	9.01	9.06	0.00	0.00	0.00	9.34	9.41	9.72
Movement LOS	B	A			A	A				A	A	A
d_A, Approach Delay [s/veh]	4.71			9.01			0.00			9.51		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.79											
Intersection LOS	A											
Intersection V/C	0.423											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			9.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			21.68			21.68		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			1.760			1.819		
Crosswalk LOS	F			F			A			A		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1017			717			0			683		
d_b, Bicycle Delay [s]	7.25			12.35			30.00			13.00		
I_b,int, Bicycle LOS Score for Intersection	1.815			1.909			4.132			1.769		
Bicycle LOS	A			A			D			A		

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Avalon Boulevard & I-405 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	7.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.603

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Base Volume Input [veh/h]	294	1272	0	0	1066	613	0	0	0	98	0	395
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	294	1272	0	0	1066	613	0	0	0	98	0	395
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	318	0	0	267	153	0	0	0	25	0	99
Total Analysis Volume [veh/h]	294	1272	0	0	1066	613	0	0	0	98	0	395
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Unsigna
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	14	33	0	0	19	0	0	0	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C
C, Cycle Length [s]	33	33	33		33	33
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	5	21	12		3	3
g / C, Green / Cycle	0.15	0.64	0.35		0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.09	0.36	0.21		0.03	0.03
s, saturation flow rate [veh/h]	3459	3560	5094		1781	1781
c, Capacity [veh/h]	534	2273	1776		162	162
d1, Uniform Delay [s]	12.99	3.38	8.92		14.13	14.13
k, delay calibration	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.89	0.22	0.33		1.04	1.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.56	0.60		0.30	0.30
d, Delay for Lane Group [s/veh]	13.87	3.60	9.25		15.17	15.17
Lane Group LOS	B	A	A		B	B
Critical Lane Group	No	Yes	No		Yes	No
50th-Percentile Queue Length [veh]	0.85	0.51	1.45		0.32	0.32
50th-Percentile Queue Length [ft]	21.35	12.81	36.36		8.09	8.09
95th-Percentile Queue Length [veh]	1.54	0.92	2.62		0.58	0.58
95th-Percentile Queue Length [ft]	38.42	23.06	65.45		14.55	14.55

Movement, Approach, & Intersection Results

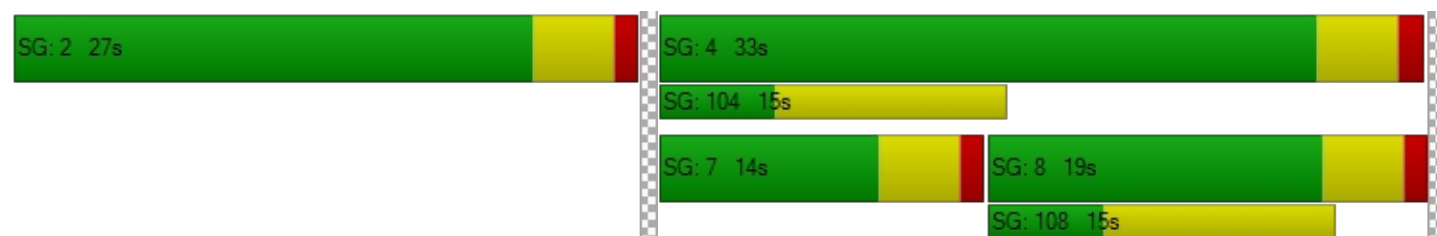
d_M, Delay for Movement [s/veh]	13.87	3.60	0.00	0.00	9.25	0.00	0.00	0.00	0.00	15.17	15.17	0.00
Movement LOS	B	A			A					B	B	
d_A, Approach Delay [s/veh]	5.53			9.25			0.00			15.17		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	7.33											
Intersection LOS	A											
Intersection V/C	0.603											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.839	1.953
Crosswalk LOS	F	F	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	483	0	750
d_b, Bicycle Delay [s]	8.27	17.25	30.00	11.72
I_b,int, Bicycle LOS Score for Intersection	2.852	2.146	4.132	1.721
Bicycle LOS	C	B	D	A

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Avalon Boulevard & I-405 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	9.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Base Volume Input [veh/h]	0	984	129	0	840	302	603	15	368	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	984	129	0	840	302	603	15	368	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	246	32	0	210	76	151	4	92	0	0	0
Total Analysis Volume [veh/h]	0	984	129	0	840	302	603	15	368	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	6	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	9	28	0	0	19	0	0	32	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No			No				
Maximum Recall	No	No			No			No				
Pedestrian Recall	No	No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	C	
C, Cycle Length [s]	34	34	34	34	34	34	
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50	
g_i, Effective Green Time [s]	0	16	16	11	9	9	
g / C, Green / Cycle	0.00	0.47	0.47	0.33	0.27	0.27	
(v / s)_i Volume / Saturation Flow Rate	0.00	0.30	0.30	0.24	0.17	0.00	
s, saturation flow rate [veh/h]	1781	1870	1795	3560	3459	3560	
c, Capacity [veh/h]	1	874	839	1194	934	962	
d1, Uniform Delay [s]	0.00	6.98	6.99	9.90	11.05	9.16	
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.00	0.82	0.86	0.77	0.75	0.01	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.00	0.65	0.65	0.70	0.65	0.02	
d, Delay for Lane Group [s/veh]	0.00	7.81	7.84	10.67	11.81	9.17	
Lane Group LOS	A	A	A	B	B	A	
Critical Lane Group	No	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh]	0.00	1.96	1.90	2.01	1.57	0.03	
50th-Percentile Queue Length [ft]	0.00	49.10	47.39	50.14	39.27	0.78	
95th-Percentile Queue Length [veh]	0.00	3.54	3.41	3.61	2.83	0.06	
95th-Percentile Queue Length [ft]	0.00	88.38	85.31	90.25	70.68	1.41	

Movement, Approach, & Intersection Results

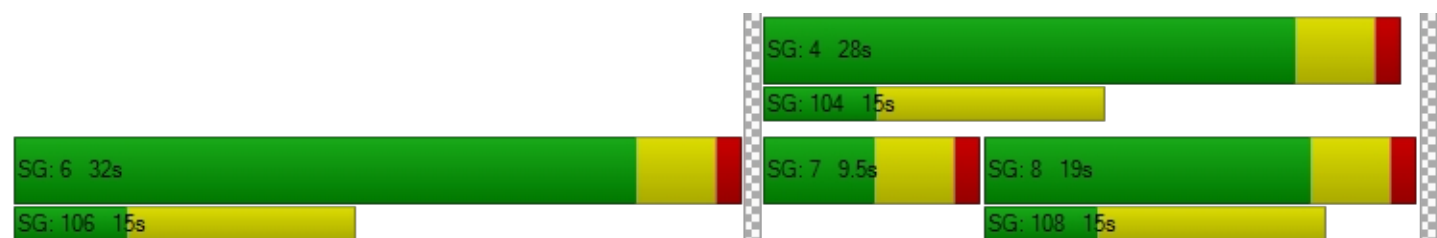
d_M, Delay for Movement [s/veh]	0.00	7.82	7.84	0.00	10.67	0.00	11.81	9.17	0.00	0.00	0.00	0.00
Movement LOS	A	A	A		B		B	A				
d_A, Approach Delay [s/veh]	7.82			10.67			11.74			0.00		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	9.70											
Intersection LOS	A											
Intersection V/C	0.738											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			0.0			9.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	21.68			0.00			21.68			21.68		
I_p,int, Pedestrian LOS Score for Intersection	2.661			0.000			2.534			1.766		
Crosswalk LOS	B			F			B			A		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	783			483			917			0		
d_b, Bicycle Delay [s]	11.10			17.25			8.80			30.00		
I_b,int, Bicycle LOS Score for Intersection	2.478			2.253			2.069			4.132		
Bicycle LOS	B			B			B			D		

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Main Street & SR 91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.363

Intersection Setup

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			Yes		

Volumes

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	0	185	96	35	202	0	0	0	0	108	0	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	185	96	35	202	0	0	0	0	108	0	107
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	46	24	9	51	0	0	0	0	27	0	27
Total Analysis Volume [veh/h]	0	185	96	35	202	0	0	0	0	108	0	107
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	3	8	0	0	0	0	2	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	0	0	0	5	0	0
Maximum Green [s]	30	30	0	30	30	0	0	0	0	30	0	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	0.0	0.0	3.5	0.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	22	0	9	22	0	0	0	0	29	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	2.5	2.5	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Minimum Recall	No	No		No	No					No		
Maximum Recall	No	No		No	No					No		
Pedestrian Recall	No	No		No	No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C		L	R
C, Cycle Length [s]	22	22	22	22	22		22	22
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	4	4	1	5		4	4
g / C, Green / Cycle	0.00	0.19	0.19	0.05	0.23		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.08	0.08	0.02	0.06		0.06	0.07
s, saturation flow rate [veh/h]	1781	1870	1663	1781	3560		1781	1589
c, Capacity [veh/h]	2	351	312	83	829		300	267
d1, Uniform Delay [s]	0.00	8.08	8.12	10.47	7.05		8.32	8.38
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.00	0.78	0.97	3.34	0.15		0.73	0.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.41	0.44	0.42	0.24		0.36	0.40
d, Delay for Lane Group [s/veh]	0.00	8.86	9.09	13.81	7.20		9.05	9.34
Lane Group LOS	A	A	A	B	A		A	A
Critical Lane Group	No	No	Yes	Yes	No		No	Yes
50th-Percentile Queue Length [veh]	0.00	0.42	0.41	0.19	0.22		0.33	0.34
50th-Percentile Queue Length [ft]	0.00	10.49	10.23	4.67	5.55		8.17	8.43
95th-Percentile Queue Length [veh]	0.00	0.76	0.74	0.34	0.40		0.59	0.61
95th-Percentile Queue Length [ft]	0.00	18.88	18.41	8.41	10.00		14.70	15.17

Movement, Approach, & Intersection Results

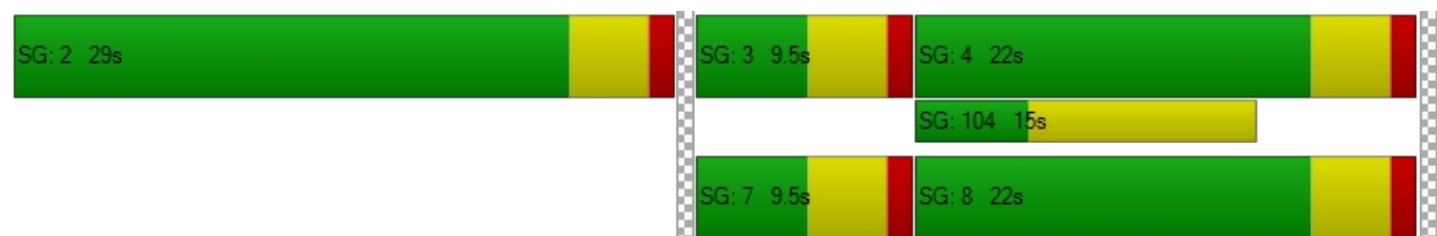
d_M, Delay for Movement [s/veh]	0.00	8.91	9.09	13.81	7.20	0.00	0.00	0.00	0.00	9.05	0.00	9.34
Movement LOS	A	A	A	B	A					A		A
d_A, Approach Delay [s/veh]	8.97			8.17			0.00			9.20		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	8.78											
Intersection LOS	A											
Intersection V/C	0.363											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			21.68		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			2.033		
Crosswalk LOS	F			F			F			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	583			583			0			0		
d_b, Bicycle Delay [s]	15.05			15.05			30.00			30.00		
I_b,int, Bicycle LOS Score for Intersection	1.791			1.755			4.132			4.132		
Bicycle LOS	A			A			D			D		

Sequence




Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: I-110 SB Off-Ramp & 190th Street

Control Type:	Signalized	Delay (sec / veh):	8.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.657

Intersection Setup

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Base Volume Input [veh/h]	232	355	0	900	472	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	232	355	0	900	472	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	89	0	225	118	0
Total Analysis Volume [veh/h]	232	355	0	900	472	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	8	0	0	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	40	0	0	20	20	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	0.0	2.5	2.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C
C, Cycle Length [s]	29	29	29	29
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	9	9	11	11
g / C, Green / Cycle	0.32	0.32	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.13	0.22	0.25	0.09
s, saturation flow rate [veh/h]	1781	1589	3560	5094
c, Capacity [veh/h]	568	507	1327	1899
d1, Uniform Delay [s]	7.78	8.72	7.69	6.33
k, delay calibration	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.47	1.77	0.61	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.70	0.68	0.25
d, Delay for Lane Group [s/veh]	8.26	10.48	8.30	6.40
Lane Group LOS	A	B	A	A
Critical Lane Group	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	0.77	1.45	1.43	0.39
50th-Percentile Queue Length [ft]	19.34	36.17	35.75	9.78
95th-Percentile Queue Length [veh]	1.39	2.60	2.57	0.70
95th-Percentile Queue Length [ft]	34.81	65.11	64.35	17.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.26	10.48	0.00	8.30	6.40	0.00
Movement LOS	A	B		A	A	
d_A, Approach Delay [s/veh]	9.60		8.30		6.40	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.23					
Intersection LOS	A					
Intersection V/C	0.657					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.982	0.000	0.000
Crosswalk LOS	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.875	4.392
Bicycle LOS	D	E	E

Sequence




Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: SR 91 EB Ramps & Albertoni Street

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.508

Intersection Setup

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Base Volume Input [veh/h]	208	118	268	263	284	67
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	208	118	268	263	284	67
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	30	67	66	71	17
Total Analysis Volume [veh/h]	208	118	268	263	284	67
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	8	0	1	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	23	0	14	37	23	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	2.5	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	29	29	29	29	29	29
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	5	5	4	14	5	5
g / C, Green / Cycle	0.19	0.19	0.16	0.49	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.12	0.07	0.08	0.07	0.09	0.10
s, saturation flow rate [veh/h]	1781	1589	3459	3560	1870	1752
c, Capacity [veh/h]	343	306	539	1756	337	316
d1, Uniform Delay [s]	10.58	10.09	11.07	3.97	10.62	10.70
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.73	0.79	0.71	0.04	1.24	1.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.39	0.50	0.15	0.52	0.56
d, Delay for Lane Group [s/veh]	12.30	10.88	11.78	4.01	11.87	12.22
Lane Group LOS	B	B	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	0.99	0.52	0.61	0.17	0.82	0.84
50th-Percentile Queue Length [ft]	24.84	12.90	15.15	4.26	20.42	20.98
95th-Percentile Queue Length [veh]	1.79	0.93	1.09	0.31	1.47	1.51
95th-Percentile Queue Length [ft]	44.71	23.23	27.26	7.67	36.76	37.76

Movement, Approach, & Intersection Results

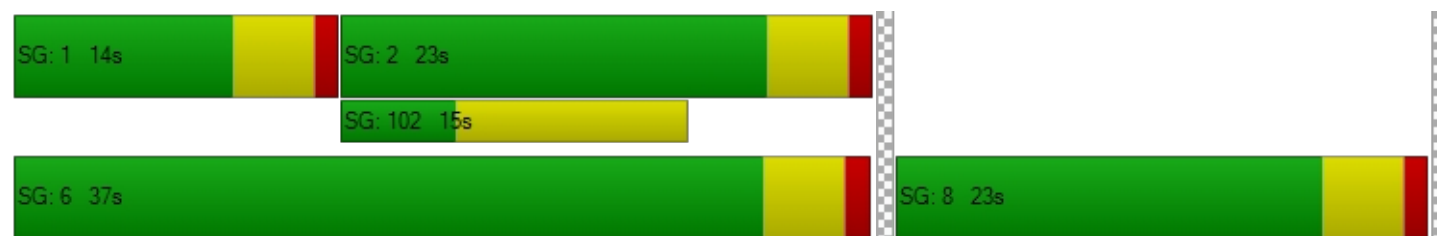
d_M, Delay for Movement [s/veh]	12.30	10.88	11.78	4.01	12.00	12.22
Movement LOS	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	11.79		7.93		12.05	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	10.17					
Intersection LOS	B					
Intersection V/C	0.508					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.273	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.570	4.422
Bicycle LOS	D	E	E

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Main Street & I-405 NB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.460

Intersection Setup

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Base Volume Input [veh/h]	14	336	0	0	453	26	0	0	0	61	92	132
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	336	0	0	453	26	0	0	0	61	92	132
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	84	0	0	113	7	0	0	0	15	23	33
Total Analysis Volume [veh/h]	14	336	0	0	453	26	0	0	0	61	92	132
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	9	35	0	0	26	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C
C, Cycle Length [s]	24	24	24	24		24	24
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	11	6	6		4	4
g / C, Green / Cycle	0.02	0.44	0.24	0.24		0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.09	0.13	0.13		0.08	0.09
s, saturation flow rate [veh/h]	1781	3560	1870	1835		1833	1446
c, Capacity [veh/h]	37	1587	446	437		332	262
d1, Uniform Delay [s]	11.65	4.09	8.02	8.04		8.82	8.90
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	6.31	0.07	1.01	1.07		1.00	1.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.21	0.54	0.55		0.46	0.50
d, Delay for Lane Group [s/veh]	17.96	4.16	9.03	9.12		9.82	10.40
Lane Group LOS	B	A	A	A		A	B
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh]	0.12	0.17	0.73	0.73		0.52	0.48
50th-Percentile Queue Length [ft]	2.90	4.13	18.20	18.37		13.03	12.06
95th-Percentile Queue Length [veh]	0.21	0.30	1.31	1.32		0.94	0.87
95th-Percentile Queue Length [ft]	5.22	7.44	32.75	33.06		23.45	21.71

Movement, Approach, & Intersection Results

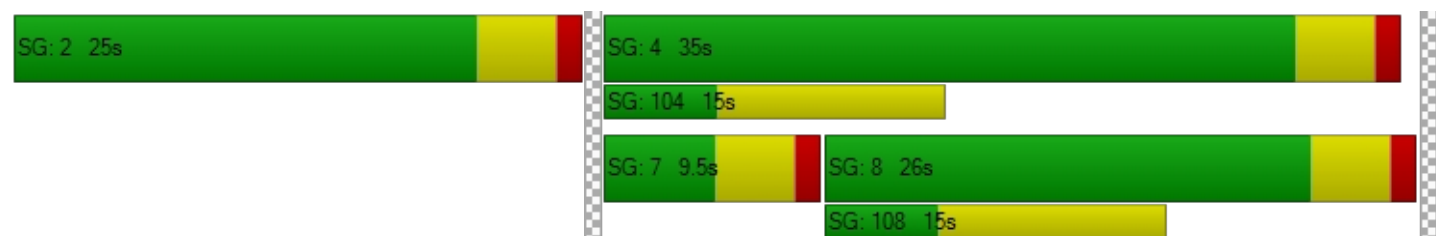
d_M, Delay for Movement [s/veh]	17.96	4.16	0.00	0.00	9.07	9.12	0.00	0.00	0.00	9.82	9.82	10.40
Movement LOS	B	A			A	A				A	A	B
d_A, Approach Delay [s/veh]	4.71			9.07			0.00			10.09		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	7.96											
Intersection LOS	A											
Intersection V/C	0.460											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.760	1.834
Crosswalk LOS	F	F	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	717	0	683
d_b, Bicycle Delay [s]	7.25	12.35	30.00	13.00
I_b,int, Bicycle LOS Score for Intersection	1.848	1.955	4.132	1.795
Bicycle LOS	A	A	D	A

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Avalon Boulevard & I-405 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	7.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.616

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Base Volume Input [veh/h]	294	1321	0	0	1121	641	0	0	0	98	0	453
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	294	1321	0	0	1121	641	0	0	0	98	0	453
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	330	0	0	280	160	0	0	0	25	0	113
Total Analysis Volume [veh/h]	294	1321	0	0	1121	641	0	0	0	98	0	453
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Unsigna
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	14	33	0	0	19	0	0	0	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C
C, Cycle Length [s]	34	34	34		34	34
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	5	22	12		3	3
g / C, Green / Cycle	0.15	0.65	0.36		0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.09	0.37	0.22		0.03	0.03
s, saturation flow rate [veh/h]	3459	3560	5094		1781	1781
c, Capacity [veh/h]	530	2302	1842		160	160
d1, Uniform Delay [s]	13.38	3.39	8.92		14.54	14.54
k, delay calibration	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.91	0.23	0.33		1.07	1.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.57	0.61		0.31	0.31
d, Delay for Lane Group [s/veh]	14.29	3.62	9.25		15.61	15.61
Lane Group LOS	B	A	A		B	B
Critical Lane Group	No	Yes	No		Yes	No
50th-Percentile Queue Length [veh]	0.89	0.56	1.57		0.34	0.34
50th-Percentile Queue Length [ft]	22.27	13.95	39.20		8.40	8.40
95th-Percentile Queue Length [veh]	1.60	1.00	2.82		0.60	0.60
95th-Percentile Queue Length [ft]	40.08	25.11	70.57		15.12	15.12

Movement, Approach, & Intersection Results

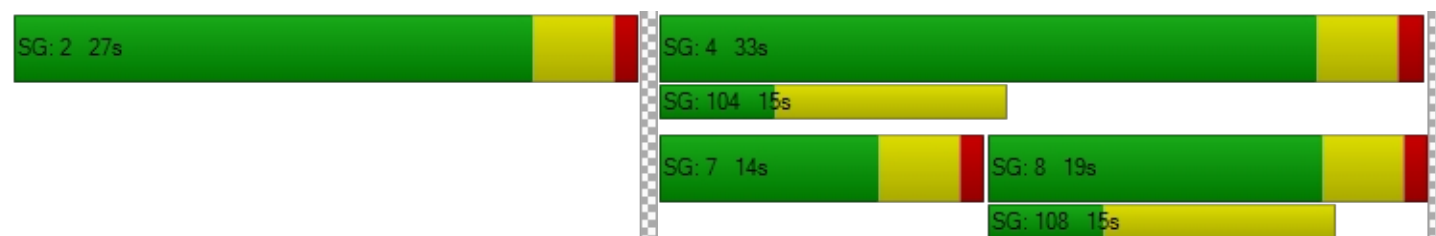
d_M, Delay for Movement [s/veh]	14.29	3.62	0.00	0.00	9.25	0.00	0.00	0.00	0.00	15.61	15.61	0.00
Movement LOS	B	A			A					B	B	
d_A, Approach Delay [s/veh]	5.56			9.25			0.00			15.61		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	7.37											
Intersection LOS	A											
Intersection V/C	0.616											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0				0.0				9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00				0.00				0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00				0.00				0.00			
d_p, Pedestrian Delay [s]	0.00				0.00				21.68			
I_p,int, Pedestrian LOS Score for Intersection	0.000				0.000				1.839			
Crosswalk LOS	F				F				A			
s_b, Saturation Flow Rate of the bicycle lane	2000				2000				2000			
c_b, Capacity of the bicycle lane [bicycles/h]	950				483				0			
d_b, Bicycle Delay [s]	8.27				17.25				30.00			
I_b,int, Bicycle LOS Score for Intersection	2.892				2.176				4.132			
Bicycle LOS	C				B				D			

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Avalon Boulevard & I-405 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	10.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.750

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Base Volume Input [veh/h]	0	997	129	0	850	347	639	15	368	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	997	129	0	850	347	639	15	368	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	249	32	0	213	87	160	4	92	0	0	0
Total Analysis Volume [veh/h]	0	997	129	0	850	347	639	15	368	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	6	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	9	28	0	0	19	0	0	32	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No			No				
Maximum Recall	No	No			No			No				
Pedestrian Recall	No	No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	C	
C, Cycle Length [s]	35	35	35	35	35	35	
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50	
g_i, Effective Green Time [s]	0	16	16	12	10	10	
g / C, Green / Cycle	0.00	0.46	0.46	0.33	0.28	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.00	0.31	0.31	0.24	0.18	0.00	
s, saturation flow rate [veh/h]	1781	1870	1796	3560	3459	3560	
c, Capacity [veh/h]	0	867	833	1194	966	994	
d1, Uniform Delay [s]	0.00	7.26	7.27	10.17	11.16	9.14	
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.00	0.87	0.91	0.80	0.78	0.01	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.00	0.66	0.66	0.71	0.66	0.02	
d, Delay for Lane Group [s/veh]	0.00	8.14	8.18	10.97	11.95	9.14	
Lane Group LOS	A	A	A	B	B	A	
Critical Lane Group	No	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh]	0.00	2.13	2.06	2.12	1.72	0.03	
50th-Percentile Queue Length [ft]	0.00	53.24	51.42	53.12	42.90	0.79	
95th-Percentile Queue Length [veh]	0.00	3.83	3.70	3.82	3.09	0.06	
95th-Percentile Queue Length [ft]	0.00	95.83	92.55	95.61	77.22	1.43	

Movement, Approach, & Intersection Results

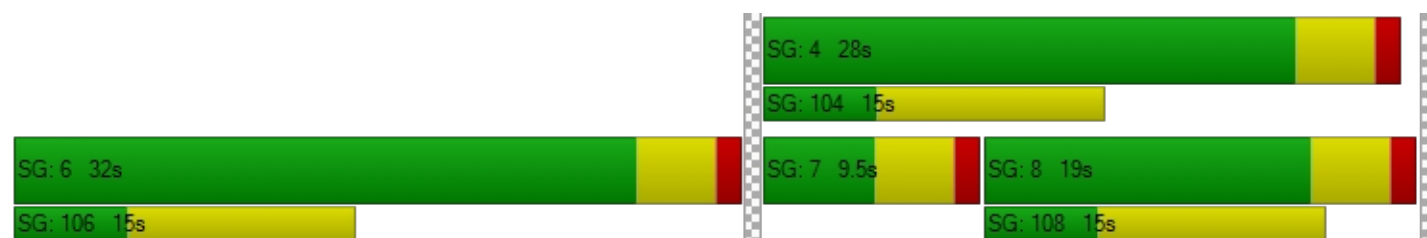
d_M, Delay for Movement [s/veh]	0.00	8.15	8.18	0.00	10.97	0.00	11.95	9.14	0.00	0.00	0.00	0.00
Movement LOS	A	A	A		B		B	A				
d_A, Approach Delay [s/veh]	8.16			10.97			11.88			0.00		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	9.99											
Intersection LOS	A											
Intersection V/C	0.750											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			0.0			9.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	21.68			0.00			21.68			21.68		
I_p,int, Pedestrian LOS Score for Intersection	2.666			0.000			2.540			1.766		
Crosswalk LOS	B			F			B			A		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	783			483			917			0		
d_b, Bicycle Delay [s]	11.10			17.25			8.80			30.00		
I_b,int, Bicycle LOS Score for Intersection	2.489			2.261			2.099			4.132		
Bicycle LOS	B			B			B			D		

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Main Street & SR 91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	8.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.382

Intersection Setup

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			Yes		

Volumes

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	0	199	120	35	220	0	0	0	0	117	0	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	199	120	35	220	0	0	0	0	117	0	107
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	50	30	9	55	0	0	0	0	29	0	27
Total Analysis Volume [veh/h]	0	199	120	35	220	0	0	0	0	117	0	107
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	3	8	0	0	0	0	2	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	0	0	0	5	0	0
Maximum Green [s]	30	30	0	30	30	0	0	0	0	30	0	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	0.0	0.0	3.5	0.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	22	0	9	22	0	0	0	0	29	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	2.5	2.5	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Minimum Recall	No	No		No	No					No		
Maximum Recall	No	No		No	No					No		
Pedestrian Recall	No	No		No	No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C		L	R
C, Cycle Length [s]	23	23	23	23	23		23	23
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	4	4	1	5		4	4
g / C, Green / Cycle	0.00	0.19	0.19	0.05	0.24		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.09	0.09	0.02	0.06		0.07	0.07
s, saturation flow rate [veh/h]	1781	1870	1644	1781	3560		1781	1589
c, Capacity [veh/h]	2	362	318	83	852		303	270
d1, Uniform Delay [s]	0.00	8.17	8.21	10.62	7.07		8.44	8.46
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.00	0.90	1.13	3.35	0.16		0.81	0.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.46	0.48	0.42	0.26		0.39	0.40
d, Delay for Lane Group [s/veh]	0.00	9.06	9.35	13.97	7.22		9.25	9.40
Lane Group LOS	A	A	A	B	A		A	A
Critical Lane Group	No	No	Yes	Yes	No		No	Yes
50th-Percentile Queue Length [veh]	0.00	0.49	0.48	0.19	0.25		0.36	0.34
50th-Percentile Queue Length [ft]	0.00	12.33	11.92	4.75	6.15		9.12	8.57
95th-Percentile Queue Length [veh]	0.00	0.89	0.86	0.34	0.44		0.66	0.62
95th-Percentile Queue Length [ft]	0.00	22.19	21.46	8.55	11.07		16.42	15.42

Movement, Approach, & Intersection Results

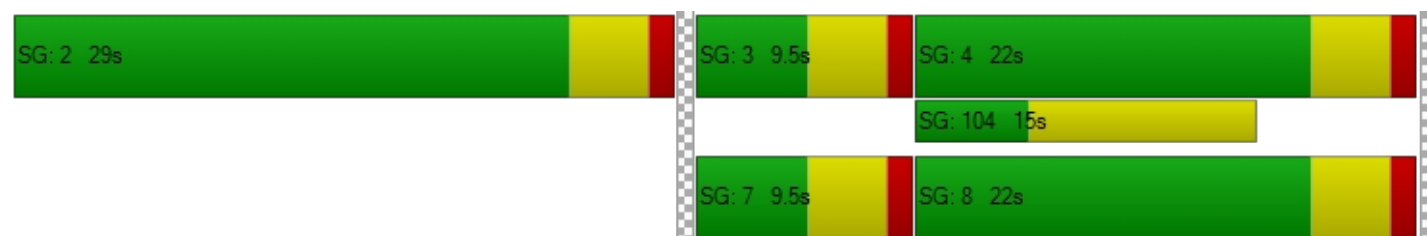
d_M, Delay for Movement [s/veh]	0.00	9.11	9.35	13.97	7.22	0.00	0.00	0.00	0.00	9.25	0.00	9.40
Movement LOS	A	A	A	B	A					A		A
d_A, Approach Delay [s/veh]	9.20			8.15			0.00			9.32		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	8.90											
Intersection LOS	A											
Intersection V/C	0.382											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			21.68		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			2.044		
Crosswalk LOS	F			F			F			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	583			583			0			0		
d_b, Bicycle Delay [s]	15.05			15.05			30.00			30.00		
I_b,int, Bicycle LOS Score for Intersection	1.823			1.770			4.132			4.132		
Bicycle LOS	A			A			D			D		

Sequence




Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: I-110 SB Off-Ramp & 190th Street

Control Type:	Signalized	Delay (sec / veh):	8.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Base Volume Input [veh/h]	259	355	0	936	500	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	259	355	0	936	500	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	89	0	234	125	0
Total Analysis Volume [veh/h]	259	355	0	936	500	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	8	0	0	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	40	0	0	20	20	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	0.0	2.5	2.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C
C, Cycle Length [s]	30	30	30	30
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	10	10	11	11
g / C, Green / Cycle	0.32	0.32	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.15	0.22	0.26	0.10
s, saturation flow rate [veh/h]	1781	1589	3560	5094
c, Capacity [veh/h]	568	507	1361	1947
d1, Uniform Delay [s]	8.17	8.99	7.79	6.37
k, delay calibration	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.57	1.78	0.63	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.70	0.69	0.26
d, Delay for Lane Group [s/veh]	8.74	10.77	8.42	6.44
Lane Group LOS	A	B	A	A
Critical Lane Group	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	0.94	1.53	1.55	0.43
50th-Percentile Queue Length [ft]	23.40	38.13	38.85	10.76
95th-Percentile Queue Length [veh]	1.69	2.75	2.80	0.77
95th-Percentile Queue Length [ft]	42.13	68.64	69.94	19.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.74	10.77	0.00	8.42	6.44	0.00
Movement LOS	A	B		A	A	
d_A, Approach Delay [s/veh]	9.91		8.42		6.44	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.38					
Intersection LOS	A					
Intersection V/C	0.663					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.995	0.000	0.000
Crosswalk LOS	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.905	4.407
Bicycle LOS	D	E	E

Sequence




Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: SR 91 EB Ramps & Albertoni Street

Control Type:	Signalized	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.510

Intersection Setup

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Base Volume Input [veh/h]	208	149	275	272	291	67
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	208	149	275	272	291	67
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	37	69	68	73	17
Total Analysis Volume [veh/h]	208	149	275	272	291	67
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	8	0	1	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	23	0	14	37	23	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	2.5	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	29	29	29	29	29	29
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	6	6	4	14	5	5
g / C, Green / Cycle	0.20	0.20	0.16	0.49	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.12	0.09	0.08	0.08	0.10	0.10
s, saturation flow rate [veh/h]	1781	1589	3459	3560	1870	1754
c, Capacity [veh/h]	352	314	538	1755	341	320
d1, Uniform Delay [s]	10.60	10.33	11.25	4.05	10.74	10.82
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.59	1.12	0.75	0.04	1.25	1.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.47	0.51	0.16	0.53	0.56
d, Delay for Lane Group [s/veh]	12.19	11.44	12.00	4.09	12.00	12.35
Lane Group LOS	B	B	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.00	0.68	0.64	0.19	0.85	0.87
50th-Percentile Queue Length [ft]	24.90	17.10	15.97	4.64	21.23	21.80
95th-Percentile Queue Length [veh]	1.79	1.23	1.15	0.33	1.53	1.57
95th-Percentile Queue Length [ft]	44.81	30.79	28.74	8.35	38.21	39.24

Movement, Approach, & Intersection Results

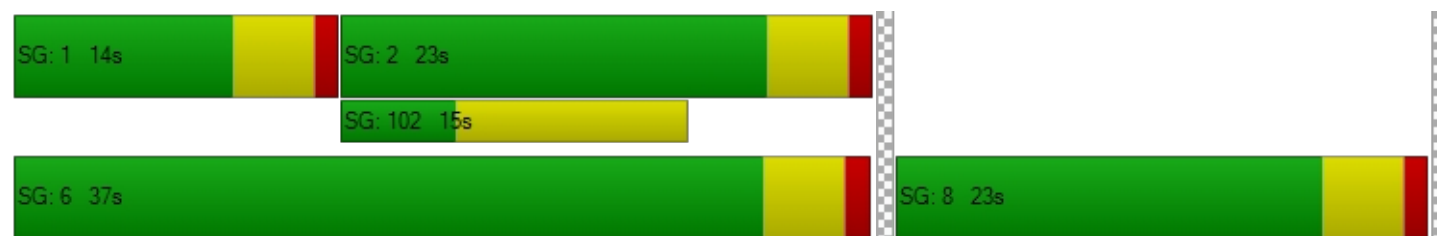
d_M, Delay for Movement [s/veh]	12.19	11.44	12.00	4.09	12.13	12.35
Movement LOS	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	11.88		8.07		12.17	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	10.31					
Intersection LOS	B					
Intersection V/C	0.510					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.282	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.584	4.428
Bicycle LOS	D	E	E

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Main Street & I-405 NB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.552

Intersection Setup

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Base Volume Input [veh/h]	14	395	0	0	556	26	0	0	0	259	93	148
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	395	0	0	556	26	0	0	0	259	93	148
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	99	0	0	139	7	0	0	0	65	23	37
Total Analysis Volume [veh/h]	14	395	0	0	556	26	0	0	0	259	93	148
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	35	0	0	25	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C
C, Cycle Length [s]	28	28	28	28		28	28
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	1	12	7	7		7	7
g / C, Green / Cycle	0.02	0.44	0.26	0.26		0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.01	0.11	0.16	0.16		0.15	0.15
s, saturation flow rate [veh/h]	1781	3560	1870	1841		1784	1530
c, Capacity [veh/h]	35	1551	482	475		442	379
d1, Uniform Delay [s]	13.77	5.09	9.27	9.30		9.46	9.49
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	7.33	0.09	1.22	1.29		1.34	1.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.25	0.60	0.61		0.61	0.61
d, Delay for Lane Group [s/veh]	21.11	5.18	10.49	10.59		10.80	11.10
Lane Group LOS	C	A	B	B		B	B
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh]	0.14	0.36	1.18	1.19		1.12	1.00
50th-Percentile Queue Length [ft]	3.47	9.09	29.53	29.77		27.98	25.04
95th-Percentile Queue Length [veh]	0.25	0.65	2.13	2.14		2.01	1.80
95th-Percentile Queue Length [ft]	6.25	16.37	53.16	53.59		50.37	45.07

Movement, Approach, & Intersection Results

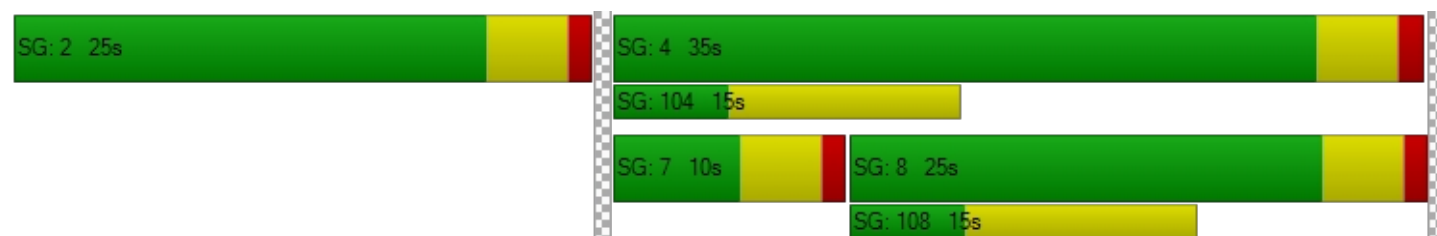
d_M, Delay for Movement [s/veh]	21.11	5.18	0.00	0.00	10.54	10.59	0.00	0.00	0.00	10.80	11.07	11.10
Movement LOS	C	A			B	B				B	B	B
d_A, Approach Delay [s/veh]	5.72			10.54			0.00			10.94		
Approach LOS	A			B			A			B		
d_I, Intersection Delay [s/veh]	9.35											
Intersection LOS	A											
Intersection V/C	0.552											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.760	1.939
Crosswalk LOS	F	F	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	683	0	683
d_b, Bicycle Delay [s]	7.25	13.00	30.00	13.00
I_b,int, Bicycle LOS Score for Intersection	1.897	2.040	4.132	1.972
Bicycle LOS	A	B	D	A

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Avalon Boulevard & I-405 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	13.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.705

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Base Volume Input [veh/h]	529	1512	0	0	1424	686	0	0	0	427	0	590
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	529	1512	0	0	1424	686	0	0	0	427	0	590
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	132	378	0	0	356	172	0	0	0	107	0	148
Total Analysis Volume [veh/h]	529	1512	0	0	1424	686	0	0	0	427	0	590
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Unsigna
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	14	34	0	0	20	0	0	0	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C
C, Cycle Length [s]	55	55	55		55	55
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	11	37	21		9	9
g / C, Green / Cycle	0.21	0.67	0.38		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.15	0.42	0.28		0.12	0.12
s, saturation flow rate [veh/h]	3459	3560	5094		1781	1781
c, Capacity [veh/h]	719	2386	1941		299	299
d1, Uniform Delay [s]	20.55	5.25	14.74		21.83	21.83
k, delay calibration	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	1.49	0.28	0.55		3.19	3.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.63	0.73		0.72	0.72
d, Delay for Lane Group [s/veh]	22.04	5.53	15.29		25.02	25.02
Lane Group LOS	C	A	B		C	C
Critical Lane Group	Yes	No	Yes		Yes	No
50th-Percentile Queue Length [veh]	3.05	2.97	4.47		2.67	2.67
50th-Percentile Queue Length [ft]	76.32	74.32	111.74		66.76	66.76
95th-Percentile Queue Length [veh]	5.50	5.35	7.94		4.81	4.81
95th-Percentile Queue Length [ft]	137.38	133.77	198.42		120.17	120.17

Movement, Approach, & Intersection Results

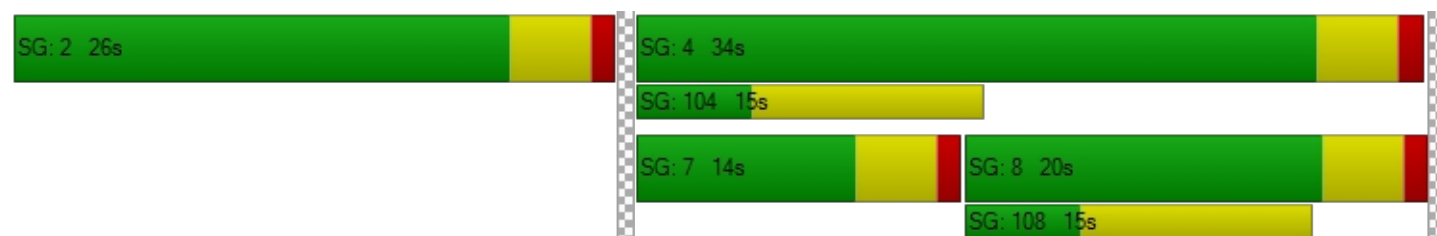
d_M, Delay for Movement [s/veh]	22.04	5.53	0.00	0.00	15.29	0.00	0.00	0.00	0.00	25.02	25.02	0.00
Movement LOS	C	A			B					C	C	
d_A, Approach Delay [s/veh]	9.81			15.29			0.00			25.02		
Approach LOS	A			B			A			C		
d_I, Intersection Delay [s/veh]	13.48											
Intersection LOS	B											
Intersection V/C	0.705											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0				0.0				9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00				0.00				0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00				0.00				0.00			
d_p, Pedestrian Delay [s]	0.00				0.00				21.68			
I_p,int, Pedestrian LOS Score for Intersection	0.000				0.000				1.953			
Crosswalk LOS	F				F				A			
s_b, Saturation Flow Rate of the bicycle lane	2000				2000				2000			
c_b, Capacity of the bicycle lane [bicycles/h]	983				517				0			
d_b, Bicycle Delay [s]	7.75				16.50				30.00			
I_b,int, Bicycle LOS Score for Intersection	3.243				2.343				4.132			
Bicycle LOS	C				B				D			

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Avalon Boulevard & I-405 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	21.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.834

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Base Volume Input [veh/h]	278	1183	178	0	1030	796	879	273	683	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	1183	178	0	1030	796	879	273	683	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	296	45	0	258	199	220	68	171	0	0	0
Total Analysis Volume [veh/h]	278	1183	178	0	1030	796	879	273	683	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	6	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	10	30	0	0	20	0	0	30	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No			No				
Maximum Recall	No	No			No			No				
Pedestrian Recall	No	No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	C	
C, Cycle Length [s]	75	75	75	75	75	75	
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50	
g_i, Effective Green Time [s]	14	43	43	25	23	23	
g / C, Green / Cycle	0.19	0.58	0.58	0.33	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.16	0.37	0.38	0.29	0.25	0.08	
s, saturation flow rate [veh/h]	1781	1870	1786	3560	3459	3560	
c, Capacity [veh/h]	331	1079	1030	1178	1048	1079	
d1, Uniform Delay [s]	29.38	10.61	10.74	23.56	24.36	19.68	
k, delay calibration	0.11	0.38	0.39	0.11	0.11	0.11	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	5.74	2.22	2.55	2.21	1.89	0.12	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.84	0.64	0.65	0.87	0.84	0.25	
d, Delay for Lane Group [s/veh]	35.12	12.82	13.29	25.77	26.25	19.80	
Lane Group LOS	D	B	B	C	C	B	
Critical Lane Group	Yes	No	No	Yes	Yes	No	
50th-Percentile Queue Length [veh]	5.14	7.09	7.08	8.33	7.09	1.73	
50th-Percentile Queue Length [ft]	128.48	177.28	176.99	208.14	177.29	43.22	
95th-Percentile Queue Length [veh]	8.86	11.46	11.44	13.06	11.46	3.11	
95th-Percentile Queue Length [ft]	221.42	286.46	286.09	326.44	286.47	77.79	

Movement, Approach, & Intersection Results

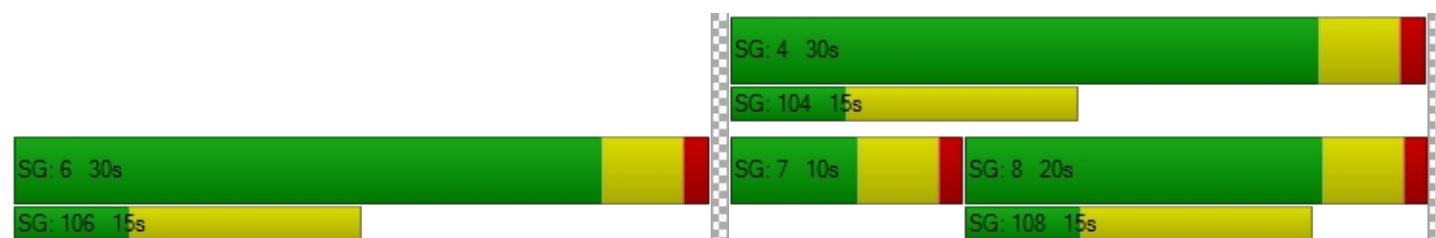
d_M, Delay for Movement [s/veh]	35.12	13.02	13.29	0.00	25.77	0.00	26.25	19.80	0.00	0.00	0.00	0.00
Movement LOS	D	B	B		C		C	B				
d_A, Approach Delay [s/veh]	16.80			25.77			24.72			0.00		
Approach LOS	B			C			C			A		
d_I, Intersection Delay [s/veh]	21.61											
Intersection LOS	C											
Intersection V/C	0.834											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.801	0.000	2.666	1.915
Crosswalk LOS	C	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	850	517	850	0
d_b, Bicycle Delay [s]	9.92	16.50	9.92	30.00
I_b,int, Bicycle LOS Score for Intersection	2.912	2.409	2.510	4.132
Bicycle LOS	C	B	B	D

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Main Street & SR 91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.436

Intersection Setup

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			Yes		

Volumes

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	0	312	138	35	333	0	0	0	0	126	0	108
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	312	138	35	333	0	0	0	0	126	0	108
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	78	35	9	83	0	0	0	0	32	0	27
Total Analysis Volume [veh/h]	0	312	138	35	333	0	0	0	0	126	0	108
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	3	8	0	0	0	0	2	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	0	0	0	5	0	0
Maximum Green [s]	30	30	0	30	30	0	0	0	0	30	0	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	0.0	0.0	3.5	0.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	22	0	10	22	0	0	0	0	28	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	2.5	2.5	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Minimum Recall	No	No		No	No					No		
Maximum Recall	No	No		No	No					No		
Pedestrian Recall	No	No		No	No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C		L	R
C, Cycle Length [s]	24	24	24	24	24		24	24
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	6	6	1	7		4	4
g / C, Green / Cycle	0.00	0.23	0.23	0.04	0.27		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.12	0.13	0.02	0.09		0.07	0.07
s, saturation flow rate [veh/h]	1781	1870	1681	1781	3560		1781	1589
c, Capacity [veh/h]	1	434	390	80	984		296	264
d1, Uniform Delay [s]	0.00	8.17	8.21	11.27	7.00		9.07	9.04
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.00	1.04	1.24	3.68	0.20		0.97	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.54	0.56	0.44	0.34		0.43	0.41
d, Delay for Lane Group [s/veh]	0.00	9.22	9.45	14.95	7.20		10.04	10.06
Lane Group LOS	A	A	A	B	A		B	B
Critical Lane Group	No	No	Yes	Yes	No		Yes	No
50th-Percentile Queue Length [veh]	0.00	0.73	0.70	0.21	0.39		0.45	0.39
50th-Percentile Queue Length [ft]	0.00	18.32	17.46	5.20	9.77		11.19	9.72
95th-Percentile Queue Length [veh]	0.00	1.32	1.26	0.37	0.70		0.81	0.70
95th-Percentile Queue Length [ft]	0.00	32.97	31.43	9.35	17.59		20.14	17.49

Movement, Approach, & Intersection Results

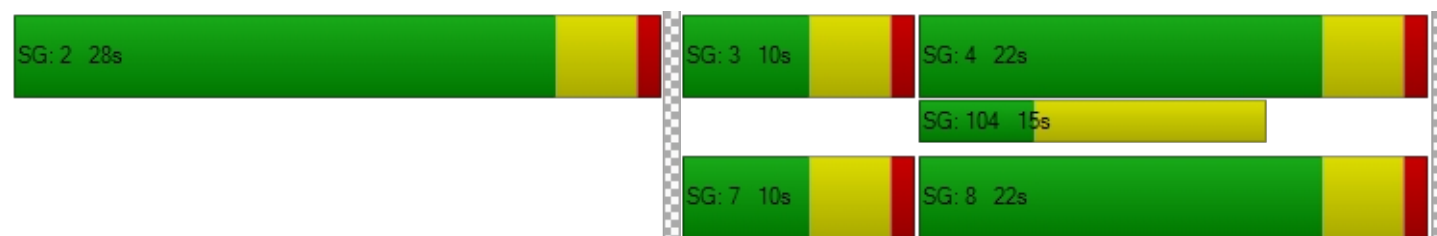
d_M, Delay for Movement [s/veh]	0.00	9.27	9.45	14.95	7.20	0.00	0.00	0.00	0.00	10.04	0.00	10.06
Movement LOS	A	A	A	B	A					B		B
d_A, Approach Delay [s/veh]	9.33			7.94			0.00			10.05		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	9.00											
Intersection LOS	A											
Intersection V/C	0.436											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			21.68		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			2.053		
Crosswalk LOS	F			F			F			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	583			583			0			0		
d_b, Bicycle Delay [s]	15.05			15.05			30.00			30.00		
I_b,int, Bicycle LOS Score for Intersection	1.931			1.863			4.132			4.132		
Bicycle LOS	A			A			D			D		

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






Intersection Level Of Service Report

Intersection 22: I-110 SB Off-Ramp & 190th Street

Control Type:	Signalized	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.678

Intersection Setup

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Base Volume Input [veh/h]	329	364	0	992	557	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	329	364	0	992	557	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	91	0	248	139	0
Total Analysis Volume [veh/h]	329	364	0	992	557	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	8	0	0	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	39	0	0	21	21	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	0.0	2.5	2.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C
C, Cycle Length [s]	32	32	32	32
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	10	10	13	13
g / C, Green / Cycle	0.32	0.32	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.18	0.23	0.28	0.11
s, saturation flow rate [veh/h]	1781	1589	3560	5094
c, Capacity [veh/h]	577	515	1406	2012
d1, Uniform Delay [s]	8.97	9.49	8.13	6.58
k, delay calibration	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.89	1.79	0.66	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.71	0.71	0.28
d, Delay for Lane Group [s/veh]	9.86	11.28	8.79	6.66
Lane Group LOS	A	B	A	A
Critical Lane Group	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	1.40	1.72	1.83	0.53
50th-Percentile Queue Length [ft]	34.93	43.11	45.86	13.27
95th-Percentile Queue Length [veh]	2.51	3.10	3.30	0.96
95th-Percentile Queue Length [ft]	62.87	77.60	82.55	23.89

Movement, Approach, & Intersection Results

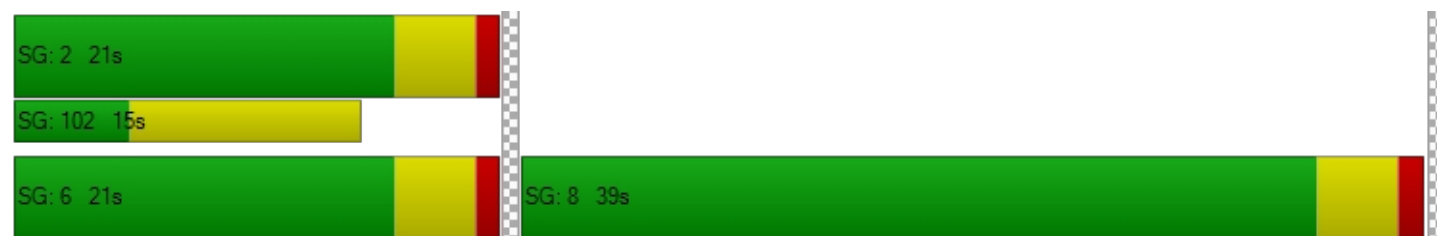
d_M, Delay for Movement [s/veh]	9.86	11.28	0.00	8.79	6.66	0.00
Movement LOS	A	B		A	A	
d_A, Approach Delay [s/veh]	10.61		8.79		6.66	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	8.82					
Intersection LOS	A					
Intersection V/C	0.678					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.033	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.951	4.439
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: SR 91 EB Ramps & Albertoni Street

Control Type:	Signalized	Delay (sec / veh):	10.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.514

Intersection Setup

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Base Volume Input [veh/h]	209	164	288	266	287	68
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	209	164	288	266	287	68
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	41	72	67	72	17
Total Analysis Volume [veh/h]	209	164	288	266	287	68
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	8	0	1	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	23	0	14	37	23	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	2.5	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	29	29	29	29	29	29
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	6	6	5	14	5	5
g / C, Green / Cycle	0.20	0.20	0.16	0.49	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.12	0.10	0.08	0.07	0.09	0.10
s, saturation flow rate [veh/h]	1781	1589	3459	3560	1870	1752
c, Capacity [veh/h]	355	316	547	1753	337	315
d1, Uniform Delay [s]	10.60	10.43	11.28	4.06	10.84	10.92
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.56	1.31	0.79	0.04	1.28	1.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.52	0.53	0.15	0.53	0.56
d, Delay for Lane Group [s/veh]	12.16	11.75	12.06	4.10	12.12	12.49
Lane Group LOS	B	B	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.00	0.77	0.67	0.18	0.85	0.88
50th-Percentile Queue Length [ft]	25.08	19.29	16.87	4.62	21.33	21.92
95th-Percentile Queue Length [veh]	1.81	1.39	1.21	0.33	1.54	1.58
95th-Percentile Queue Length [ft]	45.14	34.71	30.37	8.31	38.40	39.46

Movement, Approach, & Intersection Results

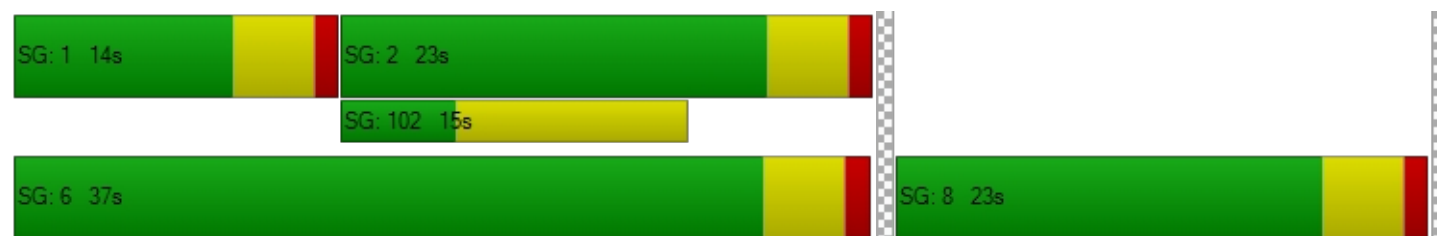
d_M, Delay for Movement [s/veh]	12.16	11.75	12.06	4.10	12.26	12.49
Movement LOS	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	11.98		8.24		12.31	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	10.45					
Intersection LOS	B					
Intersection V/C	0.514					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.289	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.589	4.425
Bicycle LOS	D	E	E

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Main Street & I-405 NB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	9.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.576

Intersection Setup

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Base Volume Input [veh/h]	14	435	0	0	611	26	0	0	0	259	93	179
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	435	0	0	611	26	0	0	0	259	93	179
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	109	0	0	153	7	0	0	0	65	23	45
Total Analysis Volume [veh/h]	14	435	0	0	611	26	0	0	0	259	93	179
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	35	0	0	25	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C
C, Cycle Length [s]	30	30	30	30		30	30
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	1	13	8	8		8	8
g / C, Green / Cycle	0.02	0.44	0.27	0.27		0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.01	0.12	0.17	0.17		0.16	0.16
s, saturation flow rate [veh/h]	1781	3560	1870	1843		1789	1507
c, Capacity [veh/h]	35	1572	507	500		459	387
d1, Uniform Delay [s]	14.46	5.30	9.55	9.57		9.81	9.84
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	7.41	0.09	1.28	1.35		1.39	1.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.28	0.63	0.64		0.62	0.63
d, Delay for Lane Group [s/veh]	21.86	5.39	10.83	10.93		11.20	11.55
Lane Group LOS	C	A	B	B		B	B
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh]	0.14	0.45	1.38	1.39		1.29	1.13
50th-Percentile Queue Length [ft]	3.62	11.19	34.56	34.82		32.13	28.35
95th-Percentile Queue Length [veh]	0.26	0.81	2.49	2.51		2.31	2.04
95th-Percentile Queue Length [ft]	6.51	20.14	62.20	62.68		57.83	51.04

Movement, Approach, & Intersection Results

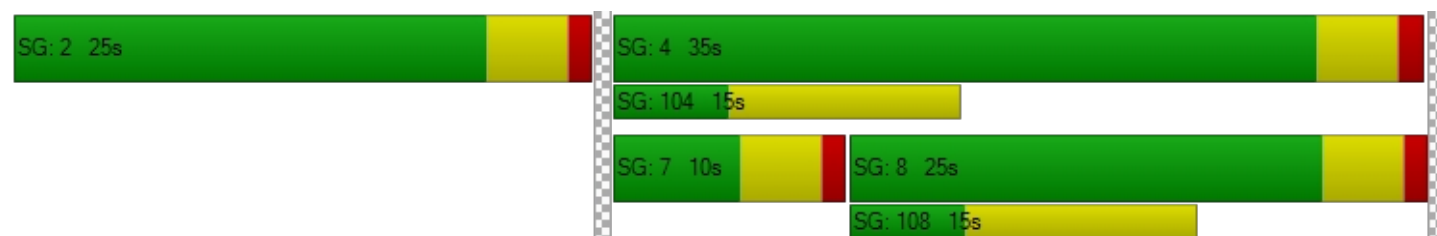
d_M, Delay for Movement [s/veh]	21.86	5.39	0.00	0.00	10.87	10.93	0.00	0.00	0.00	11.20	11.45	11.55
Movement LOS	C	A			B	B				B	B	B
d_A, Approach Delay [s/veh]	5.91			10.88			0.00			11.36		
Approach LOS	A			B			A			B		
d_I, Intersection Delay [s/veh]	9.66											
Intersection LOS	A											
Intersection V/C	0.576											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.760	1.954
Crosswalk LOS	F	F	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	683	0	683
d_b, Bicycle Delay [s]	7.25	13.00	30.00	13.00
I_b,int, Bicycle LOS Score for Intersection	1.930	2.085	4.132	1.998
Bicycle LOS	A	B	D	A

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Avalon Boulevard & I-405 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.713

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Base Volume Input [veh/h]	529	1561	0	0	1479	714	0	0	0	427	0	648
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	529	1561	0	0	1479	714	0	0	0	427	0	648
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	132	390	0	0	370	179	0	0	0	107	0	162
Total Analysis Volume [veh/h]	529	1561	0	0	1479	714	0	0	0	427	0	648
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Unsigna
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	14	34	0	0	20	0	0	0	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C
C, Cycle Length [s]	57	57	57		57	57
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	12	39	22		9	9
g / C, Green / Cycle	0.21	0.68	0.39		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.15	0.44	0.29		0.12	0.12
s, saturation flow rate [veh/h]	3459	3560	5094		1781	1781
c, Capacity [veh/h]	713	2407	1992		296	296
d1, Uniform Delay [s]	21.23	5.33	14.91		22.54	22.54
k, delay calibration	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	1.55	0.30	0.56		3.31	3.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.65	0.74		0.72	0.72
d, Delay for Lane Group [s/veh]	22.78	5.63	15.47		25.85	25.85
Lane Group LOS	C	A	B		C	C
Critical Lane Group	Yes	No	Yes		Yes	No
50th-Percentile Queue Length [veh]	3.18	3.22	4.80		2.77	2.77
50th-Percentile Queue Length [ft]	79.42	80.48	119.90		69.35	69.35
95th-Percentile Queue Length [veh]	5.72	5.79	8.39		4.99	4.99
95th-Percentile Queue Length [ft]	142.95	144.87	209.69		124.83	124.83

Movement, Approach, & Intersection Results

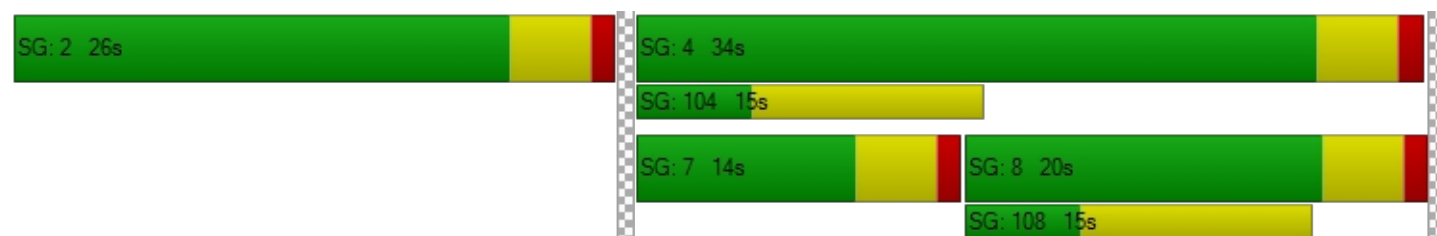
d_M, Delay for Movement [s/veh]	22.78	5.63	0.00	0.00	15.47	0.00	0.00	0.00	0.00	25.85	25.85	0.00
Movement LOS	C	A			B					C	C	
d_A, Approach Delay [s/veh]	9.97			15.47			0.00			25.85		
Approach LOS	A			B			A			C		
d_I, Intersection Delay [s/veh]	13.70											
Intersection LOS	B											
Intersection V/C	0.713											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0				0.0				9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00				0.00				0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00				0.00				0.00			
d_p, Pedestrian Delay [s]	0.00				0.00				21.68			
I_p,int, Pedestrian LOS Score for Intersection	0.000				0.000				1.953			
Crosswalk LOS	F				F				A			
s_b, Saturation Flow Rate of the bicycle lane	2000				2000				2000			
c_b, Capacity of the bicycle lane [bicycles/h]	983				517				0			
d_b, Bicycle Delay [s]	7.75				16.50				30.00			
I_b,int, Bicycle LOS Score for Intersection	3.284				2.373				4.132			
Bicycle LOS	C				B				D			

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Avalon Boulevard & I-405 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	22.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.843

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Base Volume Input [veh/h]	278	1196	178	0	1040	841	915	273	683	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	1196	178	0	1040	841	915	273	683	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	299	45	0	260	210	229	68	171	0	0	0
Total Analysis Volume [veh/h]	278	1196	178	0	1040	841	915	273	683	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	6	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	10	30	0	0	20	0	0	30	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No			No				
Maximum Recall	No	No			No			No				
Pedestrian Recall	No	No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	C	
C, Cycle Length [s]	78	78	78	78	78	78	
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50	
g_i, Effective Green Time [s]	14	45	45	26	24	24	
g / C, Green / Cycle	0.18	0.57	0.57	0.33	0.31	0.31	
(v / s)_i Volume / Saturation Flow Rate	0.16	0.37	0.38	0.29	0.26	0.08	
s, saturation flow rate [veh/h]	1781	1870	1787	3560	3459	3560	
c, Capacity [veh/h]	330	1073	1026	1178	1073	1105	
d1, Uniform Delay [s]	30.61	11.24	11.39	24.61	25.17	20.05	
k, delay calibration	0.11	0.41	0.43	0.11	0.11	0.11	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	5.82	2.51	2.89	2.38	2.03	0.12	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.84	0.65	0.66	0.88	0.85	0.25	
d, Delay for Lane Group [s/veh]	36.43	13.75	14.28	26.98	27.20	20.16	
Lane Group LOS	D	B	B	C	C	C	
Critical Lane Group	Yes	No	No	Yes	Yes	No	
50th-Percentile Queue Length [veh]	5.37	7.72	7.72	8.86	7.75	1.79	
50th-Percentile Queue Length [ft]	134.22	192.92	193.02	221.53	193.86	44.71	
95th-Percentile Queue Length [veh]	9.17	12.27	12.28	13.74	12.32	3.22	
95th-Percentile Queue Length [ft]	229.22	306.82	306.95	343.58	308.04	80.49	

Movement, Approach, & Intersection Results

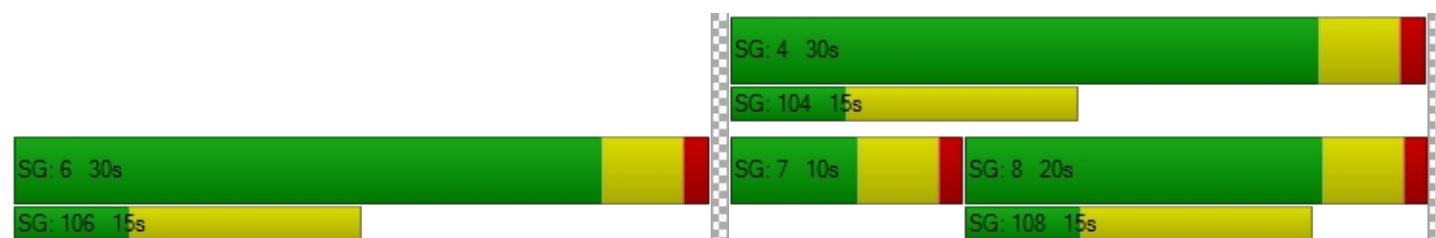
d_M, Delay for Movement [s/veh]	36.43	13.97	14.28	0.00	26.98	0.00	27.20	20.16	0.00	0.00	0.00	0.00
Movement LOS	D	B	B		C		C	C				
d_A, Approach Delay [s/veh]	17.78			26.98			25.58			0.00		
Approach LOS	B			C			C			A		
d_I, Intersection Delay [s/veh]	22.64											
Intersection LOS	C											
Intersection V/C	0.843											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.805	0.000	2.672	1.915
Crosswalk LOS	C	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	850	517	850	0
d_b, Bicycle Delay [s]	9.92	16.50	9.92	30.00
I_b,int, Bicycle LOS Score for Intersection	2.923	2.418	2.540	4.132
Bicycle LOS	C	B	B	D

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Main Street & SR 91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.457

Intersection Setup

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			Yes		

Volumes

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	0	326	162	35	351	0	0	0	0	135	0	108
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	326	162	35	351	0	0	0	0	135	0	108
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	82	41	9	88	0	0	0	0	34	0	27
Total Analysis Volume [veh/h]	0	326	162	35	351	0	0	0	0	135	0	108
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	3	8	0	0	0	0	2	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	0	0	0	5	0	0
Maximum Green [s]	30	30	0	30	30	0	0	0	0	30	0	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	0.0	0.0	3.5	0.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	22	0	10	22	0	0	0	0	28	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	2.5	2.5	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Minimum Recall	No	No		No	No					No		
Maximum Recall	No	No		No	No					No		
Pedestrian Recall	No	No		No	No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C		L	R
C, Cycle Length [s]	25	25	25	25	25		25	25
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	6	6	1	7		4	4
g / C, Green / Cycle	0.00	0.24	0.24	0.04	0.29		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.14	0.14	0.02	0.10		0.08	0.07
s, saturation flow rate [veh/h]	1781	1870	1666	1781	3560		1781	1589
c, Capacity [veh/h]	1	459	409	80	1032		296	264
d1, Uniform Delay [s]	0.00	8.19	8.22	11.56	6.95		9.35	9.27
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.00	1.05	1.25	3.71	0.19		1.10	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.55	0.57	0.44	0.34		0.46	0.41
d, Delay for Lane Group [s/veh]	0.00	9.24	9.48	15.26	7.14		10.45	10.28
Lane Group LOS	A	A	A	B	A		B	B
Critical Lane Group	No	No	Yes	Yes	No		Yes	No
50th-Percentile Queue Length [veh]	0.00	0.81	0.77	0.21	0.42		0.51	0.40
50th-Percentile Queue Length [ft]	0.00	20.36	19.21	5.35	10.46		12.66	10.12
95th-Percentile Queue Length [veh]	0.00	1.47	1.38	0.39	0.75		0.91	0.73
95th-Percentile Queue Length [ft]	0.00	36.66	34.58	9.63	18.82		22.80	18.21

Movement, Approach, & Intersection Results

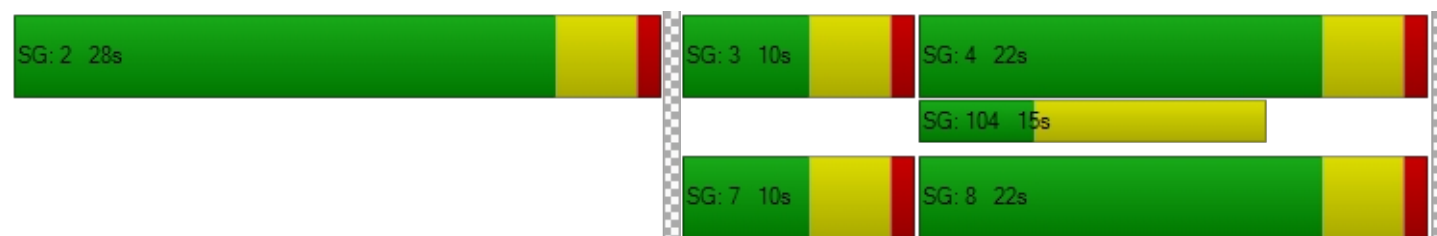
d_M, Delay for Movement [s/veh]	0.00	9.29	9.48	15.26	7.14	0.00	0.00	0.00	0.00	10.45	0.00	10.28
Movement LOS	A	A	A	B	A					B		B
d_A, Approach Delay [s/veh]	9.35			7.88			0.00			10.37		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	9.06											
Intersection LOS	A											
Intersection V/C	0.457											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			21.68		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			2.064		
Crosswalk LOS	F			F			F			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	583			583			0			0		
d_b, Bicycle Delay [s]	15.05			15.05			30.00			30.00		
I_b,int, Bicycle LOS Score for Intersection	1.962			1.878			4.132			4.132		
Bicycle LOS	A			A			D			D		

Sequence




Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: I-110 SB Off-Ramp & 190th Street

Control Type:	Signalized	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.684

Intersection Setup

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Base Volume Input [veh/h]	356	364	0	1028	585	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	356	364	0	1028	585	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	91	0	257	146	0
Total Analysis Volume [veh/h]	356	364	0	1028	585	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	8	0	0	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	39	0	0	21	21	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	0.0	2.5	2.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C
C, Cycle Length [s]	33	33	33	33
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	11	11	13	13
g / C, Green / Cycle	0.32	0.32	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.20	0.23	0.29	0.11
s, saturation flow rate [veh/h]	1781	1589	3560	5094
c, Capacity [veh/h]	576	514	1439	2059
d1, Uniform Delay [s]	9.45	9.81	8.24	6.62
k, delay calibration	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.09	1.82	0.67	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.71	0.71	0.28
d, Delay for Lane Group [s/veh]	10.54	11.62	8.91	6.69
Lane Group LOS	B	B	A	A
Critical Lane Group	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	1.64	1.82	1.99	0.58
50th-Percentile Queue Length [ft]	41.08	45.45	49.63	14.46
95th-Percentile Queue Length [veh]	2.96	3.27	3.57	1.04
95th-Percentile Queue Length [ft]	73.95	81.82	89.33	26.03

Movement, Approach, & Intersection Results

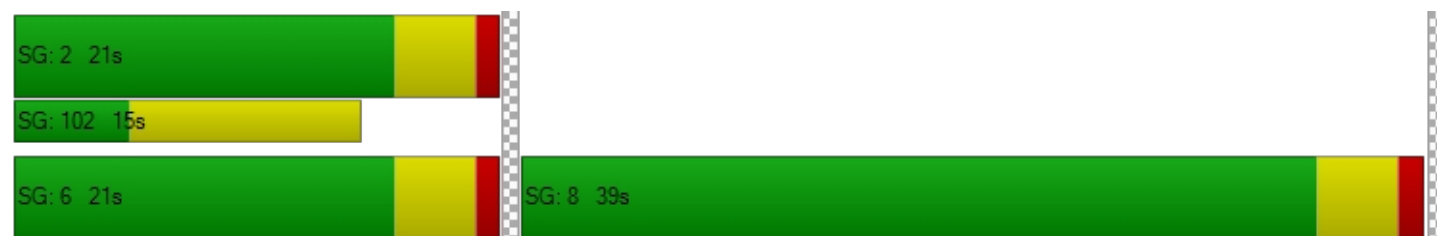
d_M, Delay for Movement [s/veh]	10.54	11.62	0.00	8.91	6.69	0.00
Movement LOS	B	B		A	A	
d_A, Approach Delay [s/veh]	11.09		8.91		6.69	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	9.03					
Intersection LOS	A					
Intersection V/C	0.684					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.047	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.981	4.454
Bicycle LOS	D	E	E

Sequence




Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: SR 91 EB Ramps & Albertoni Street

Control Type:	Signalized	Delay (sec / veh):	10.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Base Volume Input [veh/h]	209	195	295	275	294	68
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	209	195	295	275	294	68
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	49	74	69	74	17
Total Analysis Volume [veh/h]	209	195	295	275	294	68
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	8	0	1	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	23	0	14	37	23	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	2.5	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	30	30	30	30	30	30
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	6	6	5	15	5	5
g / C, Green / Cycle	0.21	0.21	0.16	0.49	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.12	0.12	0.09	0.08	0.10	0.10
s, saturation flow rate [veh/h]	1781	1589	3459	3560	1870	1754
c, Capacity [veh/h]	368	329	554	1752	339	318
d1, Uniform Delay [s]	10.65	10.72	11.52	4.18	11.09	11.17
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.38	1.71	0.80	0.04	1.31	1.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.59	0.53	0.16	0.53	0.57
d, Delay for Lane Group [s/veh]	12.03	12.43	12.31	4.22	12.40	12.77
Lane Group LOS	B	B	B	A	B	B
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.01	0.97	0.72	0.21	0.90	0.93
50th-Percentile Queue Length [ft]	25.30	24.35	17.92	5.17	22.57	23.18
95th-Percentile Queue Length [veh]	1.82	1.75	1.29	0.37	1.63	1.67
95th-Percentile Queue Length [ft]	45.55	43.84	32.25	9.31	40.63	41.72

Movement, Approach, & Intersection Results

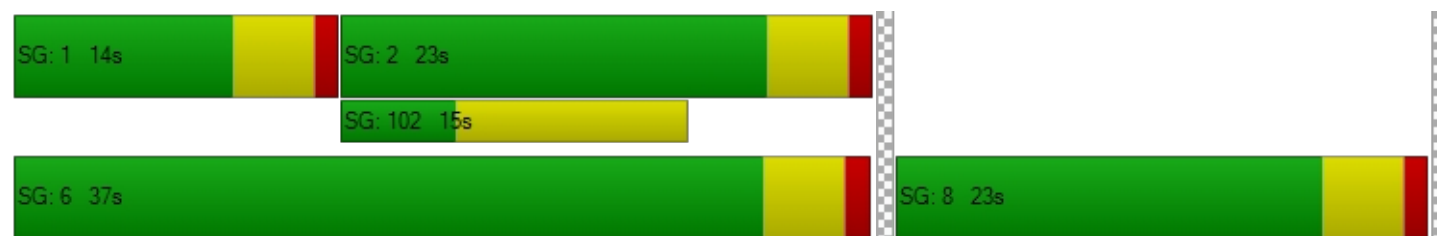
d_M, Delay for Movement [s/veh]	12.03	12.43	12.31	4.22	12.54	12.77
Movement LOS	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	12.22		8.41		12.59	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	10.69					
Intersection LOS	B					
Intersection V/C	0.521					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.299	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.603	4.431
Bicycle LOS	D	E	E

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment 3
Tables 19 and 20

TABLE 19A
EXISTING WITH PROJECT CONDITIONS (YEAR 2018)
SIGNALIZED INTERSECTION LEVELS OF SERVICE ANALYSIS

No.	Intersection	Peak Hour	Existing Conditions		Existing with Project Conditions	
			Delay	LOS	Delay	LOS
S-1.	Main Street & I-405 NB Off-Ramp (Intersection #2)	A.M. P.M.	11.0 11.5	B B	11.1 12.0	B B
S-2.	Main Street & I-405 SB On-Ramp (Intersection #3)	A.M. P.M.	7.7 13.0	A B	7.8 13.3	A B
S-3.	Avalon Boulevard & SR-91 WB On-Ramp (Intersection #6)	A.M. P.M.	8.7 8.2	A A	8.8 8.2	A A
S-4.	Avalon Boulevard & I-405 NB Ramps (Intersection #15)	A.M. P.M.	15.4 <u>7.1</u> 7.7	B <u>A</u> A	15.5 <u>7.1</u> 7.7	B <u>A</u> A
S-5.	Avalon Boulevard & I-405 SB Ramps (Intersection #16)	A.M. P.M.	13.7 <u>8.3</u> 7.6	B <u>A</u> A	13.7 <u>8.3</u> 7.6	B <u>A</u> A
S-6.	Main Street & SR-91 WB Ramps (Intersection #17)	A.M. P.M.	13.7 12.9	B B	13.8 13.1	B B
S-7.	I-110 NB On-Ramp & 190th Street (Intersection #21)	A.M. P.M.	6.7 7.5	A A	6.7 7.5	A A
S-8.	I-110 SB Off-Ramp & 190th Street (Intersection #22)	A.M. P.M.	13.1 12.1	B B	13.3 12.3	B B
S-9.	Figueroa Street & I-110 NB Ramps (Intersection #27)	A.M. P.M.	15.8 15.7	B B	15.9 15.9	B B
S-10.	SR-91 EB Ramps & Albertoni Street (Intersection #28)	A.M. P.M.	12.3 11.7	B B	12.4 11.8	B B

Notes

Delay is measured in seconds per vehicle

LOS = Level of service

Results per Vistro 5 (HCM 6th Edition methodology).

TABLE 20A
FUTURE WITH PROJECT CONDITIONS (YEAR 2020)
SIGNALIZED INTERSECTION LEVELS OF SERVICE ANALYSIS

No.	Intersection	Peak Hour	Future without Project Conditions		Future with Project Conditions	
			Delay	LOS	Delay	LOS
S-1.	Main Street & I-405 NB Off-Ramp (Intersection #2)	A.M. P.M.	11.4 13.4	B B	11.6 14.3	B B
S-2.	Main Street & I-405 SB On-Ramp (Intersection #3)	A.M. P.M.	7.9 14.2	A B	8.0 14.6	A B
S-3.	Avalon Boulevard & SR-91 WB On-Ramp (Intersection #6)	A.M. P.M.	9.3 8.8	A A	9.3 8.9	A A
S-4.	Avalon Boulevard & I-405 NB Ramps (Intersection #15)	A.M. P.M.	20.4 <u>8.0</u> 9.3	C <u>A</u> A	20.6 <u>8.0</u> 9.3	C <u>A</u> A
S-5.	Avalon Boulevard & I-405 SB Ramps (Intersection #16)	A.M. P.M.	17.8 <u>9.3</u> 9.6	B <u>A</u> A	17.8 <u>9.3</u> 9.7	B <u>A</u> A
S-6.	Main Street & SR-91 WB Ramps (Intersection #17)	A.M. P.M.	14.3 13.4	B B	14.4 13.6	B B
S-7.	I-110 NB On-Ramp & 190th Street (Intersection #21)	A.M. P.M.	6.8 7.7	A A	6.8 7.8	A A
S-8.	I-110 SB Off-Ramp & 190th Street (Intersection #22)	A.M. P.M.	14.9 13.3	B B	15.1 13.5	B B
S-9.	Figueroa Street & I-110 NB Ramps (Intersection #27)	A.M. P.M.	17.4 17.3	B B	17.5 17.6	B B
S-10.	SR-91 EB Ramps & Albertoni Street (Intersection #28)	A.M. P.M.	12.6 11.9	B B	12.8 12.0	B B

Notes

Delay is measured in seconds per vehicle

LOS = Level of service

Results per Vistro 5 (HCM 6th Edition methodology).

Attachment 4
Updated Appendix C of the Traffic Impact Study

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Main St & 192nd St
City: Carson
Control: Signalized

Project ID: 18-05081-001
Date: 2/1/2018

Total

NS/EW Streets:	Main St				Main St				192nd St				192nd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	2 WL	0 WT	1 WR	0 WU	
7:00 AM	0	73	8	0	8	94	0	0	0	0	0	0	27	0	20	0	230
7:15 AM	1	72	20	0	13	155	0	0	0	0	1	0	40	0	26	0	328
7:30 AM	1	123	25	0	8	175	0	0	0	0	0	0	41	0	29	0	402
7:45 AM	1	119	37	0	33	115	0	0	0	0	0	0	43	0	31	0	379
8:00 AM	1	141	54	0	14	95	0	0	1	0	2	0	35	0	33	0	376
8:15 AM	0	115	26	0	16	81	1	0	0	0	1	0	25	0	30	0	295
8:30 AM	0	81	43	0	11	91	1	0	0	0	0	0	20	0	20	0	267
8:45 AM	2	81	24	0	8	92	0	0	0	0	0	0	15	0	21	0	243
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	6	805	237	0	111	898	2	0	1	0	4	0	246	0	210	0	2520
	0.57%	76.81%	22.61%	0.00%	10.98%	88.82%	0.20%	0.00%	20.00%	0.00%	80.00%	0.00%	53.95%	0.00%	46.05%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	4	455	136	0	68	540	0	0	1	0	3	0	159	0	119	0	1485
PEAK HR FACTOR :	1.000	0.807	0.630	0.000	0.515	0.771	0.000	0.000	0.250	0.000	0.375	0.000	0.924	0.000	0.902	0.000	0.924
	0.759				0.831				0.333				0.939				

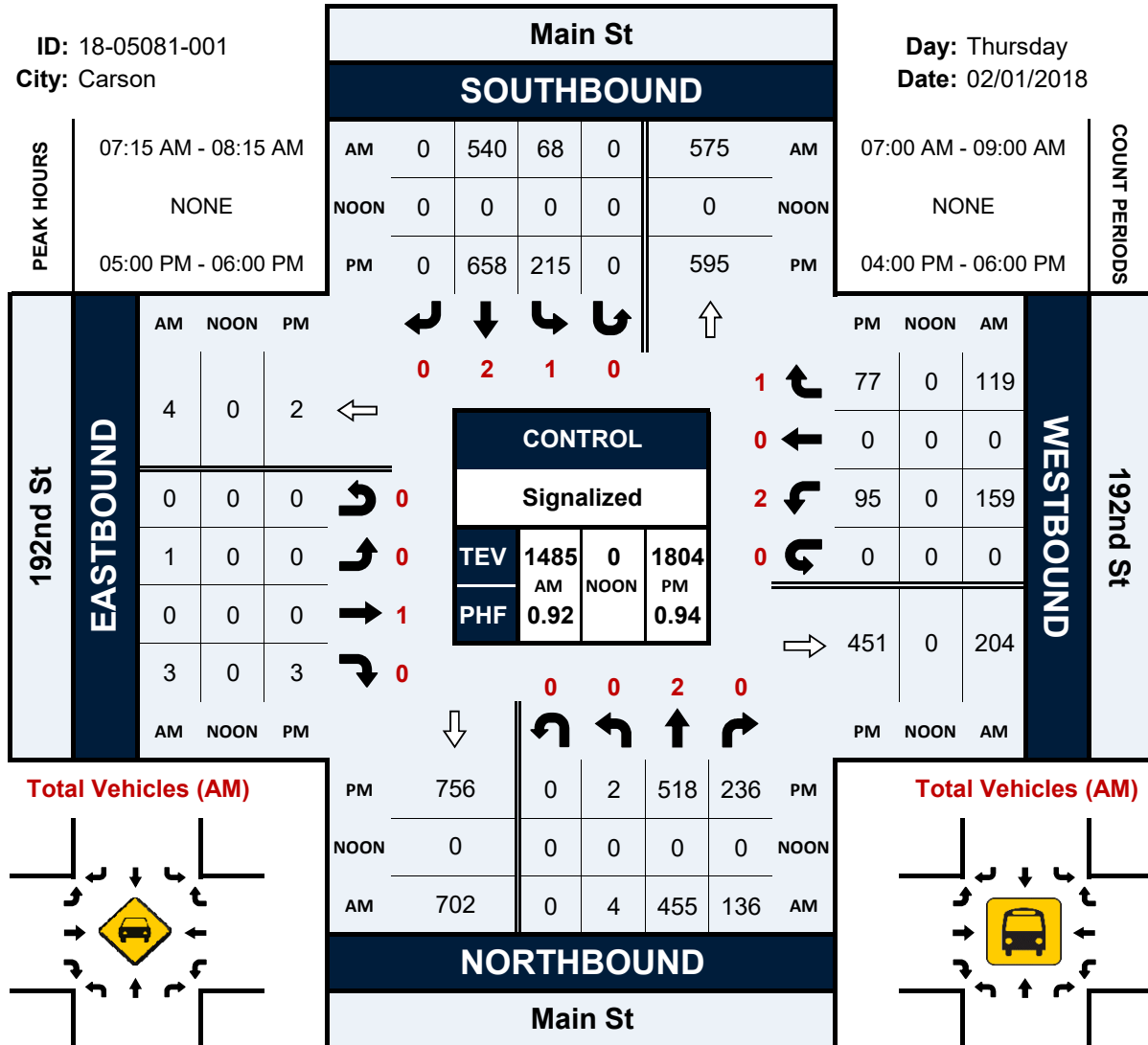
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	2 WL	0 WT	1 WR	0 WU	
4:00 PM	0	106	43	0	27	138	0	0	0	0	1	0	23	0	20	0	358
4:15 PM	0	128	43	0	52	148	1	0	0	0	1	0	22	0	21	0	416
4:30 PM	0	125	43	0	58	151	0	0	0	0	0	0	28	0	20	0	425
4:45 PM	1	146	50	0	46	125	0	0	0	0	0	0	22	0	17	0	407
5:00 PM	2	132	66	0	50	181	0	0	0	0	0	0	25	0	25	0	481
5:15 PM	0	134	52	0	60	149	0	0	0	0	1	0	24	0	20	0	440
5:30 PM	0	116	61	0	47	191	0	0	0	0	2	0	26	0	18	0	461
5:45 PM	0	136	57	0	58	137	0	0	0	0	0	0	20	0	14	0	422
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	3	1023	415	0	398	1220	1	0	0	0	5	0	190	0	155	0	3410
	0.21%	70.99%	28.80%	0.00%	24.58%	75.36%	0.06%	0.00%	0.00%	0.00%	100.00%	0.00%	55.07%	0.00%	44.93%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	2	518	236	0	215	658	0	0	0	0	3	0	95	0	77	0	1804
PEAK HR FACTOR :	0.250	0.952	0.894	0.000	0.896	0.861	0.000	0.000	0.000	0.000	0.375	0.000	0.913	0.000	0.770	0.000	0.938
	0.945				0.917				0.375				0.860				

Main St & 192nd St

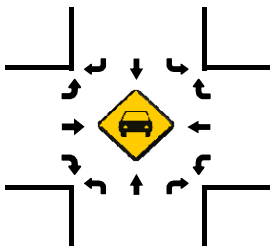
Peak Hour Turning Movement Count

ID: 18-05081-001
City: Carson

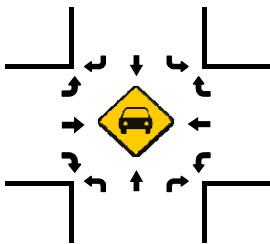
Day: Thursday
Date: 02/01/2018



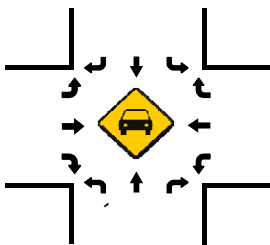
Total Vehicles (AM)



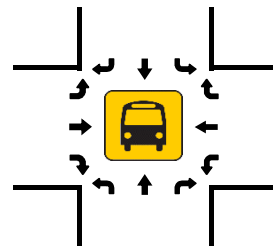
Total Vehicles (NOON)



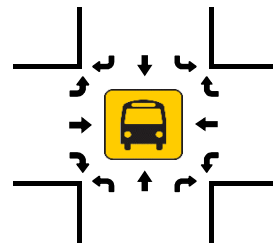
Total Vehicles (PM)



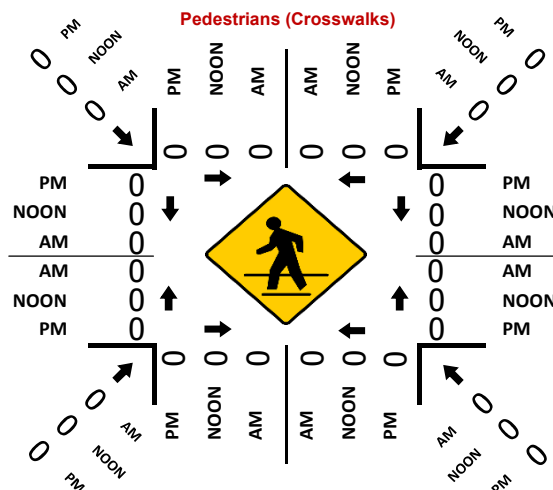
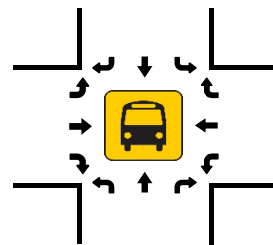
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Main St & I-405 NB Off Ramp
City: Carson
Control: Signalized

Project ID: 18-05081-002
Date: 2/1/2018

Total

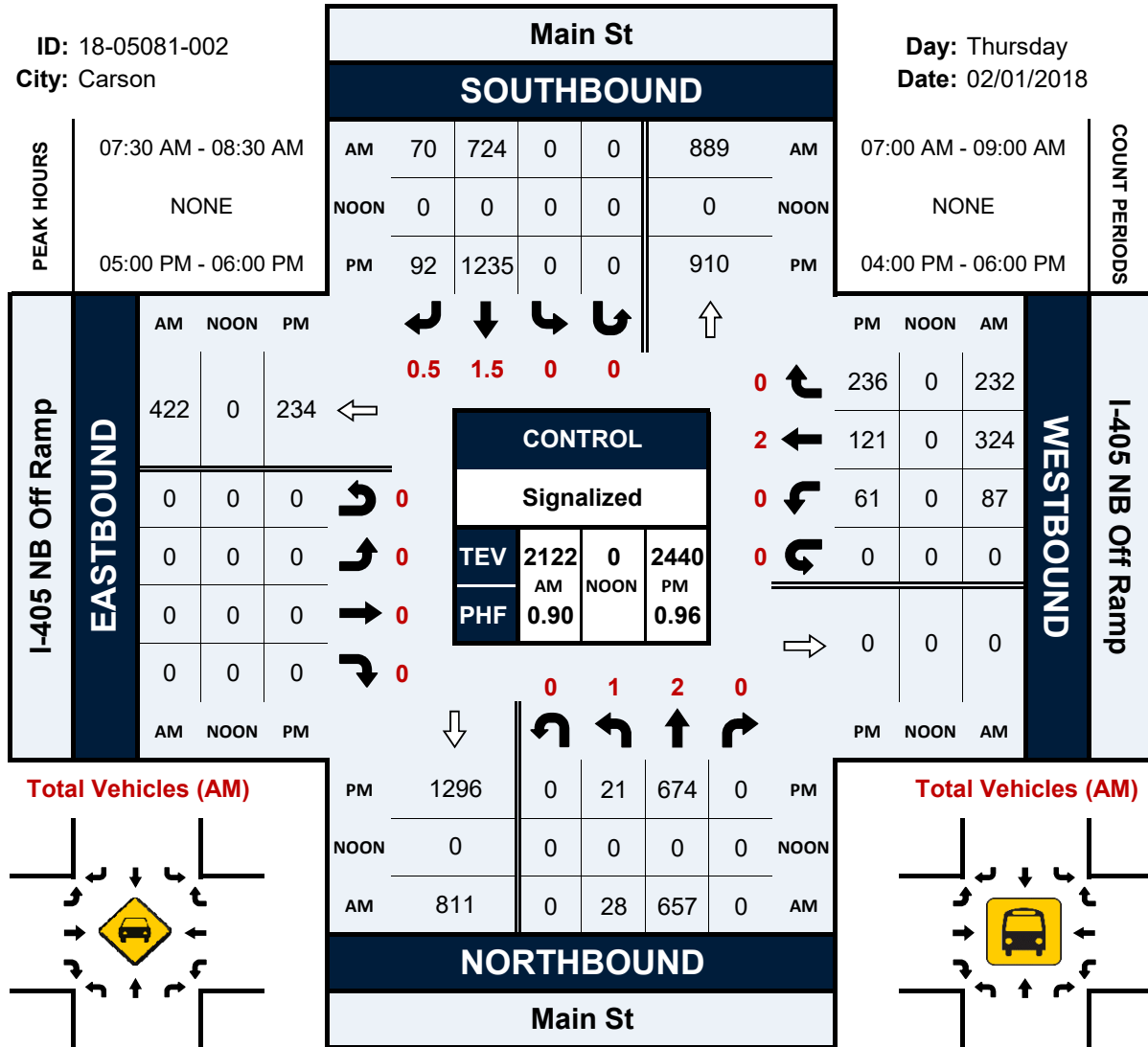
NS/EW Streets:		Main St				Main St				I-405 NB Off Ramp				I-405 NB Off Ramp				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
	1	2	0	0	0	1.5	0.5	0	0	0	0	0	0	2	0	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
	7:00 AM	0	81	0	0	0	135	17	0	0	0	0	0	14	71	44	0	362
	7:15 AM	7	90	0	0	0	189	22	0	0	0	0	0	13	81	37	0	439
	7:30 AM	8	143	0	0	0	240	23	0	0	0	0	0	17	78	56	0	565
	7:45 AM	5	174	0	0	0	208	19	0	0	0	0	0	32	82	67	0	587
	8:00 AM	6	189	0	0	0	142	16	0	0	0	0	0	21	88	56	0	518
	8:15 AM	9	151	0	0	0	134	12	0	0	0	0	0	17	76	53	0	452
8:30 AM	6	129	0	0	0	125	13	0	0	0	0	0	23	69	55	0	420	
8:45 AM	2	118	0	0	0	128	13	0	0	0	0	0	16	83	52	0	412	
TOTAL VOLUMES:		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:		43	1075	0	0	0	1301	135	0	0	0	0	0	153	628	420	0	3755
PEAK HR:		07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL:		28	657	0	0	0	724	70	0	0	0	0	0	87	324	232	0	2122
PEAK HR FACTOR:		0.778	0.869	0.000	0.000	0.000	0.754	0.761	0.000	0.000	0.000	0.000	0.000	0.680	0.920	0.866	0.000	0.904
		0.878				0.755								0.888				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
	1	2	0	0	0	1.5	0.5	0	0	0	0	0	0	2	0	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
	4:00 PM	4	149	0	0	0	247	16	0	0	0	0	0	13	33	53	0	515
	4:15 PM	4	173	0	0	0	302	13	0	0	0	0	0	22	29	46	0	589
	4:30 PM	7	145	0	0	0	283	23	0	0	0	0	0	14	26	50	0	548
	4:45 PM	3	180	0	0	0	252	17	0	0	0	0	0	22	26	69	0	569
	5:00 PM	5	181	0	0	0	333	20	0	0	0	0	0	12	31	53	0	635
	5:15 PM	3	175	0	0	0	322	12	0	0	0	0	0	9	31	61	0	613
5:30 PM	7	160	0	0	0	300	34	0	0	0	0	0	26	32	62	0	621	
5:45 PM	6	158	0	0	0	280	26	0	0	0	0	0	14	27	60	0	571	
TOTAL VOLUMES:		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:		39	1321	0	0	0	2319	161	0	0	0	0	0	132	235	454	0	4661
PEAK HR:		05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL:		21	674	0	0	0	1235	92	0	0	0	0	0	61	121	236	0	2440
PEAK HR FACTOR:		0.750	0.931	0.000	0.000	0.000	0.927	0.676	0.000	0.000	0.000	0.000	0.000	0.587	0.945	0.952	0.000	0.961
		0.934				0.940								0.871				

Main St & I-405 NB Off Ramp

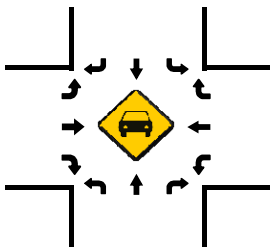
Peak Hour Turning Movement Count

ID: 18-05081-002
City: Carson

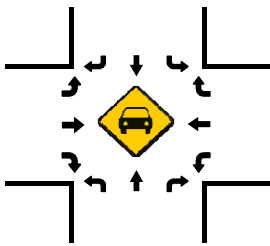
Day: Thursday
Date: 02/01/2018



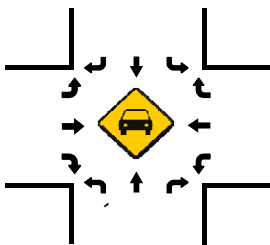
Total Vehicles (AM)



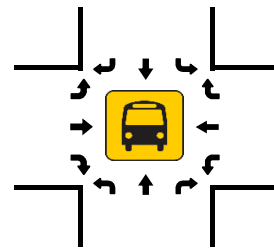
Total Vehicles (NOON)



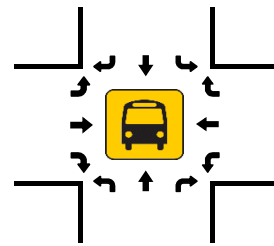
Total Vehicles (PM)



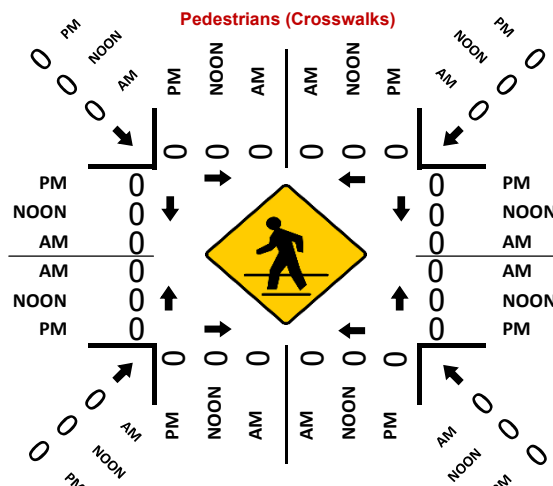
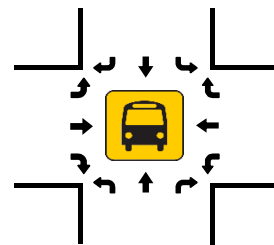
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Main St & I-405 SB On Ramp
City: Carson
Control: Signalized

Project ID: 18-05081-003
Date: 2/1/2018

Total

NS/EW Streets:	Main St				Main St				I-405 SB On Ramp				I-405 SB On Ramp				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1.5 NT	0.5 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	0.5 ET	0.5 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
7:00 AM	0	77	16	0	27	127	0	0	3	20	2	0	0	0	0	0	272
7:15 AM	0	100	11	0	37	166	0	0	9	19	3	0	0	0	0	0	345
7:30 AM	0	134	11	0	45	206	0	0	7	19	10	0	0	0	0	0	432
7:45 AM	0	175	16	0	29	216	0	0	5	18	4	0	0	0	0	0	463
8:00 AM	0	190	14	0	34	135	0	1	8	15	4	0	0	0	0	0	401
8:15 AM	0	149	10	0	24	119	0	0	9	19	5	0	0	0	0	0	335
8:30 AM	0	125	11	0	29	128	0	0	9	16	3	0	0	0	0	0	321
8:45 AM	0	113	16	0	30	111	0	1	6	21	3	0	0	0	0	0	301
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	1063	105	0	255	1208	0	2	56	147	34	0	0	0	0	0	2870
	0.00%	91.01%	8.99%	0.00%	17.41%	82.46%	0.00%	0.14%	23.63%	62.03%	14.35%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	599	52	0	145	723	0	1	29	71	21	0	0	0	0	0	1641
PEAK HR FACTOR :	0.000	0.788	0.813	0.000	0.806	0.837	0.000	0.250	0.806	0.934	0.525	0.000	0.000	0.000	0.000	0.000	0.886
			0.798				0.866				0.840						

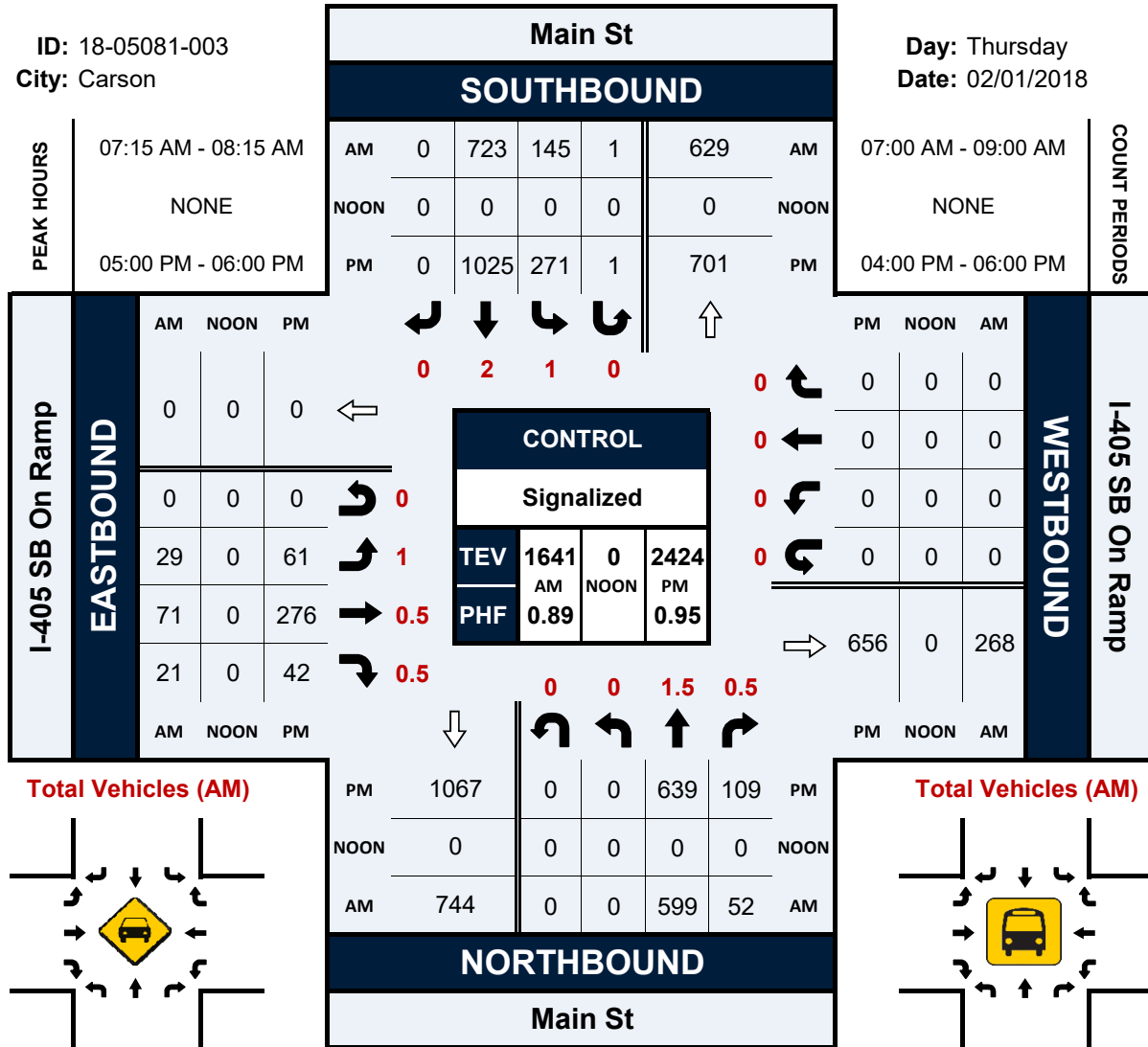
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1.5 NT	0.5 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	0.5 ET	0.5 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	0	138	26	0	53	195	0	1	16	56	7	0	0	0	0	0	492
4:15 PM	0	148	24	0	64	267	0	1	23	65	11	0	0	0	0	0	603
4:30 PM	0	145	26	0	58	231	0	3	10	93	5	0	0	0	0	0	571
4:45 PM	0	162	19	0	66	205	0	2	18	62	13	0	0	0	0	0	547
5:00 PM	0	168	30	0	68	276	0	0	17	68	11	0	0	0	0	0	638
5:15 PM	0	161	29	0	72	251	0	1	16	77	9	0	0	0	0	0	616
5:30 PM	0	156	27	0	62	274	0	0	16	69	16	0	0	0	0	0	620
5:45 PM	0	154	23	0	69	224	0	0	12	62	6	0	0	0	0	0	550
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	1232	204	0	512	1923	0	8	128	552	78	0	0	0	0	0	4637
	0.00%	85.79%	14.21%	0.00%	20.96%	78.71%	0.00%	0.33%	16.89%	72.82%	10.29%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	639	109	0	271	1025	0	1	61	276	42	0	0	0	0	0	2424
PEAK HR FACTOR :	0.000	0.951	0.908	0.000	0.941	0.928	0.000	0.250	0.897	0.896	0.656	0.000	0.000	0.000	0.000	0.000	0.950
			0.944				0.943				0.929						

Main St & I-405 SB On Ramp

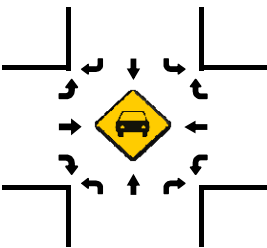
Peak Hour Turning Movement Count

ID: 18-05081-003
City: Carson

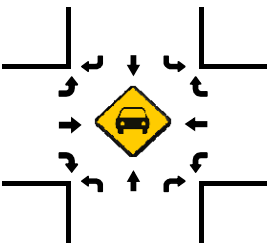
Day: Thursday
Date: 02/01/2018



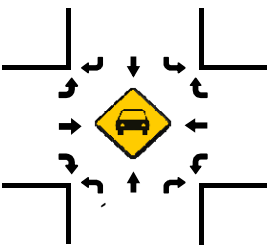
Total Vehicles (AM)



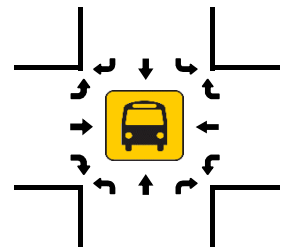
Total Vehicles (NOON)



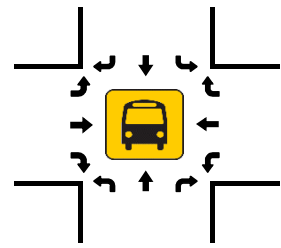
Total Vehicles (PM)



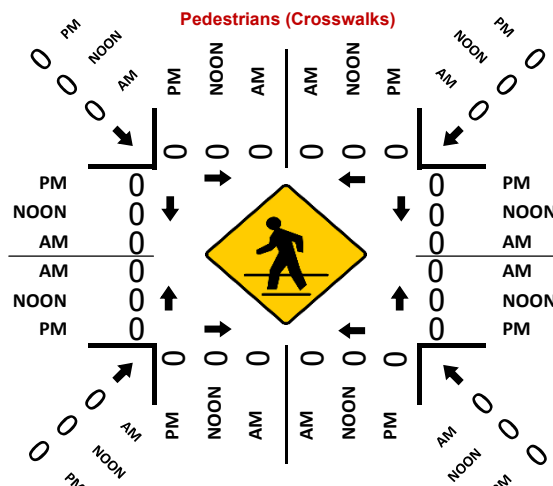
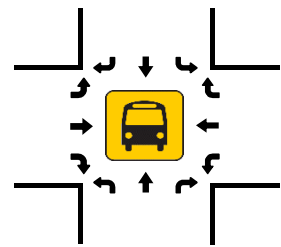
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Main St & Del Amo Blvd
City: Carson
Control: Signalized

Project ID: 18-05081-004
Date: 2/1/2018

Total

NS/EW Streets:	Main St				Main St				Del Amo Blvd				Del Amo Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	3 ET	0 ER	0 EU	1 WL	3 WT	0 WR	0 WU	
7:00 AM	13	59	38	0	3	64	42	0	22	79	6	0	35	243	10	0	614
7:15 AM	17	83	43	0	7	104	30	0	19	89	8	0	55	277	11	0	743
7:30 AM	15	118	58	0	9	170	47	0	25	107	6	0	62	266	12	1	896
7:45 AM	15	136	82	0	11	158	46	0	32	164	14	0	70	214	17	0	959
8:00 AM	17	169	82	1	7	104	28	0	43	138	7	0	52	210	11	0	869
8:15 AM	25	126	87	0	12	83	22	0	19	170	7	0	46	228	9	0	834
8:30 AM	9	95	56	0	7	68	43	0	26	120	8	0	41	183	12	0	668
8:45 AM	11	92	43	1	8	71	29	0	26	104	9	0	26	159	12	0	591
TOTAL VOLUMES :	NL 122	NT 878	NR 489	NU 2	SL 64	ST 822	SR 287	SU 0	EL 212	ET 971	ER 65	EU 0	WL 387	WT 1780	WR 94	WU 1	TOTAL 6174
APPROACH %'s :	8.18%	58.89%	32.80%	0.13%	5.46%	70.08%	24.47%	0.00%	16.99%	77.80%	5.21%	0.00%	17.11%	78.69%	4.16%	0.04%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	72	549	309	1	39	515	143	0	119	579	34	0	230	918	49	1	3558
PEAK HR FACTOR :	0.720	0.812	0.888	0.250	0.813	0.757	0.761	0.000	0.692	0.851	0.607	0.000	0.821	0.863	0.721	0.250	0.928
	0.865				0.771				0.871				0.878				

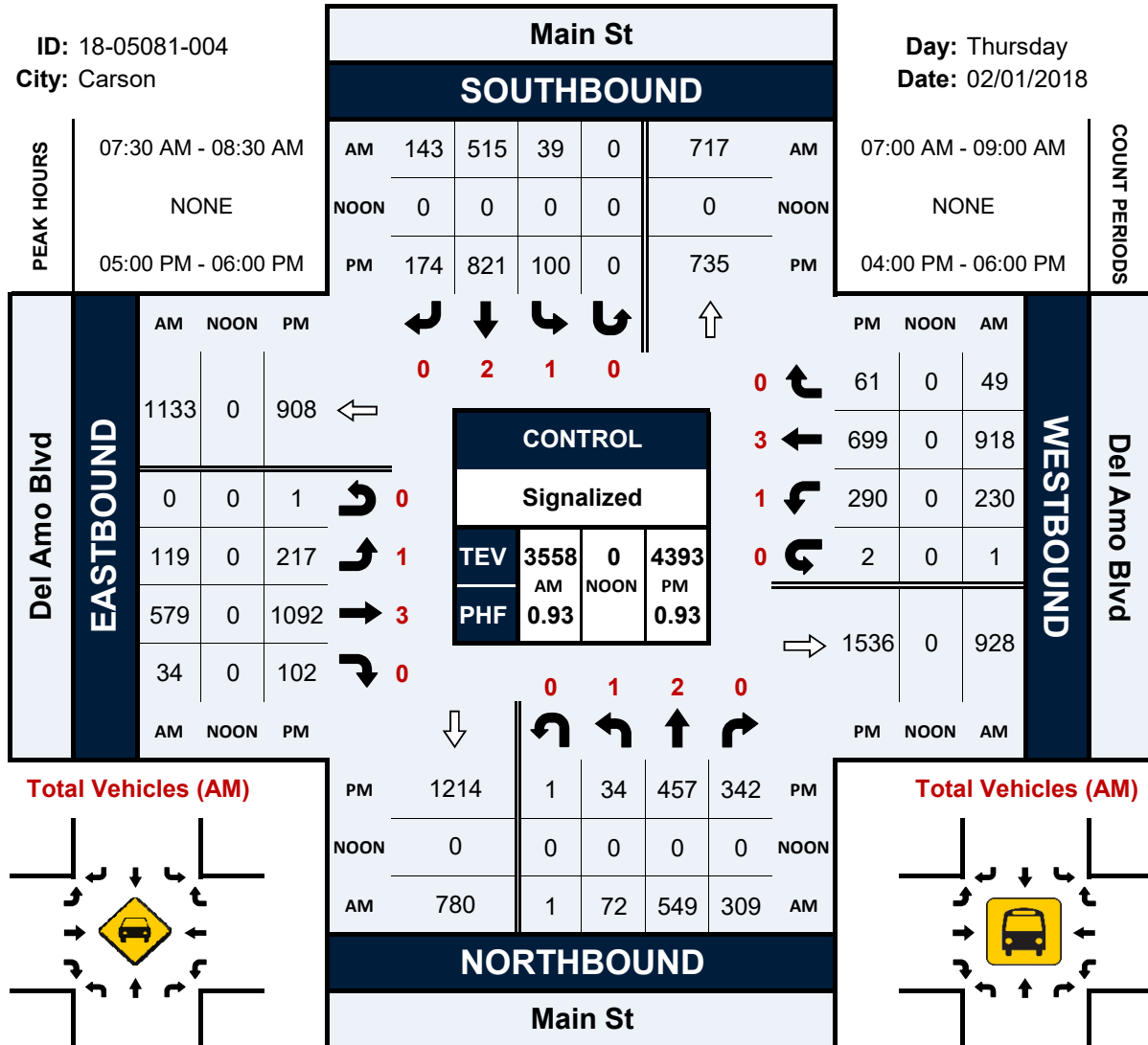
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	3 ET	0 ER	0 EU	1 WL	3 WT	0 WR	0 WU	
4:00 PM	6	103	95	0	19	131	40	0	52	234	21	0	63	154	12	0	930
4:15 PM	8	111	84	0	36	205	47	0	43	264	23	0	58	147	6	0	1032
4:30 PM	8	101	79	0	29	171	39	0	52	257	28	0	54	142	15	0	975
4:45 PM	5	115	78	0	29	158	36	0	40	266	24	0	45	153	15	0	964
5:00 PM	8	111	77	0	25	224	45	0	65	255	27	0	64	130	15	0	1046
5:15 PM	5	124	107	0	21	214	42	0	57	281	27	0	74	218	13	0	1183
5:30 PM	15	104	83	0	30	198	39	0	52	290	29	1	77	194	18	1	1131
5:45 PM	6	118	75	1	24	185	48	0	43	266	19	0	75	157	15	1	1033
TOTAL VOLUMES :	NL 61	NT 887	NR 678	NU 1	SL 213	ST 1486	SR 336	SU 0	EL 404	ET 2113	ER 198	EU 1	WL 510	WT 1295	WR 109	WU 2	TOTAL 8294
APPROACH %'s :	3.75%	54.52%	41.67%	0.06%	10.47%	73.02%	16.51%	0.00%	14.87%	77.80%	7.29%	0.04%	26.62%	67.59%	5.69%	0.10%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	34	457	342	1	100	821	174	0	217	1092	102	1	290	699	61	2	4393
PEAK HR FACTOR :	0.567	0.921	0.799	0.250	0.833	0.916	0.906	0.000	0.835	0.941	0.879	0.250	0.942	0.802	0.847	0.500	0.928
	0.883				0.931				0.949				0.862				

Main St & Del Amo Blvd

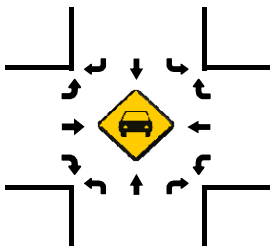
Peak Hour Turning Movement Count

ID: 18-05081-004
City: Carson

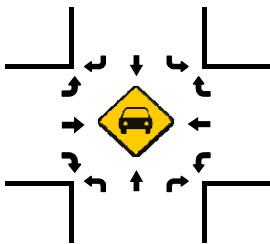
Day: Thursday
Date: 02/01/2018



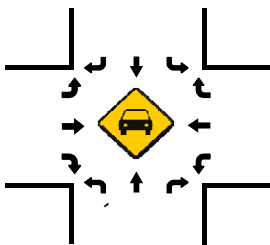
Total Vehicles (AM)



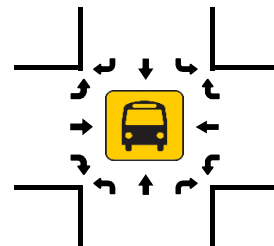
Total Vehicles (NOON)



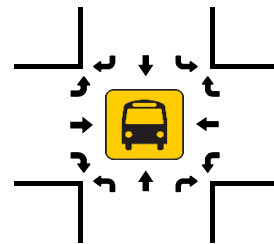
Total Vehicles (PM)



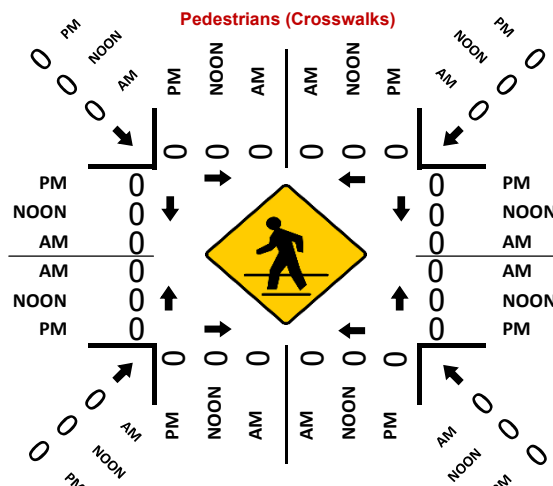
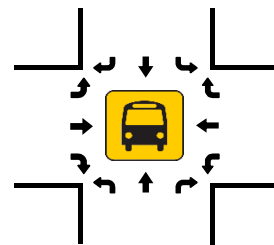
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Main St & Torrance Blvd
City: Carson
Control: Signalized

Project ID: 18-05081-005
Date: 2/1/2018

Total

NS/EW Streets:	Main St				Main St				Torrance Blvd				Torrance Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	2 NT	0 NR	0 NU	1 SL	2 ST	1 SR	0 SU	0.5 EL	0.5 ET	1 ER	0 EU	0 WL	1 WT	0 WR	0 WU	
7:00 AM	64	85	0	0	1	65	42	1	31	2	30	0	1	19	12	0	353
7:15 AM	71	99	0	0	2	131	53	1	28	3	36	0	0	16	4	0	444
7:30 AM	85	138	0	0	2	156	72	0	60	7	41	0	6	24	6	0	597
7:45 AM	76	173	1	0	3	187	61	1	61	1	58	1	4	10	14	0	651
8:00 AM	89	160	5	0	3	113	52	1	88	6	43	0	2	9	9	0	580
8:15 AM	59	139	1	0	1	82	46	2	68	4	39	0	1	11	3	0	456
8:30 AM	47	100	1	0	2	77	40	0	67	7	29	0	2	13	8	0	393
8:45 AM	58	92	1	1	1	63	48	0	46	5	34	0	2	10	4	0	365
TOTAL VOLUMES :	NL 549	NT 986	NR 9	NU 1	SL 15	ST 874	SR 414	SU 6	EL 449	ET 35	ER 310	EU 1	WL 18	WT 112	WR 60	WU 0	TOTAL 3839
APPROACH %'s :	35.53%	63.82%	0.58%	0.06%	1.15%	66.77%	31.63%	0.46%	56.48%	4.40%	38.99%	0.13%	9.47%	58.95%	31.58%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	309	610	7	0	9	538	231	4	277	18	181	1	13	54	32	0	2284
PEAK HR FACTOR :	0.868	0.882	0.350	0.000	0.750	0.719	0.802	0.500	0.787	0.643	0.780	0.250	0.542	0.563	0.571	0.000	0.877
	0.911				0.776				0.870				0.688				

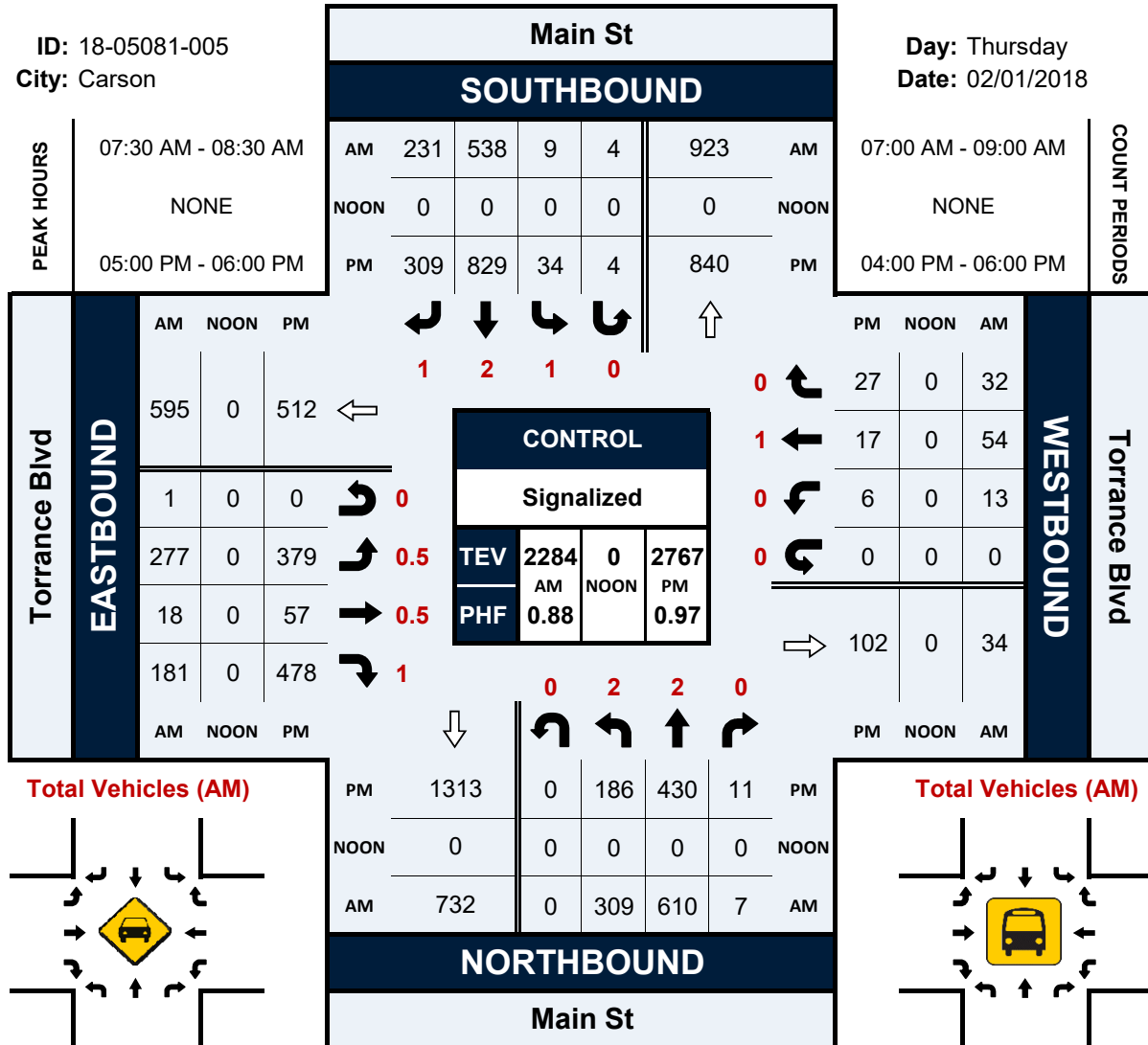
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	2 NT	0 NR	0 NU	1 SL	2 ST	1 SR	0 SU	0.5 EL	0.5 ET	1 ER	0 EU	0 WL	1 WT	0 WR	0 WU	
4:00 PM	48	101	0	1	6	145	65	2	81	11	118	0	0	9	5	0	592
4:15 PM	56	113	2	0	9	190	92	0	83	12	124	0	0	9	3	0	693
4:30 PM	50	100	3	0	11	194	62	0	106	12	105	0	1	10	2	0	656
4:45 PM	49	107	5	0	9	177	52	0	99	15	117	0	2	8	3	0	643
5:00 PM	43	111	4	0	7	222	78	0	86	9	134	0	2	7	5	0	708
5:15 PM	43	102	2	0	12	209	72	1	113	18	110	0	1	3	6	0	692
5:30 PM	51	109	2	0	8	209	93	1	98	17	116	0	1	4	7	0	716
5:45 PM	49	108	3	0	7	189	66	2	82	13	118	0	2	3	9	0	651
TOTAL VOLUMES :	NL 389	NT 851	NR 21	NU 1	SL 69	ST 1535	SR 580	SU 6	EL 748	ET 107	ER 942	EU 0	WL 9	WT 53	WR 40	WU 0	TOTAL 5351
APPROACH %'s :	30.82%	67.43%	1.66%	0.08%	3.15%	70.09%	26.48%	0.27%	41.62%	5.95%	52.42%	0.00%	8.82%	51.96%	39.22%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	186	430	11	0	34	829	309	4	379	57	478	0	6	17	27	0	2767
PEAK HR FACTOR :	0.912	0.968	0.688	0.000	0.708	0.934	0.831	0.500	0.838	0.792	0.892	0.000	0.750	0.607	0.750	0.000	0.966
	0.968				0.945				0.948				0.893				

Main St & Torrance Blvd

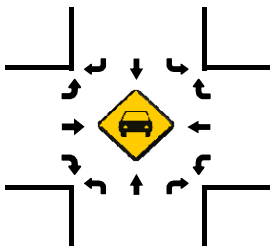
Peak Hour Turning Movement Count

ID: 18-05081-005
City: Carson

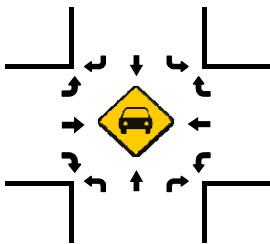
Day: Thursday
Date: 02/01/2018



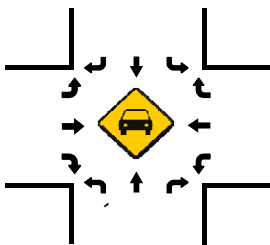
Total Vehicles (AM)



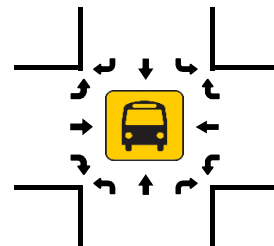
Total Vehicles (NOON)



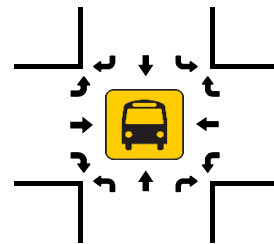
Total Vehicles (PM)



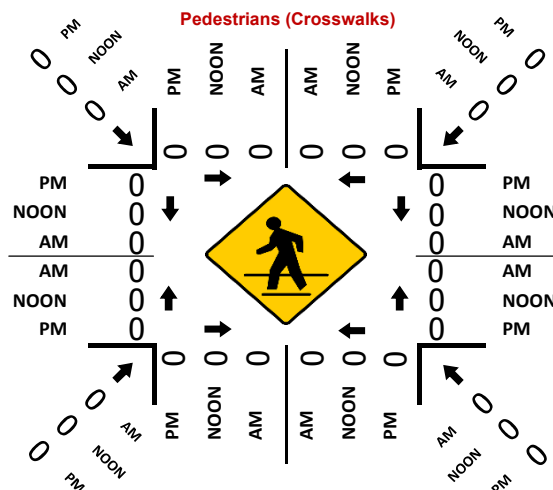
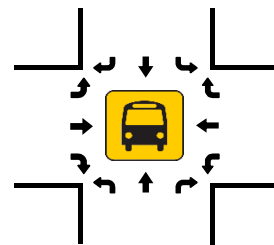
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

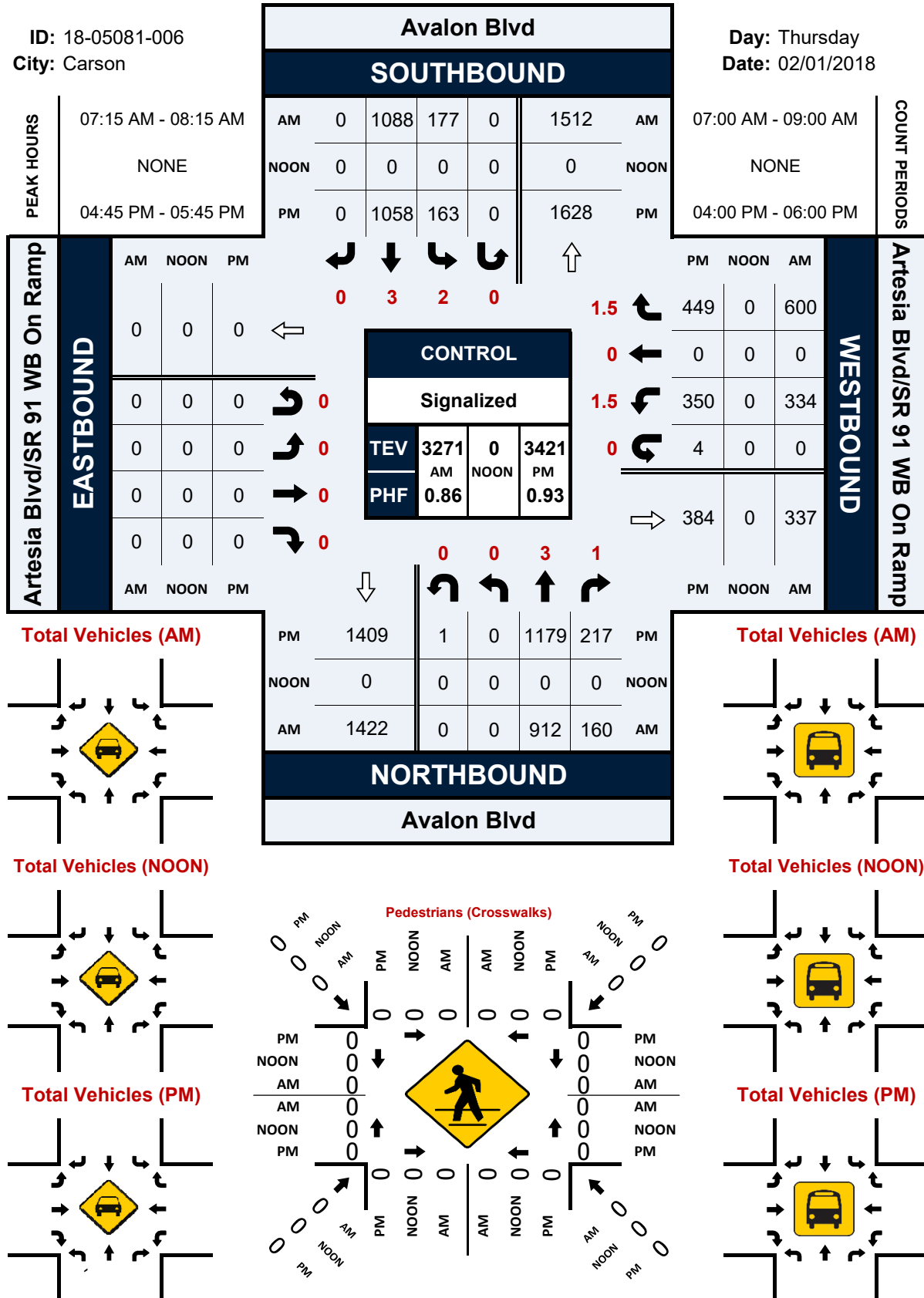
Location: Avalon Blvd & Artesia Blvd/SR 91 WB On Ramp
City: Carson
Control: Signalized

Project ID: 18-05081-006
Date: 2/1/2018

Total

NS/EW Streets:	Avalon Blvd				Avalon Blvd				Artesia Blvd/SR 91 WB On Ramp				Artesia Blvd/SR 91 WB On Ramp				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	3	1	0	2	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	160	27	0	24	152	0	0	0	0	0	0	92	0	146	0	601
7:15 AM	0	184	33	0	48	219	0	0	0	0	0	0	73	0	117	0	674
7:30 AM	0	196	39	0	47	264	0	0	0	0	0	0	95	0	170	0	811
7:45 AM	0	312	43	0	40	302	0	0	0	0	0	0	82	0	177	0	956
8:00 AM	0	220	45	0	42	303	0	0	0	0	0	0	84	0	136	0	830
8:15 AM	0	206	50	0	28	194	0	0	0	0	0	0	71	0	113	1	663
8:30 AM	0	201	51	0	36	208	0	0	0	0	0	0	78	0	117	0	691
8:45 AM	0	165	35	0	26	174	0	0	0	0	0	0	77	0	139	2	618
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	1644	323	0	291	1816	0	0	0	0	0	0	652	0	1115	3	5844
	0.00%	83.58%	16.42%	0.00%	13.81%	86.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.84%	0.00%	62.99%	0.17%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	912	160	0	177	1088	0	0	0	0	0	0	334	0	600	0	3271
PEAK HR FACTOR :	0.000	0.731	0.889	0.000	0.922	0.898	0.000	0.000	0.000	0.000	0.000	0.000	0.879	0.000	0.847	0.000	0.855
	0.755				0.917								0.881				

NS/EW Streets:	Avalon Blvd				Avalon Blvd				Artesia Blvd/SR 91 WB On Ramp				Artesia Blvd/SR 91 WB On Ramp				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	3	1	0	2	3	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	296	84	1	48	279	0	0	0	0	0	0	62	0	95	0	865
4:15 PM	0	241	46	0	45	240	0	0	0	0	0	0	88	0	163	2	825
4:30 PM	0	236	36	0	42	276	0	0	0	0	0	0	89	0	101	0	780
4:45 PM	0	289	50	1	38	227	0	0	0	0	0	0	81	0	125	1	812
5:00 PM	0	267	58	0	51	315	0	0	0	0	0	0	72	0	112	0	875
5:15 PM	0	324	54	0	40	273	0	0	0	0	0	0	112	0	114	3	920
5:30 PM	0	299	55	0	34	243	0	0	0	0	0	0	85	0	98	0	814
5:45 PM	0	248	31	0	36	230	0	0	0	0	0	0	74	0	83	0	702
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	2200	414	2	334	2083	0	0	0	0	0	0	663	0	891	6	6593
	0.00%	84.10%	15.83%	0.08%	13.82%	86.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	42.50%	0.00%	57.12%	0.38%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	1179	217	1	163	1058	0	0	0	0	0	0	350	0	449	4	3421
PEAK HR FACTOR :	0.000	0.910	0.935	0.250	0.799	0.840	0.000	0.000	0.000	0.000	0.000	0.000	0.781	0.000	0.898	0.333	0.930
	0.924				0.834								0.877				



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Avalon Blvd & Albertoni St
City: Carson
Control: Signalized

Project ID: 18-05081-007
Date: 2/1/2018

Total

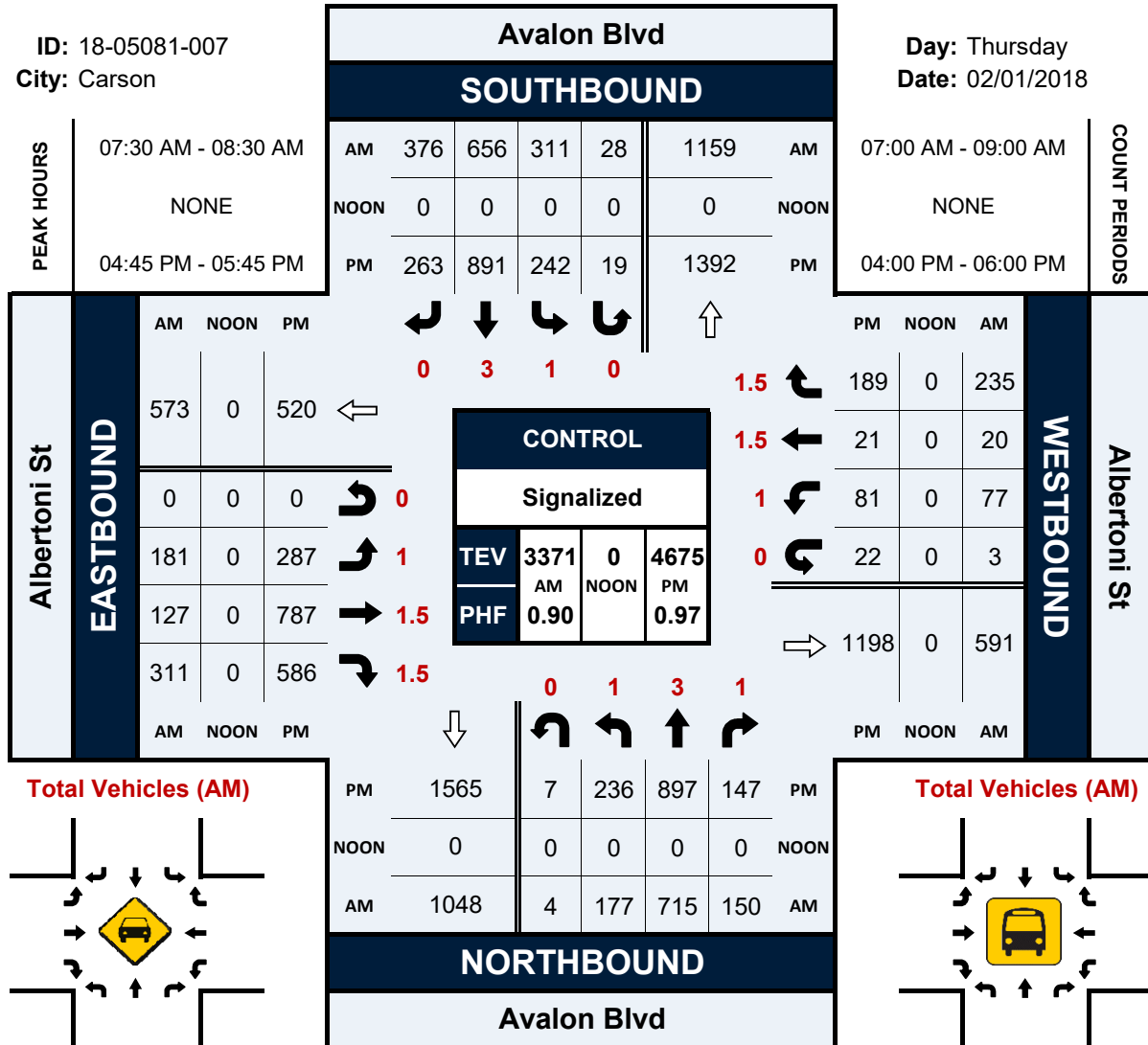
NS/EW Streets:	Avalon Blvd				Avalon Blvd				Albertoni St				Albertoni St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	1 SL	3 ST	0 SR	0 SU	1 EL	1.5 ET	1.5 ER	0 EU	1 WL	1.5 WT	1.5 WR	0 WU	
7:00 AM	44	119	37	1	67	88	74	4	19	24	23	0	8	2	47	2	559
7:15 AM	51	143	39	1	65	130	84	2	28	22	36	0	12	4	42	1	660
7:30 AM	40	167	40	1	77	150	109	5	37	26	45	0	17	5	39	1	759
7:45 AM	41	214	38	0	67	188	101	11	64	25	78	0	20	5	83	0	935
8:00 AM	53	166	32	1	90	192	96	6	44	42	96	0	20	7	63	1	909
8:15 AM	43	168	40	2	77	126	70	6	36	34	92	0	20	3	50	1	768
8:30 AM	47	155	40	0	70	120	79	7	40	27	77	1	12	2	54	1	732
8:45 AM	27	133	41	3	57	98	77	1	41	32	64	0	15	5	42	0	636
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	346	1265	307	9	570	1092	690	42	309	232	511	1	124	33	420	7	5958
	17.96%	65.65%	15.93%	0.47%	23.81%	45.61%	28.82%	1.75%	29.34%	22.03%	48.53%	0.09%	21.23%	5.65%	71.92%	1.20%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	177	715	150	4	311	656	376	28	181	127	311	0	77	20	235	3	3371
PEAK HR FACTOR :	0.835	0.835	0.938	0.500	0.864	0.854	0.862	0.636	0.707	0.756	0.810	0.000	0.963	0.714	0.708	0.750	0.901
	0.892				0.893				0.850				0.775				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	1 SL	3 ST	0 SR	0 SU	1 EL	1.5 ET	1.5 ER	0 EU	1 WL	1.5 WT	1.5 WR	0 WU	
4:00 PM	57	220	43	5	73	183	61	5	64	163	121	0	27	8	65	5	1100
4:15 PM	50	207	40	3	58	201	57	2	54	166	129	0	23	6	40	6	1042
4:30 PM	46	148	41	0	67	221	50	2	65	185	140	0	26	10	52	3	1056
4:45 PM	57	209	37	3	47	202	65	4	68	193	157	0	19	3	54	7	1125
5:00 PM	53	208	31	3	70	205	70	4	71	201	142	0	28	7	47	6	1146
5:15 PM	68	240	38	1	64	244	57	3	77	203	131	0	22	5	48	2	1203
5:30 PM	58	240	41	0	61	240	71	8	71	190	156	0	12	6	40	7	1201
5:45 PM	50	162	38	2	63	182	38	5	59	189	126	0	27	13	58	3	1015
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	439	1634	309	17	503	1678	469	33	529	1490	1102	0	184	58	404	39	8888
	18.30%	68.11%	12.88%	0.71%	18.75%	62.54%	17.48%	1.23%	16.95%	47.74%	35.31%	0.00%	26.86%	8.47%	58.98%	5.69%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	236	897	147	7	242	891	263	19	287	787	586	0	81	21	189	22	4675
PEAK HR FACTOR :	0.868	0.934	0.896	0.583	0.864	0.913	0.926	0.594	0.932	0.969	0.933	0.000	0.723	0.750	0.875	0.786	0.972
	0.927				0.931				0.993				0.889				

Avalon Blvd & Albertoni St

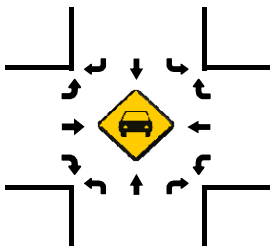
Peak Hour Turning Movement Count

ID: 18-05081-007
City: Carson

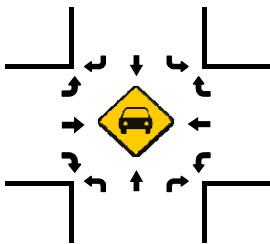
Day: Thursday
Date: 02/01/2018



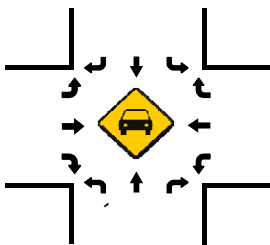
Total Vehicles (AM)



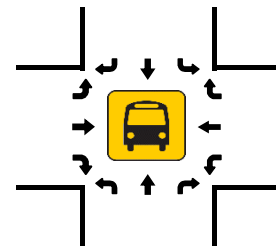
Total Vehicles (NOON)



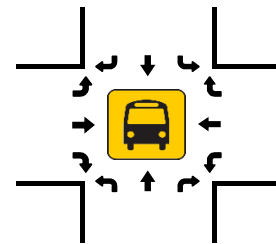
Total Vehicles (PM)



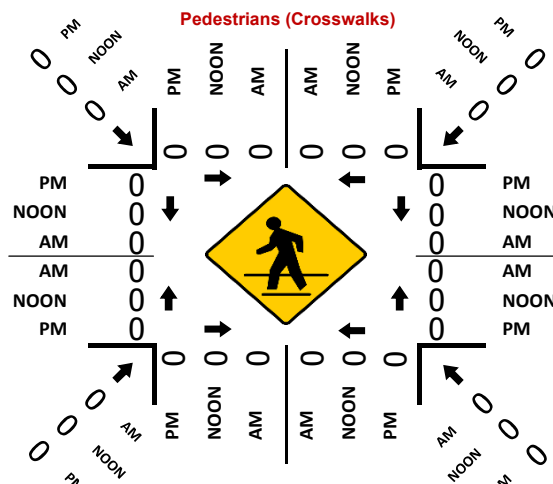
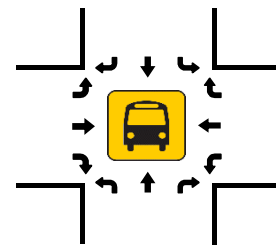
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Avalon Blvd & Victoria St
City: Carson
Control: Signalized

Project ID: 18-05081-008
Date: 2/1/2018

Total

NS/EW Streets:	Avalon Blvd				Avalon Blvd				Victoria St				Victoria St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	2 SL	3 ST	0 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
7:00 AM	16	123	15	3	21	74	29	1	20	46	4	0	8	111	39	0	510
7:15 AM	23	148	24	2	30	122	18	3	31	49	17	0	17	125	41	0	650
7:30 AM	34	136	28	0	45	164	27	3	21	87	23	0	23	147	55	0	793
7:45 AM	36	211	36	2	82	200	17	2	20	111	27	0	20	88	64	0	916
8:00 AM	33	163	71	3	112	172	13	3	21	150	15	0	23	90	52	0	921
8:15 AM	27	175	66	1	130	149	21	2	23	149	16	0	31	91	50	0	931
8:30 AM	21	141	42	1	74	116	23	7	19	81	20	0	31	98	63	0	737
8:45 AM	24	129	34	3	58	115	19	2	23	93	17	0	26	82	38	0	663
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	214	1226	316	15	552	1112	167	23	178	766	139	0	179	832	402	0	6121
	12.08%	69.23%	17.84%	0.85%	29.77%	59.98%	9.01%	1.24%	16.44%	70.73%	12.83%	0.00%	12.67%	58.88%	28.45%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	130	685	201	6	369	685	78	10	85	497	81	0	97	416	221	0	3561
PEAK HR FACTOR :	0.903	0.812	0.708	0.500	0.710	0.856	0.722	0.833	0.924	0.828	0.750	0.000	0.782	0.707	0.863	0.000	0.956
	0.896				0.945				0.882				0.816				

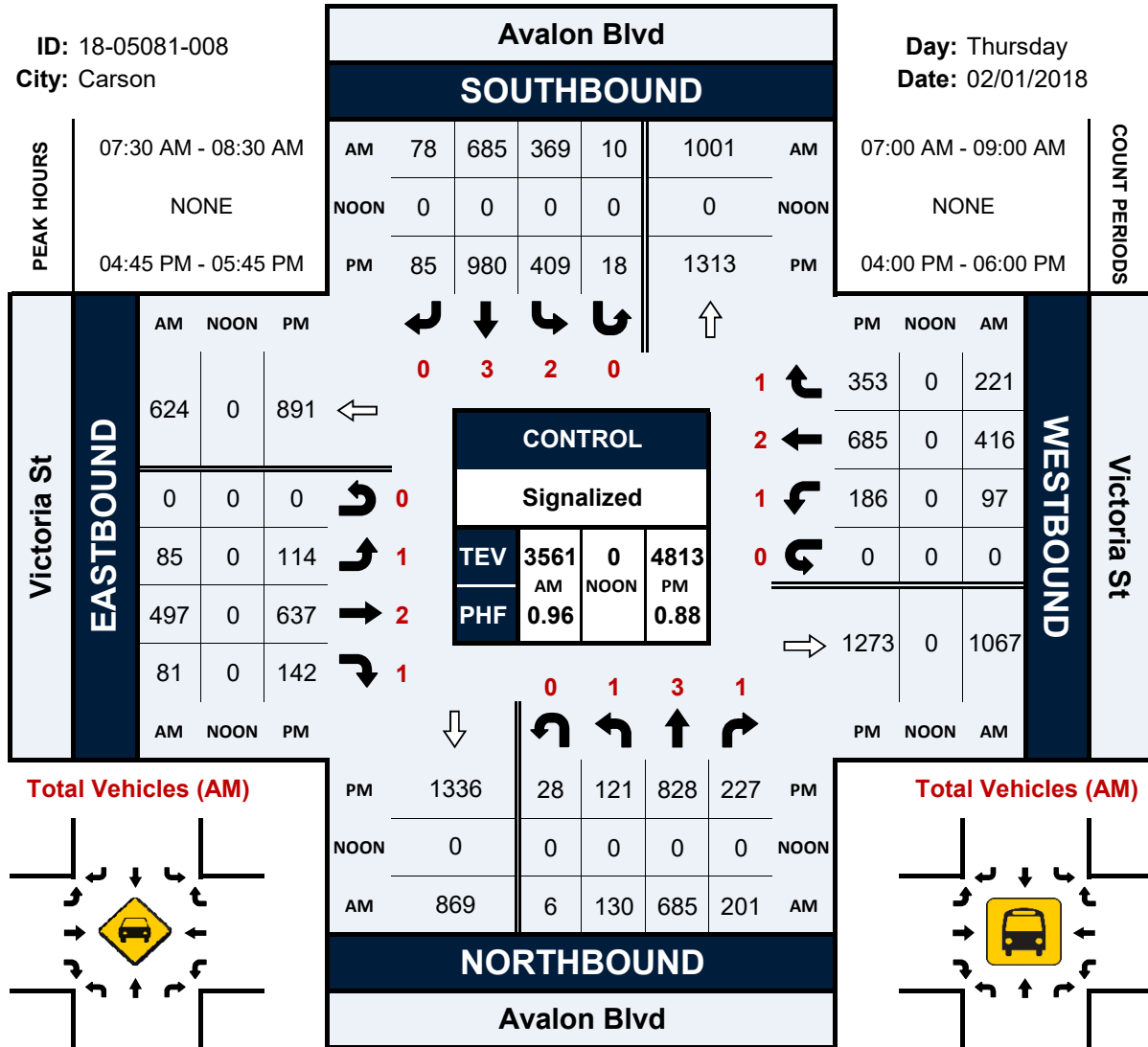
PM	1 NL	3 NT	1 NR	0 NU	2 SL	3 ST	0 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	TOTAL
4:00 PM	30	183	41	5	75	215	21	2	27	115	45	0	60	165	94	0	1078
4:15 PM	21	205	57	4	83	260	20	8	35	113	35	0	41	88	54	0	1024
4:30 PM	32	160	56	8	85	221	14	5	24	128	41	0	35	128	52	0	989
4:45 PM	28	226	64	3	110	285	22	5	18	135	23	0	32	89	64	0	1104
5:00 PM	29	183	51	10	103	189	16	4	31	189	37	0	53	185	83	0	1163
5:15 PM	30	230	65	7	111	276	20	7	32	159	49	0	47	213	116	0	1362
5:30 PM	34	189	47	8	85	230	27	2	33	154	33	0	54	198	90	0	1184
5:45 PM	32	189	70	3	84	270	17	3	22	131	45	0	43	120	46	0	1075
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	236	1565	451	48	736	1946	157	36	222	1124	308	0	365	1186	599	0	8979
	10.26%	68.04%	19.61%	2.09%	25.60%	67.69%	5.46%	1.25%	13.42%	67.96%	18.62%	0.00%	16.98%	55.16%	27.86%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	121	828	227	28	409	980	85	18	114	637	142	0	186	685	353	0	4813
PEAK HR FACTOR :	0.890	0.900	0.873	0.700	0.921	0.860	0.787	0.643	0.864	0.843	0.724	0.000	0.861	0.804	0.761	0.000	0.883
	0.907				0.884				0.869				0.814				

Avalon Blvd & Victoria St

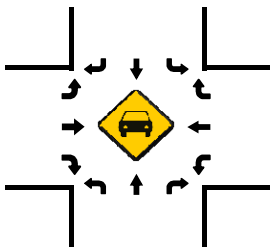
Peak Hour Turning Movement Count

ID: 18-05081-008
City: Carson

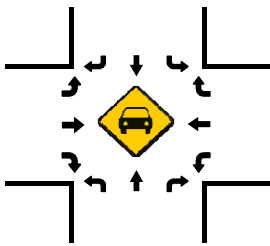
Day: Thursday
Date: 02/01/2018



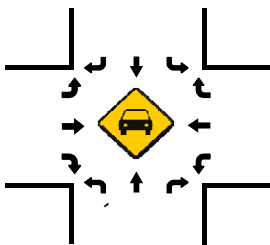
Total Vehicles (AM)



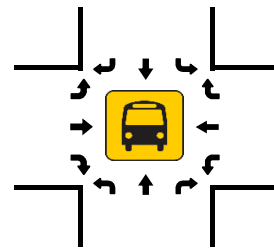
Total Vehicles (NOON)



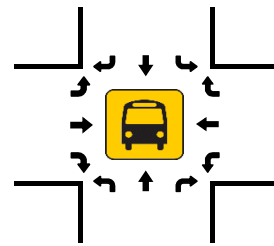
Total Vehicles (PM)



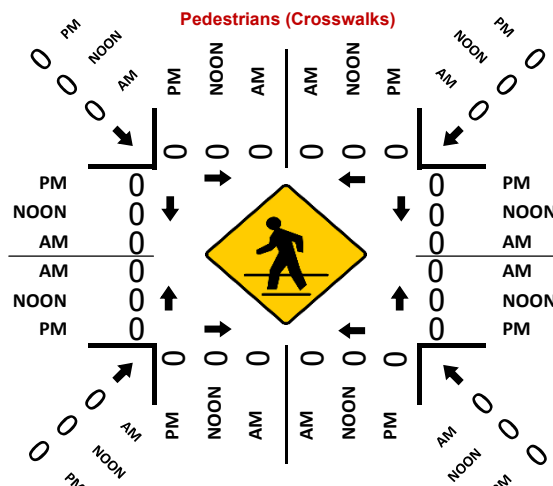
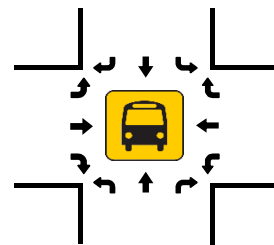
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Avalon Blvd & 184th St/StubHub Center Gate
City: Carson
Control: Signalized

Project ID: 18-05081-009
Date: 2/1/2018

Total

NS/EW Streets:	Avalon Blvd				Avalon Blvd				184th St/StubHub Center Gate				184th St/StubHub Center Gate				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	1 SL	3 ST	0 SR	0 SU	0.5 EL	0 ET	0.5 ER	0 EU	1.5 WL	0 WT	1.5 WR	0 WU	
7:00 AM	2	167	5	1	6	99	0	0	9	0	6	0	1	0	2	0	298
7:15 AM	2	192	9	0	7	147	1	0	11	0	6	0	0	0	1	0	376
7:30 AM	7	207	11	0	9	229	2	0	11	0	18	0	0	0	2	0	496
7:45 AM	0	255	20	0	13	225	1	0	11	0	13	0	1	0	0	0	539
8:00 AM	4	276	19	2	7	202	2	0	16	0	6	0	3	0	6	0	543
8:15 AM	5	229	12	1	8	174	3	0	19	0	8	0	4	0	3	0	466
8:30 AM	4	193	23	0	17	162	2	1	6	0	5	0	2	0	7	0	422
8:45 AM	3	185	24	2	16	117	2	0	9	0	5	0	1	0	2	0	366
TOTAL VOLUMES :	NL 27	NT 1704	NR 123	NU 6	SL 83	ST 1355	SR 13	SU 1	EL 92	ET 0	ER 67	EU 0	WL 12	WT 0	WR 23	WU 0	TOTAL 3506
APPROACH %'s :	1.45%	91.61%	6.61%	0.32%	5.72%	93.32%	0.90%	0.07%	57.86%	0.00%	42.14%	0.00%	34.29%	0.00%	65.71%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	16	967	62	3	37	830	8	0	57	0	45	0	8	0	11	0	2044
PEAK HR FACTOR :	0.571	0.876	0.775	0.375	0.712	0.906	0.667	0.000	0.750	0.000	0.625	0.000	0.500	0.000	0.458	0.000	0.941
	0.870				0.911				0.879				0.528				

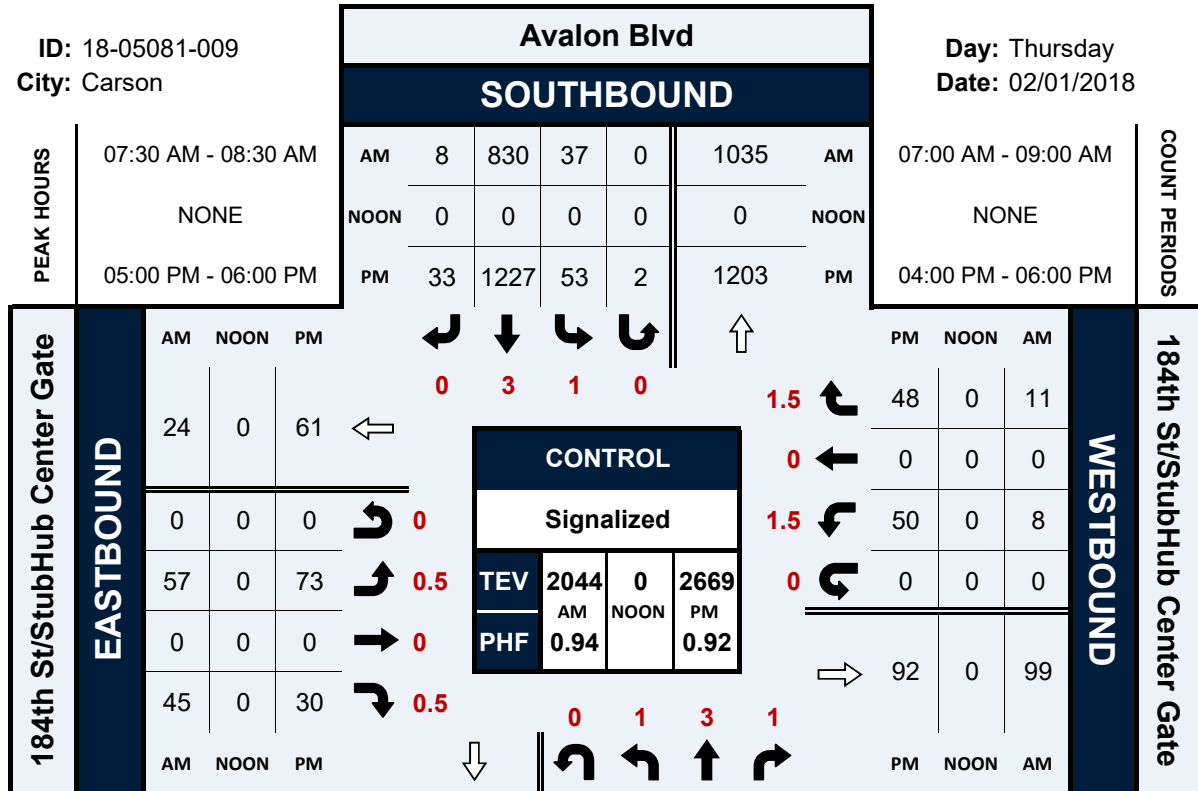
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	1 SL	3 ST	0 SR	0 SU	0.5 EL	0 ET	0.5 ER	0 EU	1.5 WL	0 WT	1.5 WR	0 WU	
4:00 PM	8	282	15	3	29	277	10	1	12	0	8	0	17	0	17	0	679
4:15 PM	5	236	16	2	32	288	4	2	16	0	8	0	19	0	14	0	642
4:30 PM	6	266	8	3	8	319	15	0	14	0	12	0	22	0	14	0	687
4:45 PM	10	244	6	2	11	294	5	0	20	0	6	0	10	0	9	0	617
5:00 PM	9	263	7	3	3	277	11	0	17	0	4	0	15	0	16	0	625
5:15 PM	4	276	9	1	12	334	5	0	21	0	6	0	14	0	13	0	695
5:30 PM	4	257	10	0	15	274	7	2	19	0	13	0	12	0	9	0	622
5:45 PM	11	284	13	2	23	342	10	0	16	0	7	0	9	0	10	0	727
TOTAL VOLUMES :	NL 57	NT 2108	NR 84	NU 16	SL 133	ST 2405	SR 67	SU 5	EL 135	ET 0	ER 64	EU 0	WL 118	WT 0	WR 102	WU 0	TOTAL 5294
APPROACH %'s :	2.52%	93.07%	3.71%	0.71%	5.10%	92.15%	2.57%	0.19%	67.84%	0.00%	32.16%	0.00%	53.64%	0.00%	46.36%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	28	1080	39	6	53	1227	33	2	73	0	30	0	50	0	48	0	2669
PEAK HR FACTOR :	0.636	0.951	0.750	0.500	0.576	0.897	0.750	0.250	0.869	0.000	0.577	0.000	0.833	0.000	0.750	0.000	0.918
	0.930				0.877				0.805				0.790				

Avalon Blvd & 184th St/StubHub Center Gate

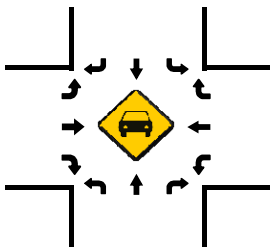
Peak Hour Turning Movement Count

ID: 18-05081-009
City: Carson

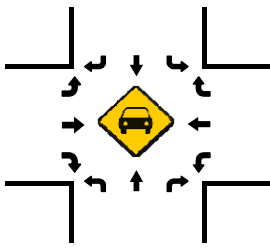
Day: Thursday
Date: 02/01/2018



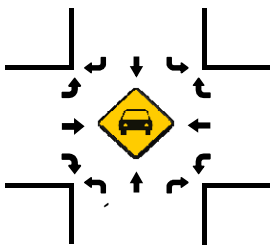
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)

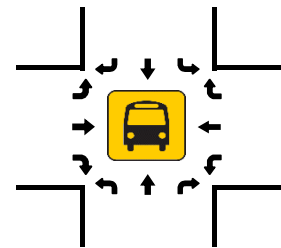


PM	1313	6	28	1080	39	PM
NOON	0	0	0	0	0	NOON
AM	886	3	16	967	62	AM

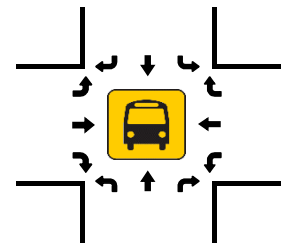
NORTHBOUND

Avalon Blvd

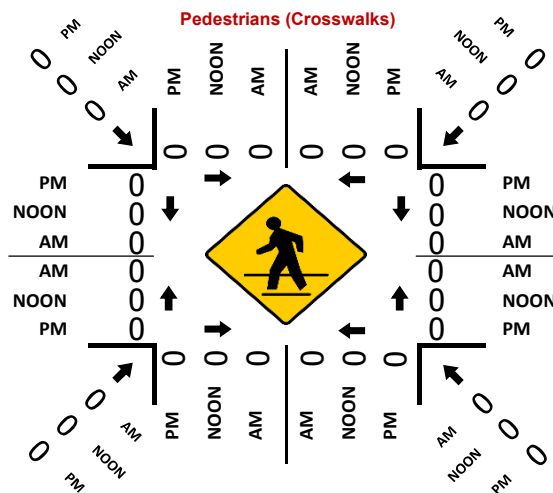
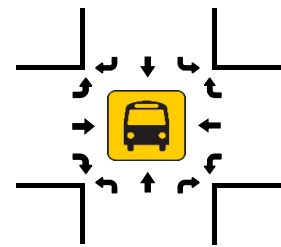
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Avalon Blvd & University Dr
City: Carson
Control: Signalized

Project ID: 18-05081-010
Date: 2/1/2018

Total

NS/EW Streets:	Avalon Blvd				Avalon Blvd				University Dr				University Dr							
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND							
	0 NL	3 NT	1 NR	0 NU	2 SL	3 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	TOTAL			
	7:00 AM	0	117	25	0	11	114	0	1	0	0	0	0	35	0	54	1	358		
	7:15 AM	0	128	54	0	32	111	0	4	0	0	0	0	40	0	70	0	439		
	7:30 AM	0	142	59	0	47	208	0	3	0	0	0	0	42	0	78	0	579		
	7:45 AM	0	210	94	0	83	184	0	4	0	0	0	0	48	0	84	0	707		
	8:00 AM	0	251	105	0	71	164	0	14	0	0	0	0	49	0	78	0	732		
	8:15 AM	0	188	134	0	52	134	0	15	0	0	0	0	68	0	55	0	646		
	8:30 AM	0	180	143	0	41	112	0	9	0	0	0	0	82	0	54	0	621		
8:45 AM	0	167	78	0	33	99	0	12	0	0	0	0	57	0	44	0	490			
TOTAL VOLUMES : APPROACH %'s :	NL 0	NT 1383	NR 692	NU 0.00%	SL 370	ST 1126	SR 0.00%	SU 62	EL 0	ET 0	ER 0	EU 0	WL 421	WT 0.00%	WR 517	WU 1	TOTAL 4572			
PEAK HR :				07:45 AM - 08:45 AM												TOTAL				
PEAK HR VOL :				0 829 476 0				247 594 0 42				0 0 0 0				247 0 271 0				TOTAL
PEAK HR FACTOR :				0.000 0.826 0.832 0.000				0.744 0.807 0.000 0.700				0.000 0.000 0.000 0.000				0.753 0.000 0.807 0.000				TOTAL
				0.916				0.815								0.952				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND							
	0 NL	3 NT	1 NR	0 NU	2 SL	3 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	TOTAL			
	4:00 PM	0	237	63	0	48	243	0	29	0	0	0	0	152	0	56	0	828		
	4:15 PM	0	237	94	0	65	237	0	24	0	0	0	0	89	0	40	0	786		
	4:30 PM	0	211	80	0	62	256	0	27	0	0	0	0	84	0	52	0	772		
	4:45 PM	0	238	95	0	61	241	0	20	0	0	0	0	76	0	47	0	778		
	5:00 PM	0	236	88	0	58	231	0	21	0	0	0	0	101	0	51	0	786		
	5:15 PM	0	241	101	0	66	281	0	28	0	0	0	0	136	0	60	0	913		
	5:30 PM	0	241	79	0	62	243	0	22	0	0	0	0	131	0	63	0	841		
5:45 PM	0	243	62	0	76	278	0	18	0	0	0	0	103	0	59	0	839			
TOTAL VOLUMES : APPROACH %'s :	NL 0	NT 1884	NR 662	NU 0.00%	SL 498	ST 2010	SR 0.00%	SU 189	EL 0	ET 0	ER 0	EU 0	WL 872	WT 0.00%	WR 428	WU 0	TOTAL 6543			
PEAK HR :				05:00 PM - 06:00 PM												TOTAL				
PEAK HR VOL :				0 961 330 0				262 1033 0 89				0 0 0 0				471 0 233 0				TOTAL
PEAK HR FACTOR :				0.000 0.989 0.817 0.000				0.862 0.919 0.000 0.795				0.000 0.000 0.000 0.000				0.866 0.000 0.925 0.000				TOTAL
				0.944				0.923								0.898				

[illegible]

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Avalon Blvd & 192nd St
City: Carson
Control: Signalized

Project ID: 18-05081-011
Date: 2/1/2018

Total

NS/EW Streets:	Avalon Blvd				Avalon Blvd				192nd St				192nd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	0 NR	0 NU	0 SL	3 ST	0 SR	0 SU	1 EL	0 ET	1 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
7:00 AM	16	133	0	0	0	119	13	0	7	0	6	0	0	0	0	0	294
7:15 AM	17	183	0	0	0	143	25	0	16	0	14	0	0	0	0	0	398
7:30 AM	21	179	0	0	0	210	25	0	15	0	17	0	0	0	0	0	467
7:45 AM	39	275	0	1	0	201	29	0	31	0	21	0	0	0	0	0	597
8:00 AM	41	324	0	2	0	173	31	0	23	0	14	0	0	0	0	0	608
8:15 AM	20	300	0	0	0	180	21	0	22	0	9	0	0	0	0	0	552
8:30 AM	13	305	0	1	0	173	19	0	31	0	11	0	0	0	0	0	553
8:45 AM	21	198	0	0	0	151	16	0	19	0	10	0	0	0	0	0	415
TOTAL VOLUMES :	NL 188	NT 1897	NR 0	NU 4	SL 0	ST 1350	SR 179	SU 0	EL 164	ET 0	ER 102	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 3884
APPROACH %'s :	9.00%	90.81%	0.00%	0.19%	0.00%	88.29%	11.71%	0.00%	61.65%	0.00%	38.35%	0.00%	0	0	0	0	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	113	1204	0	4	0	727	100	0	107	0	55	0	0	0	0	0	2310
PEAK HR FACTOR :	0.689	0.929	0.000	0.500	0.000	0.904	0.806	0.000	0.863	0.000	0.655	0.000	0.000	0.000	0.000	0.000	0.950
	0.900				0.899				0.779								

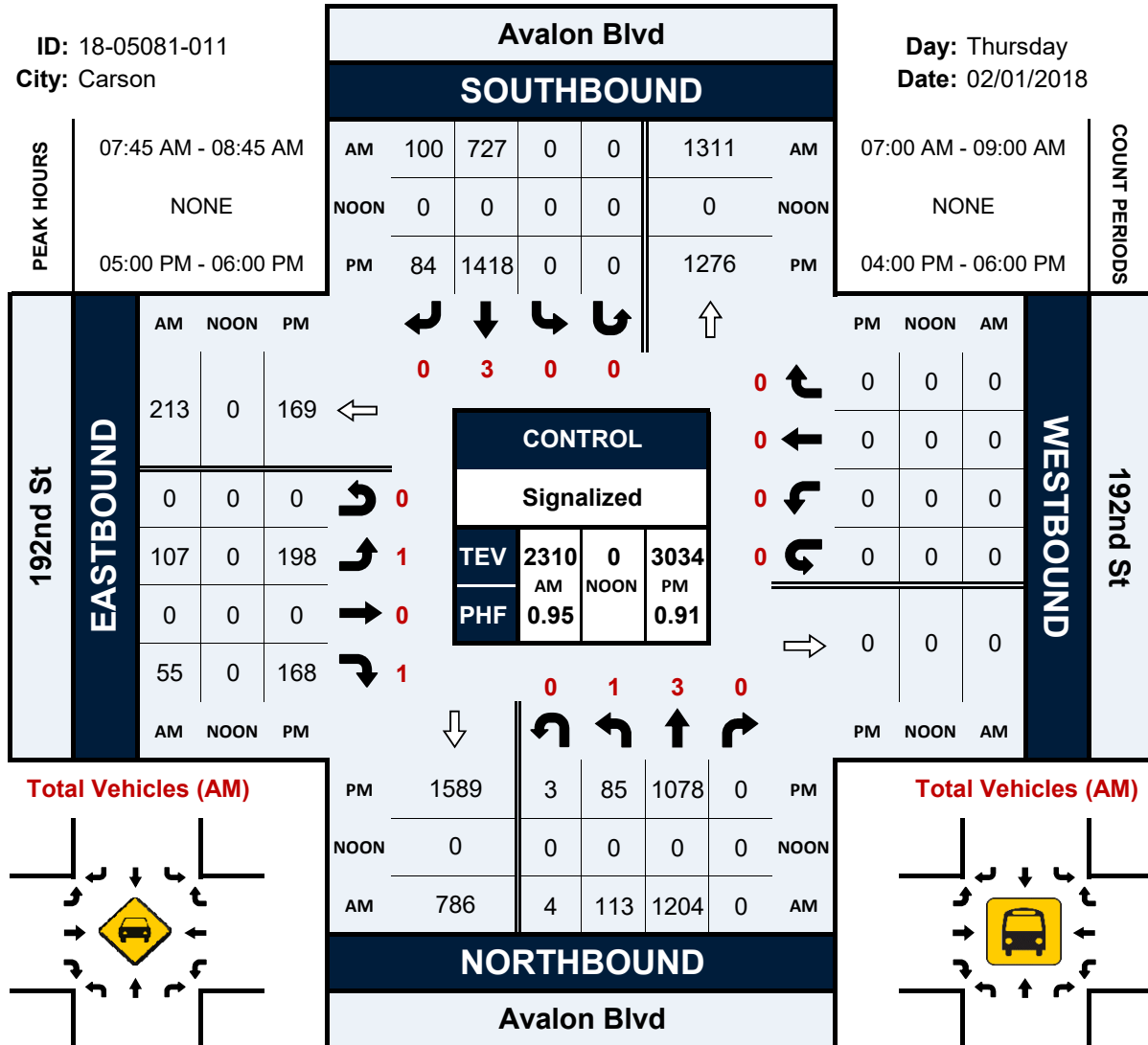
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	0 NR	0 NU	0 SL	3 ST	0 SR	0 SU	1 EL	0 ET	1 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	17	278	0	0	0	368	14	0	27	0	33	0	0	0	0	0	737
4:15 PM	25	265	0	1	0	300	21	0	46	0	38	0	0	0	0	0	696
4:30 PM	17	250	0	0	0	328	24	0	44	0	38	0	0	0	0	0	701
4:45 PM	12	302	0	0	0	295	13	0	41	0	47	0	0	0	0	0	710
5:00 PM	21	247	0	1	0	300	26	0	55	0	40	0	0	0	0	0	690
5:15 PM	14	307	0	0	0	397	21	0	45	0	45	0	0	0	0	0	829
5:30 PM	29	274	0	0	0	355	18	0	54	0	41	0	0	0	0	0	771
5:45 PM	21	250	0	2	0	366	19	0	44	0	42	0	0	0	0	0	744
TOTAL VOLUMES :	NL 156	NT 2173	NR 0	NU 4	SL 0	ST 2709	SR 156	SU 0	EL 356	ET 0	ER 324	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 5878
APPROACH %'s :	6.69%	93.14%	0.00%	0.17%	0.00%	94.55%	5.45%	0.00%	52.35%	0.00%	47.65%	0.00%	0	0	0	0	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	85	1078	0	3	0	1418	84	0	198	0	168	0	0	0	0	0	3034
PEAK HR FACTOR :	0.733	0.878	0.000	0.375	0.000	0.893	0.808	0.000	0.900	0.000	0.933	0.000	0.000	0.000	0.000	0.000	0.915
	0.908				0.898				0.963								

Avalon Blvd & 192nd St

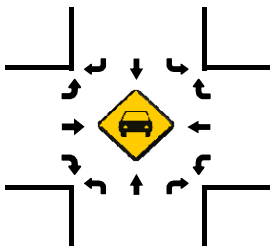
Peak Hour Turning Movement Count

ID: 18-05081-011
City: Carson

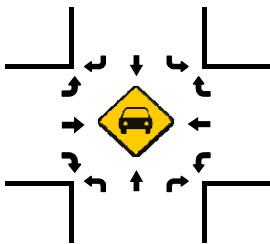
Day: Thursday
Date: 02/01/2018



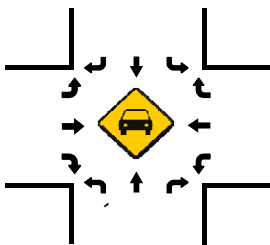
Total Vehicles (AM)



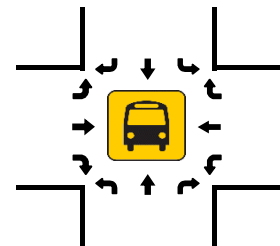
Total Vehicles (NOON)



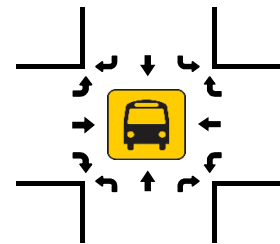
Total Vehicles (PM)



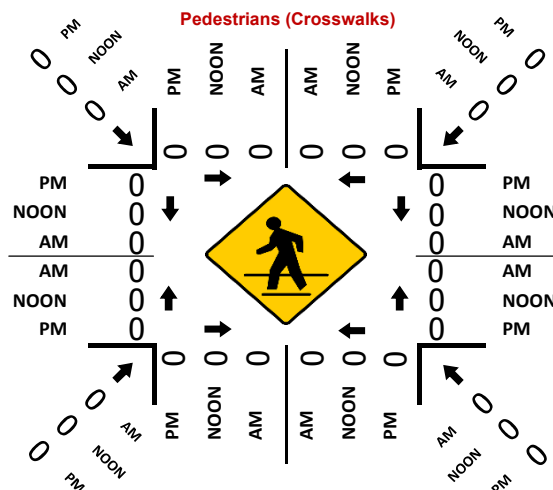
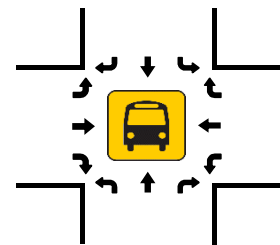
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Avalon Blvd & Elsmere Dr
City: Carson
Control: Signalized

Project ID: 18-05081-012
Date: 2/1/2018

Total

NS/EW Streets:		Avalon Blvd				Avalon Blvd				Elsmere Dr				Elsmere Dr							
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND								
	0	3	0	0	1	3	0	0	0	0	0	0	0	1	0	1	0				
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL				
	7:00 AM	0	134	5	0	6	125	0	0	0	0	0	0	10	0	13	0	293			
	7:15 AM	0	173	5	0	5	142	0	0	0	0	0	0	15	0	16	0	356			
	7:30 AM	0	190	7	0	7	222	0	0	0	0	0	0	20	0	7	0	453			
	7:45 AM	0	304	27	0	17	207	0	1	0	0	0	0	30	0	12	0	598			
	8:00 AM	0	343	17	0	11	185	0	0	0	0	0	0	38	0	14	0	608			
	8:15 AM	0	327	13	0	4	189	0	0	0	0	0	0	14	0	7	0	554			
	8:30 AM	0	294	6	0	1	174	0	0	0	0	0	0	14	0	7	0	496			
8:45 AM	0	235	6	0	2	174	0	1	0	0	0	0	14	0	7	0	439				
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL			
APPROACH %'s :		0	2000	86	0	53	1418	0	2	0	0	0	0	155	0	83	0	3797			
PEAK HR :		07:45 AM - 08:45 AM												65.13%				0.00%	34.87%	0.00%	
PEAK HR VOL :		0	1268	63	0	33	755	0	1	0	0	0	0	96	0	40	0	2256			
PEAK HR FACTOR :		0.000	0.924	0.583	0.000	0.485	0.912	0.000	0.250	0.000	0.000	0.000	0.000	0.632	0.000	0.714	0.000	0.928			
		0.924				0.877								0.654							

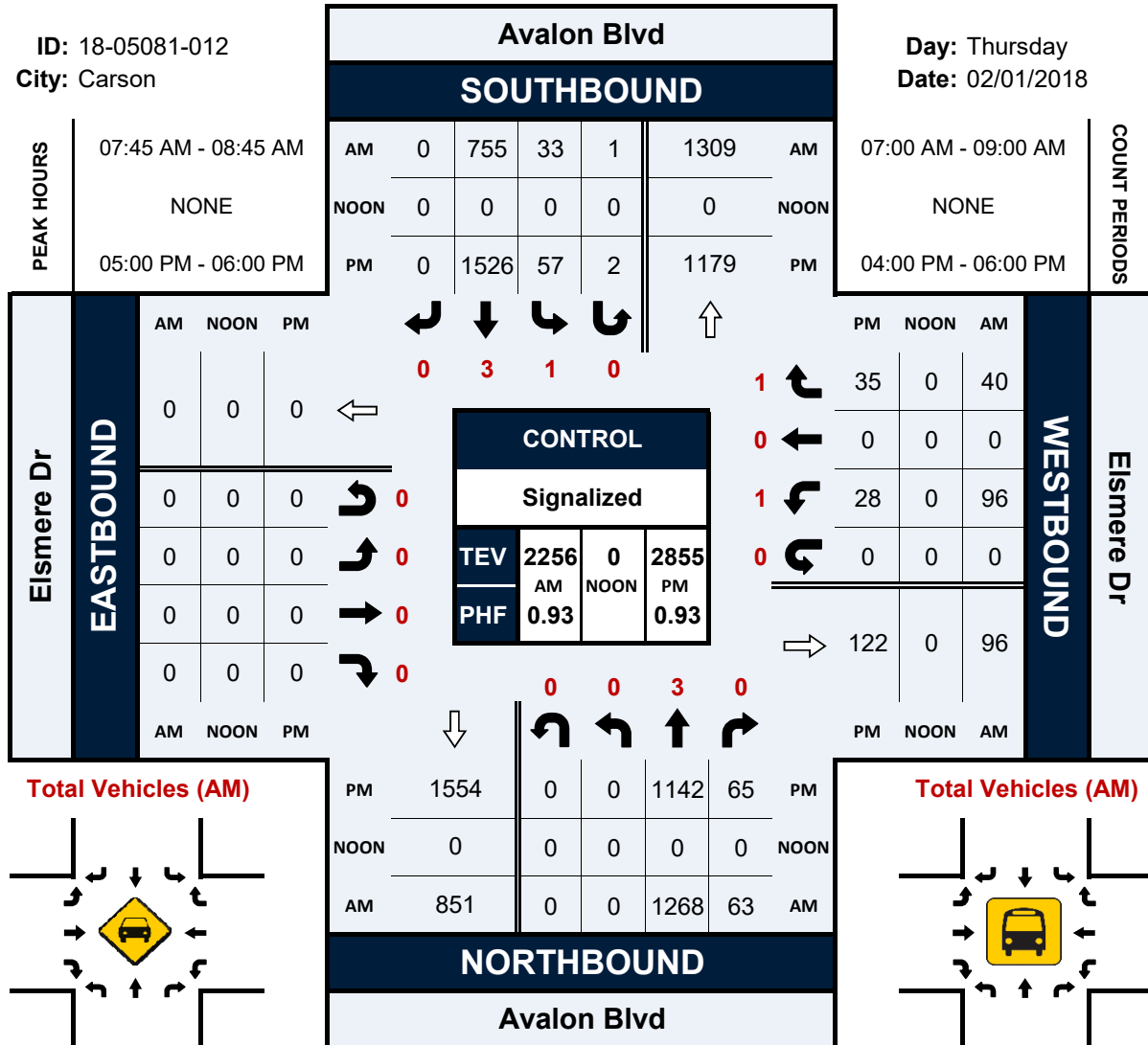
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND								
	0	3	0	0	1	3	0	0	0	0	0	0	0	1	0	1	0				
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL				
	4:00 PM	0	281	7	0	17	429	0	1	0	0	0	0	9	0	6	0	750			
	4:15 PM	0	307	9	0	10	328	0	0	0	0	0	0	6	0	4	0	664			
	4:30 PM	0	262	19	1	12	330	0	1	0	0	0	0	11	0	5	0	641			
	4:45 PM	0	296	11	0	16	339	0	1	0	0	0	0	9	0	5	0	677			
	5:00 PM	0	285	19	0	16	322	0	0	0	0	0	0	4	0	8	0	654			
	5:15 PM	0	299	17	0	9	428	0	0	0	0	0	0	7	0	8	0	769			
	5:30 PM	0	283	14	0	12	391	0	1	0	0	0	0	8	0	10	0	719			
5:45 PM	0	275	15	0	20	385	0	0	0	0	0	0	9	0	9	0	713				
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL			
APPROACH %'s :		0	2288	111	1	112	2952	0	5	0	0	0	0	63	0	55	0	5587			
PEAK HR :		05:00 PM - 06:00 PM												53.39%				0.00%	46.61%	0.00%	
PEAK HR VOL :		0	1142	65	0	57	1526	0	2	0	0	0	0	28	0	35	0	2855			
PEAK HR FACTOR :		0.000	0.955	0.855	0.000	0.713	0.891	0.000	0.500	0.000	0.000	0.000	0.000	0.778	0.000	0.875	0.000	0.928			
		0.955				0.905								0.875							

Avalon Blvd & Elsmere Dr

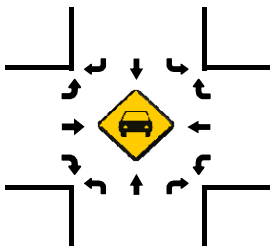
Peak Hour Turning Movement Count

ID: 18-05081-012
City: Carson

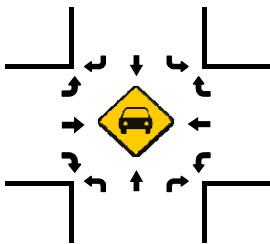
Day: Thursday
Date: 02/01/2018



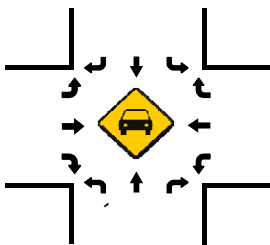
Total Vehicles (AM)



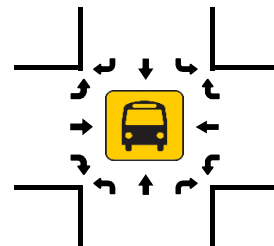
Total Vehicles (NOON)



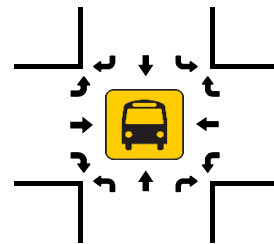
Total Vehicles (PM)



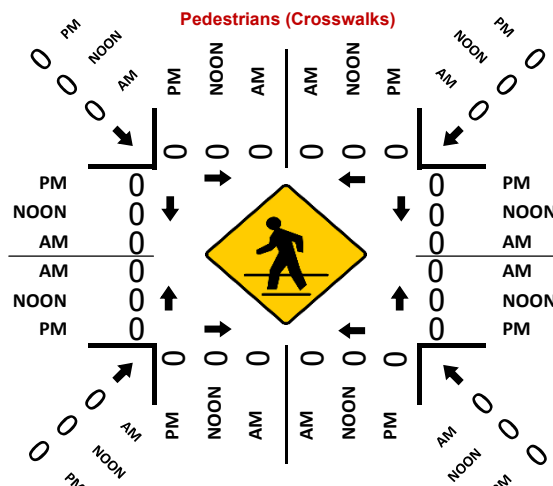
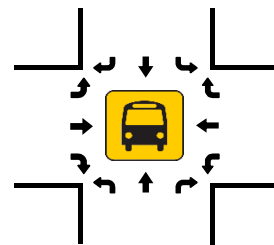
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Avalon Blvd & Turmont St
City: Carson
Control: Signalized

Project ID: 18-05081-013
Date: 2/1/2018

Total

NS/EW Streets:	Avalon Blvd				Avalon Blvd				Turmont St				Turmont St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	0 NR	0 NU	1 SL	3 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	
7:00 AM	0	143	16	3	10	136	0	0	0	0	0	0	52	0	18	0	378
7:15 AM	0	176	18	5	7	181	0	0	0	0	0	0	52	0	19	0	458
7:30 AM	0	181	22	12	10	197	0	0	0	0	0	0	53	0	26	0	501
7:45 AM	0	310	38	5	30	198	0	1	0	0	0	0	59	0	41	0	682
8:00 AM	0	325	25	7	17	202	0	0	0	0	0	0	42	0	34	0	652
8:15 AM	0	336	21	5	12	187	0	0	0	0	0	0	32	0	9	0	602
8:30 AM	0	246	30	3	8	203	0	0	0	0	0	0	27	0	18	0	535
8:45 AM	0	216	22	3	5	157	0	0	0	0	0	0	29	0	11	0	443
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	1933	192	43	99	1461	0	1	0	0	0	0	346	0	176	0	4251
	0.00%	89.16%	8.86%	1.98%	6.34%	93.59%	0.00%	0.06%					66.28%	0.00%	33.72%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	1217	114	20	67	790	0	1	0	0	0	0	160	0	102	0	2471
PEAK HR FACTOR :	0.000	0.906	0.750	0.714	0.558	0.973	0.000	0.250	0.000	0.000	0.000	0.000	0.678	0.000	0.622	0.000	0.906
	0.933				0.937								0.655				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	0 NR	0 NU	1 SL	3 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	
4:00 PM	0	300	59	5	17	375	0	0	0	0	0	0	11	0	14	0	781
4:15 PM	0	273	43	12	26	319	0	0	0	0	0	0	27	0	11	0	711
4:30 PM	0	261	37	6	21	338	0	0	0	0	0	0	23	0	15	0	701
4:45 PM	0	313	38	7	20	303	0	0	0	0	0	0	23	0	15	0	719
5:00 PM	0	293	41	9	25	338	0	0	0	0	0	0	14	0	22	0	742
5:15 PM	0	288	40	10	25	405	0	0	0	0	0	0	21	0	11	0	800
5:30 PM	0	292	63	11	24	373	0	0	0	0	0	0	29	0	13	0	805
5:45 PM	0	262	49	6	27	357	0	2	0	0	0	0	20	0	14	0	737
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	2282	370	66	185	2808	0	2	0	0	0	0	168	0	115	0	5996
	0.00%	83.96%	13.61%	2.43%	6.18%	93.76%	0.00%	0.07%					59.36%	0.00%	40.64%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1135	193	36	101	1473	0	2	0	0	0	0	84	0	60	0	3084
PEAK HR FACTOR :	0.000	0.968	0.766	0.818	0.935	0.909	0.000	0.250	0.000	0.000	0.000	0.000	0.724	0.000	0.682	0.000	0.958
	0.932				0.916								0.857				

Day: Thursday
Date: 02/01/2018

18-05081-013

City: Carson

Day: Thursday

Date: 02/01/2018

PEAK HOURS

07:45 AM - 08:45 AM

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05:00 PM - 06:00 PM

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National Data & Surveying ServicesIntersection Turning Movement Count

Location: Avalon Blvd & Del Amo Blvd
City: Carson
Control: Signalized

Project ID: 18-05081-014
Date: 2/1/2018

Total

NS/EW Streets:	Avalon Blvd				Avalon Blvd				Del Amo Blvd				Del Amo Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	2 SL	3 ST	0 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
7:00 AM	31	97	20	7	19	91	54	19	24	70	12	1	36	222	18	8	729
7:15 AM	27	132	30	9	25	121	71	6	32	94	14	2	36	260	27	8	894
7:30 AM	23	126	29	11	23	179	61	23	50	110	18	3	46	262	17	6	987
7:45 AM	34	246	42	9	26	164	67	17	57	154	16	3	30	190	21	9	1085
8:00 AM	26	219	33	8	28	151	56	17	65	131	25	4	40	217	31	5	1056
8:15 AM	27	251	30	7	27	127	62	25	72	139	26	3	41	180	25	7	1049
8:30 AM	15	192	30	11	22	117	56	16	76	92	21	2	41	163	23	5	882
8:45 AM	20	156	21	10	29	128	51	8	51	75	22	2	39	128	22	5	767
TOTAL VOLUMES :	NL 203	NT 1419	NR 235	NU 72	SL 199	ST 1078	SR 478	SU 131	EL 427	ET 865	ER 154	EU 20	WL 309	WT 1622	WR 184	WU 53	TOTAL 7449
APPROACH %'s :	10.52%	73.56%	12.18%	3.73%	10.55%	57.16%	25.34%	6.95%	29.13%	59.00%	10.50%	1.36%	14.25%	74.82%	8.49%	2.44%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	110	842	134	35	104	621	246	82	244	534	85	13	157	849	94	27	4177
PEAK HR FACTOR :	0.809	0.839	0.798	0.795	0.929	0.867	0.918	0.820	0.847	0.867	0.817	0.813	0.853	0.810	0.758	0.750	0.962
	0.847				0.920				0.913				0.851				

NS/EW Streets:	Avalon Blvd				Avalon Blvd				Del Amo Blvd				Del Amo Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	2 SL	3 ST	0 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
4:00 PM	19	214	54	7	52	261	79	24	55	230	54	1	48	138	33	12	1281
4:15 PM	33	232	47	5	53	220	61	22	55	200	61	0	61	116	42	6	1214
4:30 PM	34	225	57	6	57	228	75	15	46	258	50	3	30	115	28	8	1235
4:45 PM	20	242	45	4	50	223	56	14	53	221	50	4	61	126	47	7	1223
5:00 PM	26	244	39	9	52	177	72	24	40	228	53	1	57	137	27	11	1197
5:15 PM	36	236	44	4	52	277	86	19	45	243	48	0	57	173	31	12	1363
5:30 PM	33	239	51	7	67	247	87	11	56	258	59	0	44	174	41	4	1378
5:45 PM	36	210	51	5	75	227	70	16	37	197	53	2	50	128	41	7	1205
TOTAL VOLUMES :	NL 237	NT 1842	NR 388	NU 47	SL 458	ST 1860	SR 586	SU 145	EL 387	ET 1835	ER 428	EU 11	WL 408	WT 1107	WR 290	WU 67	TOTAL 10096
APPROACH %'s :	9.43%	73.27%	15.43%	1.87%	15.02%	61.00%	19.22%	4.76%	14.54%	68.96%	16.08%	0.41%	21.79%	59.13%	15.49%	3.58%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	115	961	179	24	221	924	301	68	194	950	210	5	219	610	146	34	5161
PEAK HR FACTOR :	0.799	0.985	0.877	0.667	0.825	0.834	0.865	0.708	0.866	0.921	0.890	0.313	0.898	0.876	0.777	0.708	0.936
	0.969				0.872				0.911				0.924				

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Avalon Blvd & I-405 NB Ramps
City: Carson
Control: Signalized

Project ID: 18-05081-015
Date: 2/1/2018

Total

NS/EW Streets:	Avalon Blvd				Avalon Blvd				I-405 NB Ramps				I-405 NB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	2 NT	0 NR	0 NU	0 SL	3 ST	1 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1.5 WL	0.5 WT	1 WR	0 WU	
7:00 AM	67	136	0	0	0	144	48	0	0	0	0	0	17	0	77	0	489
7:15 AM	87	170	0	0	0	171	57	0	0	0	0	0	20	0	83	0	588
7:30 AM	100	261	0	0	0	199	76	0	0	0	0	0	14	0	76	0	726
7:45 AM	122	289	0	0	0	210	53	0	0	0	0	0	16	0	102	0	792
8:00 AM	104	308	0	0	0	181	65	0	0	0	0	0	19	0	120	0	797
8:15 AM	88	259	0	0	0	179	63	0	0	0	0	0	17	0	122	0	728
8:30 AM	70	226	0	0	0	184	58	0	0	0	0	0	10	0	96	0	644
8:45 AM	56	231	0	0	0	182	62	0	0	0	0	0	22	0	105	0	658
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	694	1880	0	0	0	1450	482	0	0	0	0	0	135	0	781	0	5422
	26.96%	73.04%	0.00%	0.00%	0.00%	75.05%	24.95%	0.00%					14.74%	0.00%	85.26%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	414	1117	0	0	0	769	257	0	0	0	0	0	66	0	420	0	3043
PEAK HR FACTOR :	0.848	0.907	0.000	0.000	0.000	0.915	0.845	0.000	0.000	0.000	0.000	0.000	0.868	0.000	0.861	0.000	0.955
	0.929				0.933								0.874				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	2 NT	0 NR	0 NU	0 SL	3 ST	1 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1.5 WL	0.5 WT	1 WR	0 WU	
4:00 PM	67	256	0	0	0	357	132	0	0	0	0	0	24	0	103	0	939
4:15 PM	98	218	0	0	0	311	127	0	0	0	0	0	24	0	112	0	890
4:30 PM	68	228	0	0	0	313	131	0	0	0	0	0	21	0	85	0	846
4:45 PM	60	238	0	0	0	298	105	0	0	0	0	0	21	2	86	0	810
5:00 PM	69	261	0	0	0	342	126	0	0	0	0	0	16	0	99	0	913
5:15 PM	77	261	0	0	0	354	120	0	0	0	0	0	27	0	110	0	949
5:30 PM	82	277	0	0	0	344	144	0	0	0	0	0	18	2	82	0	949
5:45 PM	73	281	0	0	0	293	91	0	0	0	0	0	21	0	95	0	854
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	594	2020	0	0	0	2612	976	0	0	0	0	0	172	4	772	0	7150
	22.72%	77.28%	0.00%	0.00%	0.00%	72.80%	27.20%	0.00%					18.14%	0.42%	81.43%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	301	1080	0	0	0	1333	481	0	0	0	0	0	82	2	386	0	3665
PEAK HR FACTOR :	0.918	0.961	0.000	0.000	0.000	0.941	0.835	0.000	0.000	0.000	0.000	0.000	0.759	0.250	0.877	0.000	0.965
	0.962				0.929								0.858				

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Avalon Blvd & I-405 SB Ramps
City: Carson
Control: Signalized

Project ID: 18-05081-016
Date: 2/1/2018

Total

NS/EW Streets:	Avalon Blvd				Avalon Blvd				I-405 SB Ramps				I-405 SB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	0 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
7:00 AM	0	151	44	0	0	102	63	0	81	1	80	0	0	0	0	0	522
7:15 AM	0	200	17	0	0	138	72	0	80	0	136	0	0	0	0	0	643
7:30 AM	0	270	29	0	0	175	64	0	125	0	136	0	0	0	0	0	799
7:45 AM	0	274	31	0	0	145	59	0	107	6	140	0	0	0	0	0	762
8:00 AM	0	271	23	0	0	112	73	0	130	7	142	0	0	0	0	0	758
8:15 AM	0	196	25	0	0	136	54	0	122	2	90	0	0	0	0	0	625
8:30 AM	0	205	26	0	0	131	48	0	114	0	74	0	0	0	0	0	598
8:45 AM	0	167	28	0	0	136	53	0	98	4	71	0	0	0	0	0	557
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	1734	223	0	0	1075	486	0	857	20	869	0	0	0	0	0	5264
	0.00%	88.61%	11.39%	0.00%	0.00%	68.87%	31.13%	0.00%	49.08%	1.15%	49.77%	0.00%	0	0	0	0	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	1015	100	0	0	570	268	0	442	13	554	0	0	0	0	0	2962
PEAK HR FACTOR :	0.000	0.926	0.806	0.000	0.000	0.814	0.918	0.000	0.850	0.464	0.975	0.000	0.000	0.000	0.000	0.000	0.927
	0.914				0.877				0.904								

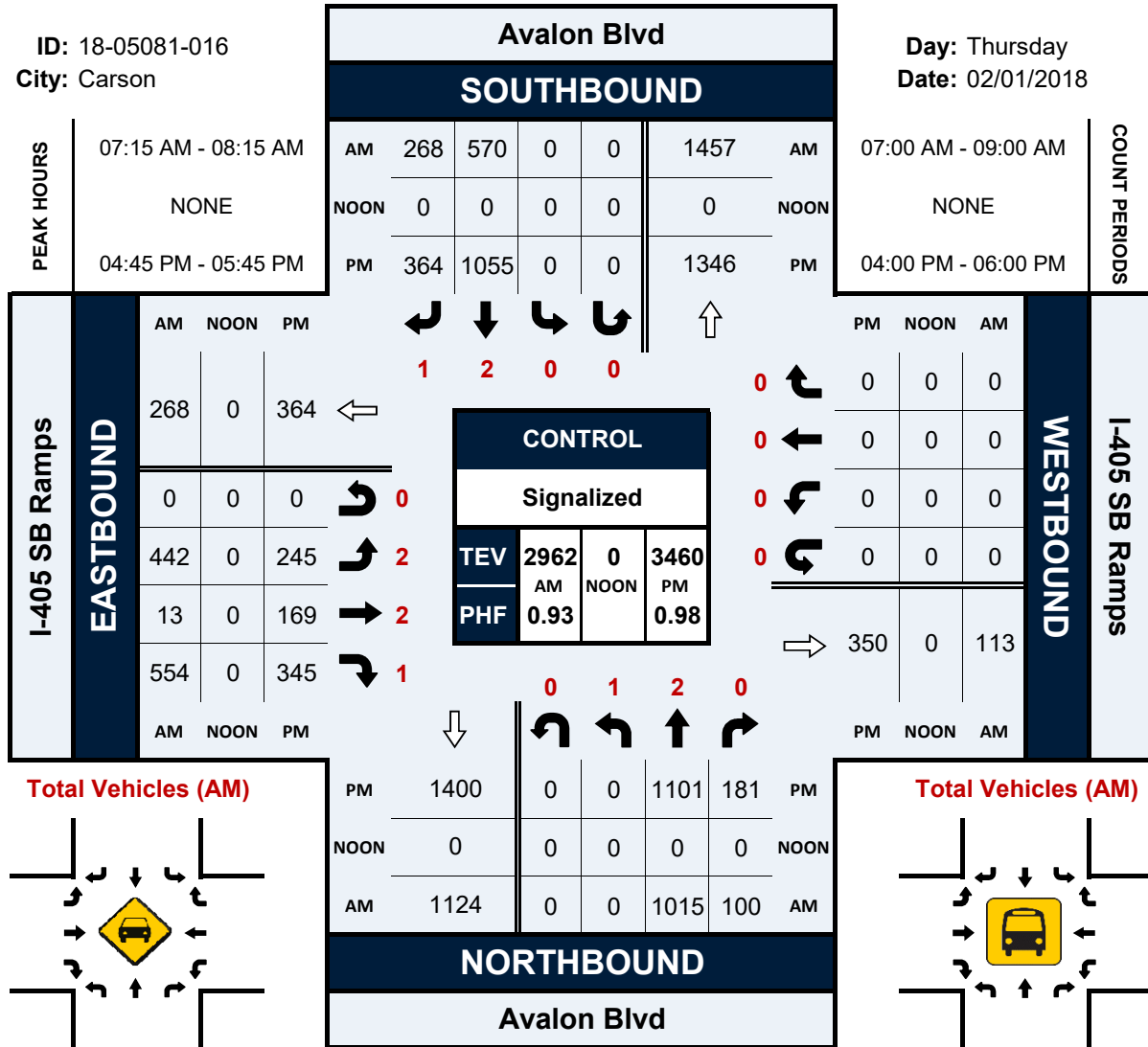
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	0 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	0	304	47	0	0	252	103	0	46	32	68	0	0	0	0	0	852
4:15 PM	0	238	34	0	0	211	94	0	58	40	66	0	0	0	0	0	741
4:30 PM	0	267	39	0	0	249	103	0	57	30	77	0	0	0	0	0	822
4:45 PM	0	254	57	0	0	250	83	0	63	48	82	0	0	0	0	0	837
5:00 PM	0	298	47	0	0	253	89	0	50	45	97	0	0	0	0	0	879
5:15 PM	0	290	42	0	0	249	105	0	63	41	83	0	0	0	0	0	873
5:30 PM	0	259	35	0	0	303	87	0	69	35	83	0	0	0	0	0	871
5:45 PM	0	261	40	0	0	252	79	0	68	25	105	0	0	0	0	0	830
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	2171	341	0	0	2019	743	0	474	296	661	0	0	0	0	0	6705
	0.00%	86.43%	13.57%	0.00%	0.00%	73.10%	26.90%	0.00%	33.12%	20.68%	46.19%	0.00%	0	0	0	0	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	1101	181	0	0	1055	364	0	245	169	345	0	0	0	0	0	3460
PEAK HR FACTOR :	0.000	0.924	0.794	0.000	0.000	0.870	0.867	0.000	0.888	0.880	0.889	0.000	0.000	0.000	0.000	0.000	0.984
	0.929				0.910				0.983								

Avalon Blvd & I-405 SB Ramps

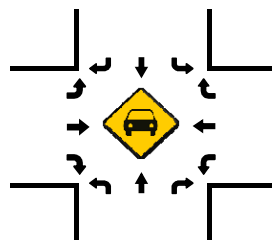
Peak Hour Turning Movement Count

ID: 18-05081-016
City: Carson

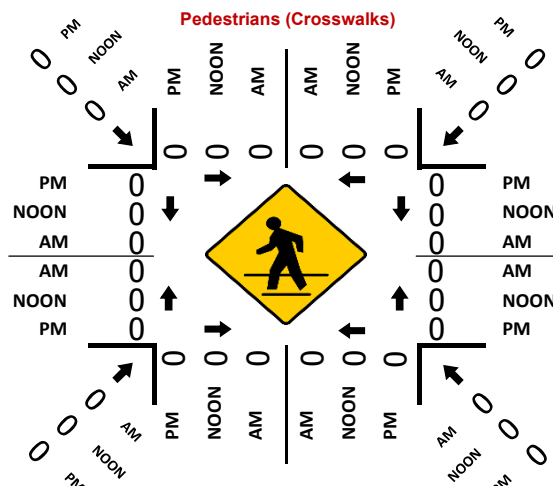
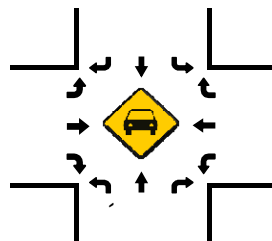
Day: Thursday
Date: 02/01/2018



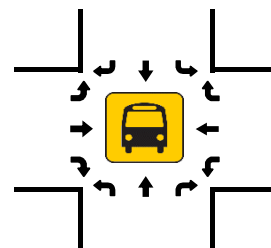
Total Vehicles (NOON)



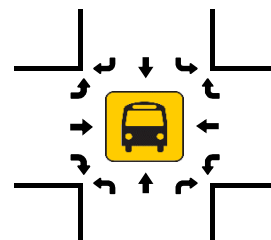
Total Vehicles (PM)



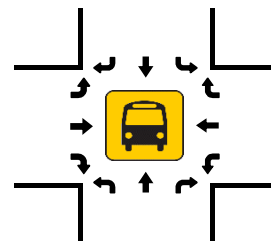
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



Turning Movement Count Report AM

Location ID: 17
 North/South: Main St
 East/West: WB SR-91 ramps

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
7:00	0	101	15	96	0	79	27	94	0	0	0	0	412
7:15	0	120	10	98	0	90	18	108	0	0	0	0	444
7:30	0	103	20	90	0	126	26	122	0	0	0	0	487
7:45	0	146	15	126	0	127	27	176	0	0	0	0	617
8:00	0	117	20	91	0	118	22	127	0	0	0	0	495
8:15	0	99	19	90	0	98	12	105	1	0	0	0	424
8:30	0	92	19	99	0	79	20	120	1	0	0	0	430
8:45	0	108	19	104	0	88	21	141	0	0	0	0	481

Total Volume:	0	886	137	794	0	805	173	993	2	0	0	0	3790
Approach %	0%	87%	13%	50%	0%	50%	15%	85%	0%	0%	0%	0%	

Peak Hr Begin:	7:15												
PHV	0	486	65	405	0	461	93	533	0	0	0	0	2043
PHF	0.856			0.856			0.771			0.000			0.828

Turning Movement Count Report PM

Location ID: 17
 North/South: Main St
 East/West: WB SR-91 ramps

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	0	187	32	78	0	54	26	157	0	0	0	0	534
16:15	0	134	37	60	0	66	27	125	0	0	0	0	449
16:30	0	195	20	74	0	47	25	146	1	0	0	0	508
16:45	0	162	22	115	0	60	22	136	0	0	0	0	517
17:00	0	220	47	79	0	69	30	146	0	0	0	0	591
17:15	0	149	19	58	0	64	21	146	0	0	0	0	457
17:30	0	151	18	51	0	43	13	121	0	0	0	0	397
17:45	0	120	17	59	0	43	14	110	0	0	0	0	363

Total Volume:	0	1318	212	574	0	446	178	1087	1	0	0	0	3816
Approach %	0%	86%	14%	56%	0%	44%	14%	86%	0%	0%	0%	0%	

Peak Hr Begin:	16:30												
PHV	0	726	108	326	0	240	98	574	1	0	0	0	2073
PHF	0.781			0.809			0.956			0.000			0.877

Pedestrian/Bicycle Count Report

Location ID: 17
 North/South: Main St
 East/West: WB SR-91 ramps

Date: 05/01/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0
8:00	0	0	1	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	0	0	0	0	0	0
16:15	0	0	0	1	0	0	0	0
16:30	0	0	0	0	0	0	0	0
16:45	0	0	1	0	0	0	0	0
17:00	0	0	1	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0

Turning Movement Count Report AM

Location ID: 18
 North/South: Main St
 East/West: Albertoni Street

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
7:00	59	89	29	42	80	20	26	69	35	7	53	11	520
7:15	77	91	32	41	116	23	23	66	27	20	85	5	606
7:30	70	121	40	53	108	29	34	93	28	10	66	6	658
7:45	43	87	44	75	110	25	37	116	27	25	80	14	683
8:00	87	117	36	57	85	36	27	85	29	18	71	7	655
8:15	85	82	32	45	77	25	28	63	23	15	76	8	559
8:30	45	85	48	57	85	27	27	66	25	19	77	14	575
8:45	61	95	43	55	84	37	29	89	27	15	67	17	619

Total Volume:	527	767	304	425	745	222	231	647	221	129	575	82	4875
Approach %	33%	48%	19%	31%	54%	16%	21%	59%	20%	16%	73%	10%	

Peak Hr Begin:	7:15												
PHV	277	416	152	226	419	113	121	360	111	73	302	32	2602
PHF	0.880			0.902			0.822			0.855			0.952

Turning Movement Count Report PM

Location ID: 18
 North/South: Main St
 East/West: Albertoni Street

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	34	114	85	60	68	28	43	93	19	27	160	23	754
16:15	29	100	58	46	67	25	26	94	27	43	159	22	696
16:30	43	148	60	63	63	29	43	91	25	35	161	12	773
16:45	39	125	46	60	52	23	36	88	17	34	134	15	669
17:00	50	181	74	57	73	29	30	100	34	36	157	19	840
17:15	38	139	40	46	59	26	26	104	27	38	196	12	751
17:30	25	127	48	39	74	22	27	77	23	40	145	13	660
17:45	26	108	20	37	54	32	32	82	31	44	137	6	609

Total Volume:	284	1042	431	408	510	214	263	729	203	297	1249	122	5752
Approach %	16%	59%	25%	36%	45%	19%	22%	61%	17%	18%	75%	7%	

Peak Hr Begin:	16:30												
PHV	170	593	220	226	247	107	135	383	103	143	648	58	3033
PHF	0.806			0.912			0.947			0.863			0.903

Pedestrian/Bicycle Count Report

Location ID: 18
 North/South: Main St
 East/West: Albertoni Street

Date: 05/01/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	1	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0
8:00	1	0	0	0	0	0	0	0
8:15	0	1	0	0	0	0	0	1
8:30	0	0	1	0	0	0	0	0
8:45	0	0	1	0	1	0	1	1

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	1	0	0	0	0	0	0	0
16:15	2	0	0	0	0	0	0	0
16:30	2	1	0	0	0	0	0	0
16:45	3	1	1	0	0	0	1	0
17:00	1	0	0	0	0	0	0	0
17:15	1	1	0	0	0	0	0	0
17:30	0	0	0	0	1	1	0	1
17:45	0	1	0	0	0	0	0	0

Turning Movement Count Report AM

Location ID: 19
 North/South: Main St
 East/West: Victoria Street

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	28	66	8	34	116	40	9	78	10	8	50	14	461
7:15	24	86	12	32	132	50	21	60	13	6	93	17	546
7:30	20	109	16	35	147	60	22	117	13	8	76	19	642
7:45	28	91	16	30	130	47	34	119	12	9	107	14	637
8:00	23	71	18	23	120	27	40	98	12	9	132	18	591
8:15	21	72	14	16	106	26	30	74	10	6	130	20	525
8:30	20	77	17	28	116	23	21	76	12	10	98	12	510
8:45	34	59	13	22	84	23	26	76	12	14	86	15	464

Total Volume:	198	631	114	220	951	296	203	698	94	70	772	129	4376
Approach %	21%	67%	12%	15%	65%	20%	20%	70%	9%	7%	80%	13%	

Peak Hr Begin:	7:15												
PHV	95	357	62	120	529	184	117	394	50	32	408	68	2416
PHF	0.886			0.861			0.850			0.799			0.941

Turning Movement Count Report PM

Location ID: 19
 North/South: Main St
 East/West: Victoria Street

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	23	130	35	20	128	20	44	71	16	16	218	23	744
16:15	15	113	50	23	106	24	38	72	10	17	258	29	755
16:30	31	130	44	32	143	35	46	74	6	22	248	17	828
16:45	17	135	40	27	122	22	34	77	15	20	243	24	776
17:00	26	173	45	32	168	35	42	98	7	16	250	23	915
17:15	12	130	34	45	171	35	39	64	17	17	222	17	803
17:30	14	138	44	31	148	26	45	79	12	16	222	22	797
17:45	16	107	41	22	103	18	29	63	7	16	210	15	647

Total Volume:	154	1056	333	232	1089	215	317	598	90	140	1871	170	6265
Approach %	10%	68%	22%	15%	71%	14%	32%	60%	9%	6%	86%	8%	

Peak Hr Begin:	16:30												
PHV	86	568	163	136	604	127	161	313	45	75	963	81	3322
PHF	0.837			0.864			0.883			0.968			0.908

Pedestrian/Bicycle Count Report

Location ID: 19
 North/South: Main St
 East/West: Victoria Street

Date: 05/01/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	1	0	1	0	0	0	0	1
7:15	0	0	0	0	1	0	0	0
7:30	0	0	0	0	0	1	0	1
7:45	2	0	2	1	0	0	1	0
8:00	0	0	0	0	0	0	0	1
8:15	0	0	0	0	0	0	0	0
8:30	1	0	1	0	1	1	2	1
8:45	0	0	0	0	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	1	0	0	0	0	0	1
16:15	0	0	0	1	0	0	0	0
16:30	0	0	0	0	0	0	1	0
16:45	1	1	0	0	0	0	0	0
17:00	1	0	0	0	0	0	1	0
17:15	0	0	0	0	0	0	3	0
17:30	1	2	1	1	2	0	0	0
17:45	0	0	0	0	0	0	0	0

Turning Movement Count Report AM

Location ID: 20
 North/South: Figueroa St
 East/West: Victoria Street

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
7:00	16	70	7	14	116	20	19	114	38	23	82	25	544
7:15	27	107	6	22	115	13	13	120	39	38	102	23	625
7:30	26	124	6	28	139	14	16	123	33	29	82	26	646
7:45	44	123	12	15	119	17	26	162	27	34	107	35	721
8:00	25	88	13	16	123	20	24	143	37	39	140	40	708
8:15	25	65	12	13	117	9	23	141	54	42	129	50	680
8:30	27	77	13	21	98	14	25	109	39	40	110	52	625
8:45	18	68	7	16	103	7	20	119	45	24	122	31	580

Total Volume:	208	722	76	145	930	114	166	1031	312	269	874	282	5129
Approach %	21%	72%	8%	12%	78%	10%	11%	68%	21%	19%	61%	20%	

Peak Hr Begin:	7:30												
PHV	120	400	43	72	498	60	89	569	151	144	458	151	2755
PHF	0.786			0.870			0.928			0.852			0.955

Turning Movement Count Report PM

Location ID: 20
 North/South: Figueroa St
 East/West: Victoria Street

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	18	139	23	14	143	11	30	112	33	42	166	25	756
16:15	26	141	19	12	117	15	34	104	19	64	232	37	820
16:30	33	155	14	13	133	10	40	119	32	61	224	26	860
16:45	21	156	9	23	151	18	36	116	29	55	248	30	892
17:00	29	190	17	21	174	19	39	137	21	45	191	29	912
17:15	26	176	21	21	150	20	33	134	35	54	213	36	919
17:30	31	193	20	15	186	10	36	113	20	65	193	19	901
17:45	29	131	15	14	120	5	24	61	29	48	203	21	700

Total Volume:	213	1281	138	133	1174	108	272	896	218	434	1670	223	6760
Approach %	13%	78%	8%	9%	83%	8%	20%	65%	16%	19%	72%	10%	

Peak Hr Begin:	16:45												
PHV	107	715	67	80	661	67	144	500	105	219	845	114	3624
PHF	0.911			0.944			0.927			0.884			0.986

Pedestrian/Bicycle Count Report

Location ID: 20
 North/South: Figueroa St
 East/West: Victoria Street

Date: 05/01/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	0	0	0	0	0	0	2	0
7:15	0	0	1	0	3	0	0	0
7:30	0	0	0	0	0	0	2	0
7:45	0	0	0	1	0	0	3	0
8:00	1	0	1	0	2	0	3	0
8:15	0	0	2	0	2	0	2	0
8:30	0	0	3	0	4	1	1	0
8:45	0	0	1	0	1	0	1	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	4	0	1	0	6	0
16:15	0	0	1	0	0	0	4	0
16:30	0	0	0	0	1	1	5	0
16:45	2	0	1	0	1	0	2	0
17:00	1	0	0	0	0	0	1	0
17:15	0	0	0	1	1	0	2	0
17:30	0	0	0	0	1	0	4	0
17:45	0	0	0	0	3	0	11	0

Turning Movement Count Report AM

Location ID: 21
 North/South: I-110 NB ramp
 East/West: 190th St

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	0	0	0	54	118	0	0	0	0	0	139	24	335
7:15	0	0	0	53	138	0	0	0	0	0	156	28	375
7:30	0	0	0	28	158	0	0	0	0	0	144	22	352
7:45	0	0	0	45	159	0	0	0	0	0	176	35	415
8:00	0	0	0	43	127	0	0	0	0	0	209	33	412
8:15	0	0	0	59	147	0	0	0	0	0	237	46	489
8:30	0	0	0	51	122	0	0	0	0	0	188	44	405
8:45	0	0	0	28	126	0	0	0	0	0	195	38	387

Total Volume:	0	0	0	361	1095	0	0	0	0	0	1444	270	3170
Approach %	0%	0%	0%	25%	75%	0%	0%	0%	0%	0%	84%	16%	

Peak Hr Begin:	7:45												
PHV	0	0	0	198	555	0	0	0	0	0	810	158	1721
PHF	0.000			0.914			0.000			0.855			0.880

Turning Movement Count Report PM

Location ID: 21
 North/South: I-110 NB ramp
 East/West: 190th St

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00	0	0	0	54	163	0	0	0	0	0	293	113	623
16:15	0	0	0	53	99	0	0	0	0	0	314	105	571
16:30	0	0	0	56	136	0	0	0	0	0	315	102	609
16:45	0	0	0	46	152	0	0	0	0	0	335	92	625
17:00	0	0	0	64	162	0	0	0	0	0	284	108	618
17:15	0	0	0	67	170	0	0	0	0	0	309	131	677
17:30	0	0	0	64	192	0	0	0	0	0	260	104	620
17:45	0	0	0	53	135	0	0	0	0	0	276	100	564

Total Volume:	0	0	0	457	1209	0	0	0	0	0	2386	855	4907
Approach %	0%	0%	0%	27%	73%	0%	0%	0%	0%	0%	74%	26%	

Peak Hr Begin:	16:45												
PHV	0	0	0	241	676	0	0	0	0	0	1188	435	2540
PHF	0.000			0.896			0.000			0.922			0.938

Pedestrian/Bicycle Count Report

Location ID: 21
 North/South: I-110 NB ramp
 East/West: 190th St

Date: 05/01/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0

Turning Movement Count Report AM

Location ID: 22
 North/South: I-110 SB ramp
 East/West: 190th St

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
7:00	166	0	50	0	116	0	0	0	0	0	97	0	429
7:15	174	0	57	0	159	0	0	0	0	0	150	0	540
7:30	187	0	53	0	150	0	0	0	0	0	130	0	520
7:45	197	0	58	0	138	0	0	0	0	0	163	0	556
8:00	156	0	62	0	158	0	0	0	0	0	202	0	578
8:15	178	0	55	0	134	0	0	0	0	0	209	0	576
8:30	155	0	55	0	113	0	0	0	0	0	185	0	508
8:45	145	0	57	0	134	0	0	0	0	0	144	0	480

Total Volume:	1358	0	447	0	1102	0	0	0	0	0	1280	0	4187
Approach %	75%	0%	25%	0%	100%	0%	0%	0%	0%	0%	100%	0%	

Peak Hr Begin:	7:30												
PHV	718	0	228	0	580	0	0	0	0	0	704	0	2230
PHF	0.927			0.918			0.000			0.842			0.965

Turning Movement Count Report PM

Location ID: 22
 North/South: I-110 SB ramp
 East/West: 190th St

Date: 05/01/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00	106	0	81	0	140	0	0	0	0	0	361	0	688
16:15	109	0	64	0	114	0	0	0	0	0	335	0	622
16:30	113	0	72	0	150	0	0	0	0	0	363	0	698
16:45	111	0	76	0	135	0	0	0	0	0	328	0	650
17:00	98	0	72	0	184	0	0	0	0	0	377	0	731
17:15	115	0	70	0	170	0	0	0	0	0	326	0	681
17:30	137	0	91	0	181	0	0	0	0	0	292	0	701
17:45	106	0	75	0	127	0	0	0	0	0	301	0	609

Total Volume:	895	0	601	0	1201	0	0	0	0	0	2683	0	5380
Approach %	60%	0%	40%	0%	100%	0%	0%	0%	0%	0%	100%	0%	

Peak Hr Begin:	16:45												
PHV	461	0	309	0	670	0	0	0	0	0	1323	0	2763
PHF	0.844			0.910			0.000			0.877			0.945

Pedestrian/Bicycle Count Report

Location ID: 22
 North/South: I-110 SB ramp
 East/West: 190th St

Date: 05/01/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0
8:00	1	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0
16:30	1	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0
17:00	1	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Central Ave & Victoria St
City: Carson
Control: Signalized

Project ID: 18-05553-005
Date: 8/28/2018

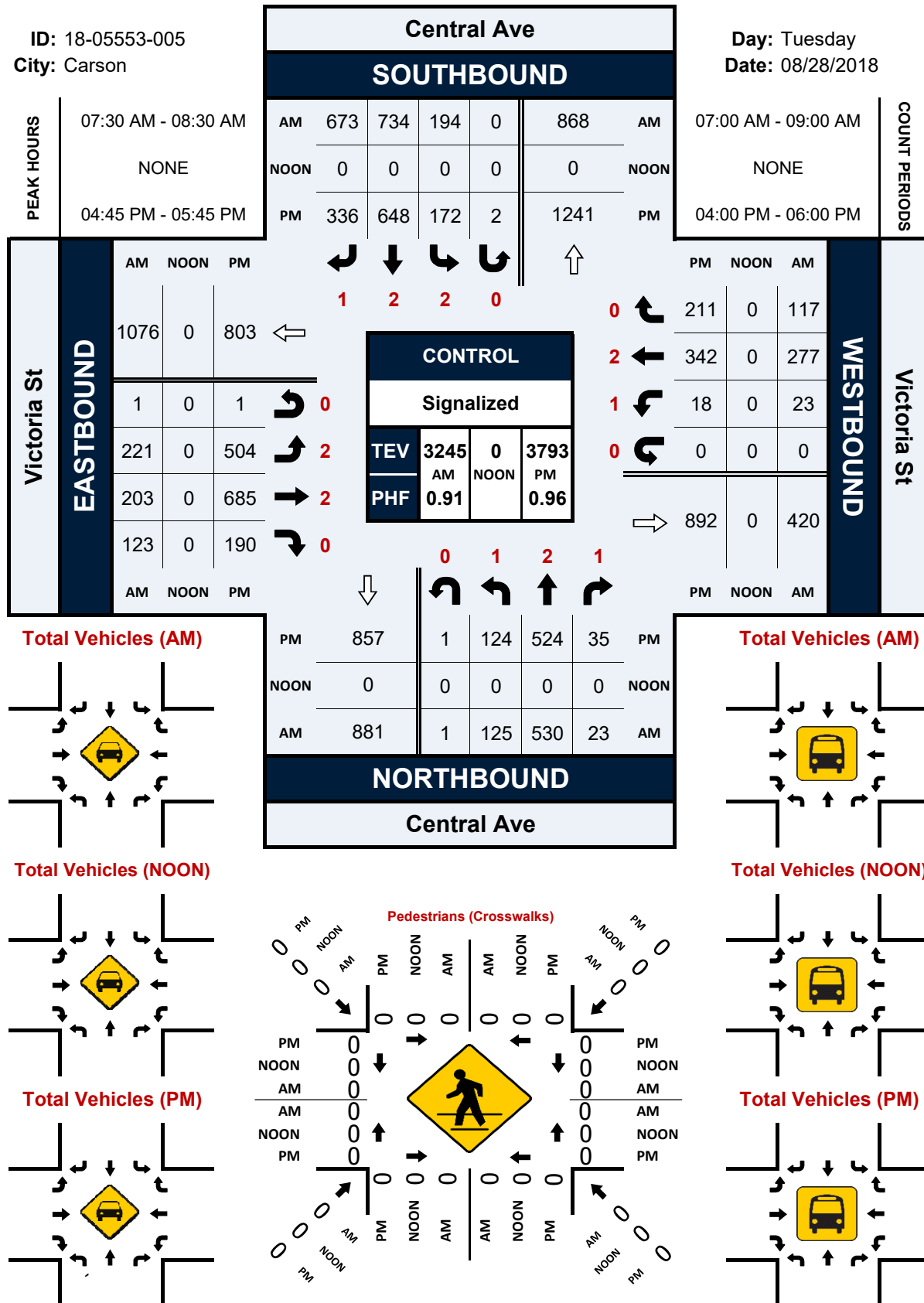
Total

NS/EW Streets:	Central Ave				Central Ave				Victoria St				Victoria St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
7:00 AM	22	114	6	0	40	116	74	0	30	38	11	0	1	37	19	0	508
7:15 AM	22	114	1	0	35	139	100	0	25	37	10	0	5	58	27	0	573
7:30 AM	26	120	4	0	52	178	147	0	52	44	27	0	3	51	27	0	731
7:45 AM	31	140	4	1	41	207	153	0	34	61	44	0	4	53	32	0	805
8:00 AM	38	157	8	0	59	180	196	0	58	50	34	0	9	74	26	0	889
8:15 AM	30	113	7	0	42	169	177	0	77	48	18	0	7	99	32	0	819
8:30 AM	24	95	4	1	50	145	143	0	69	40	24	0	2	55	31	0	683
8:45 AM	15	100	5	0	36	116	83	0	43	34	15	1	4	55	24	0	531
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	208	953	39	2	355	1250	1073	0	388	352	183	1	35	482	218	0	5539
	17.30%	79.28%	3.24%	0.17%	13.26%	46.68%	40.07%	0.00%	41.99%	38.10%	19.81%	0.11%	4.76%	65.58%	29.66%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	125	530	23	1	194	734	673	0	221	203	123	0	23	277	117	0	3244
PEAK HR FACTOR :	0.822	0.844	0.719	0.250	0.822	0.886	0.858	0.000	0.718	0.832	0.699	0.000	0.639	0.699	0.914	0.000	0.912
	0.836				0.920				0.956				0.755				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:00 PM	34	114	14	0	45	137	63	1	148	169	47	0	4	68	64	0	908
4:15 PM	24	152	9	0	50	157	71	0	98	148	37	0	2	34	36	0	818
4:30 PM	38	116	8	1	27	139	74	0	112	131	41	1	4	71	45	0	808
4:45 PM	28	140	9	0	47	174	90	0	107	159	47	0	1	62	37	0	901
5:00 PM	35	138	8	1	42	144	93	1	130	160	49	0	8	108	70	0	987
5:15 PM	22	126	9	0	25	181	98	1	127	178	54	0	6	88	63	0	978
5:30 PM	39	120	9	0	58	149	55	0	140	188	40	0	3	84	41	0	926
5:45 PM	28	160	11	0	27	157	56	0	83	163	42	0	2	71	37	0	837
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	248	1066	77	2	321	1238	600	3	945	1296	357	1	30	586	393	0	7163
	17.80%	76.53%	5.53%	0.14%	14.85%	57.26%	27.75%	0.14%	36.36%	49.87%	13.74%	0.04%	2.97%	58.08%	38.95%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	124	524	35	1	172	648	336	2	504	685	190	0	18	342	211	0	3792
PEAK HR FACTOR :	0.795	0.936	0.972	0.250	0.741	0.895	0.857	0.500	0.900	0.911	0.880	0.000	0.563	0.792	0.754	0.000	0.960
	0.940				0.931				0.937				0.767				

ID: 18-05553-005
City: Carson

Day: Tuesday
Date: 08/28/2018



National Data & Surveying Services

Intersection Turning Movement Count

Location: Hamilton Ave & Del Amo Blvd
City: Torrance
Control: 4-Way Stop

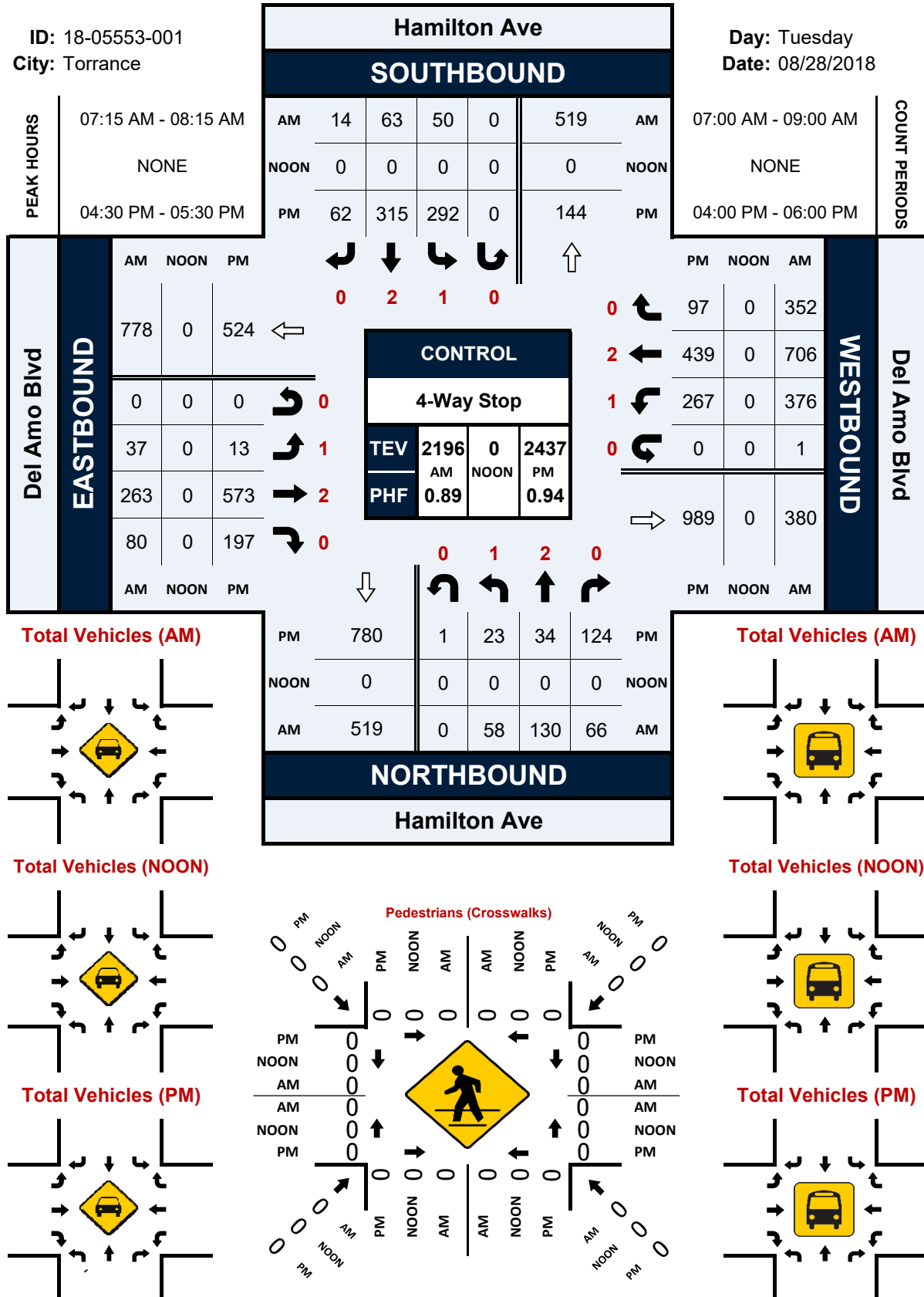
Project ID: 18-05553-001
Date: 8/28/2018

Total

NS/EW Streets:	Hamilton Ave				Hamilton Ave				Del Amo Blvd				Del Amo Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
7:00 AM	11	21	19	0	8	6	5	0	6	53	21	1	86	135	48	0	420
7:15 AM	12	23	12	0	8	12	0	0	6	51	21	0	108	161	85	0	499
7:30 AM	15	29	10	0	13	25	5	0	4	60	20	0	104	167	75	0	527
7:45 AM	10	42	23	0	11	14	6	0	10	83	20	0	89	204	105	0	617
8:00 AM	21	36	21	0	18	12	3	0	17	69	19	0	75	174	87	1	553
8:15 AM	14	40	22	0	8	9	4	0	14	59	24	0	66	156	60	1	477
8:30 AM	11	43	25	0	19	17	11	0	13	47	21	0	90	157	70	1	525
8:45 AM	17	50	16	0	27	11	7	0	9	55	15	1	75	116	57	0	456
TOTAL VOLUMES :	NL 111	NT 284	NR 148	NU 0	SL 112	ST 106	SR 41	SU 0	EL 79	ET 477	ER 161	EU 2	WL 693	WT 1270	WR 587	WU 3	TOTAL 4074
APPROACH %'s :	20.44%	52.30%	27.26%	0.00%	43.24%	40.93%	15.83%	0.00%	10.99%	66.34%	22.39%	0.28%	27.14%	49.75%	22.99%	0.12%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	58	130	66	0	50	63	14	0	37	263	80	0	376	706	352	1	2196
PEAK HR FACTOR :	0.690	0.774	0.717	0.000	0.694	0.630	0.583	0.000	0.544	0.792	0.952	0.000	0.870	0.865	0.838	0.250	0.890
	0.814				0.738				0.841				0.901				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:00 PM	8	18	18	0	73	59	15	0	5	151	49	0	77	109	23	1	606
4:15 PM	3	15	32	1	63	44	12	0	2	131	39	0	80	103	32	0	557
4:30 PM	4	14	29	0	68	55	15	0	5	135	60	0	63	96	25	0	569
4:45 PM	9	9	24	0	69	70	7	0	3	151	40	0	73	116	23	0	594
5:00 PM	8	6	32	0	78	99	29	0	2	134	51	0	61	104	20	0	624
5:15 PM	2	5	39	1	77	91	11	0	3	153	46	0	70	123	29	0	650
5:30 PM	2	3	36	0	66	70	18	0	1	130	52	0	59	95	18	0	550
5:45 PM	1	5	27	0	73	93	10	0	0	145	48	0	73	103	20	0	598
TOTAL VOLUMES :	NL 37	NT 75	NR 237	NU 2	SL 567	ST 581	SR 117	SU 0	EL 21	ET 1130	ER 385	EU 0	WL 556	WT 849	WR 190	WU 1	TOTAL 4748
APPROACH %'s :	10.54%	21.37%	67.52%	0.57%	44.82%	45.93%	9.25%	0.00%	1.37%	73.57%	25.07%	0.00%	34.84%	53.20%	11.90%	0.06%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	23	34	124	1	292	315	62	0	13	573	197	0	267	439	97	0	2437
PEAK HR FACTOR :	0.639	0.607	0.795	0.250	0.936	0.795	0.534	0.000	0.650	0.936	0.821	0.000	0.914	0.892	0.836	0.000	0.937
	0.968				0.812				0.969				0.904				

Day: Tuesday
Date: 08/28/2018



National Data & Surveying Services

Intersection Turning Movement Count

Location: Hamilton Ave & I-110 SB Ramps
City: Torrance
Control: 3-Way Stop (NB/SB/WB)

Project ID: 18-05553-002
Date: 8/28/2018

Total

NS/EW Streets:	Hamilton Ave				Hamilton Ave				I-110 SB Ramps				I-110 SB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	1 NR	0 NU	0 SL	2 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	2 WL	0 WT	1 WR	0 WU	
7:00 AM	0	11	32	0	92	17	0	0	0	0	0	0	143	0	38	0	333
7:15 AM	0	12	45	0	123	17	0	0	0	0	0	0	158	0	33	0	388
7:30 AM	0	22	55	0	125	20	0	0	0	0	0	0	137	0	36	0	395
7:45 AM	0	26	35	0	106	22	0	0	0	0	0	0	174	0	50	0	413
8:00 AM	0	18	31	0	79	21	0	0	0	0	0	0	186	0	59	0	394
8:15 AM	0	23	23	0	72	28	0	0	0	0	0	0	181	0	52	0	379
8:30 AM	0	14	28	0	96	26	0	0	0	0	0	0	191	0	62	0	417
8:45 AM	0	24	28	0	84	20	0	0	0	0	0	0	206	0	61	0	423
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	150	277	0	777	171	0	0	0	0	0	0	1376	0	391	0	3142
	0.00%	35.13%	64.87%	0.00%	81.96%	18.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	77.87%	0.00%	22.13%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	79	110	0	331	95	0	0	0	0	0	0	764	0	234	0	1613
PEAK HR FACTOR :	0.000	0.823	0.887	0.000	0.862	0.848	0.000	0.000	0.000	0.000	0.000	0.000	0.927	0.000	0.944	0.000	0.953
	0.909				0.873								0.934				

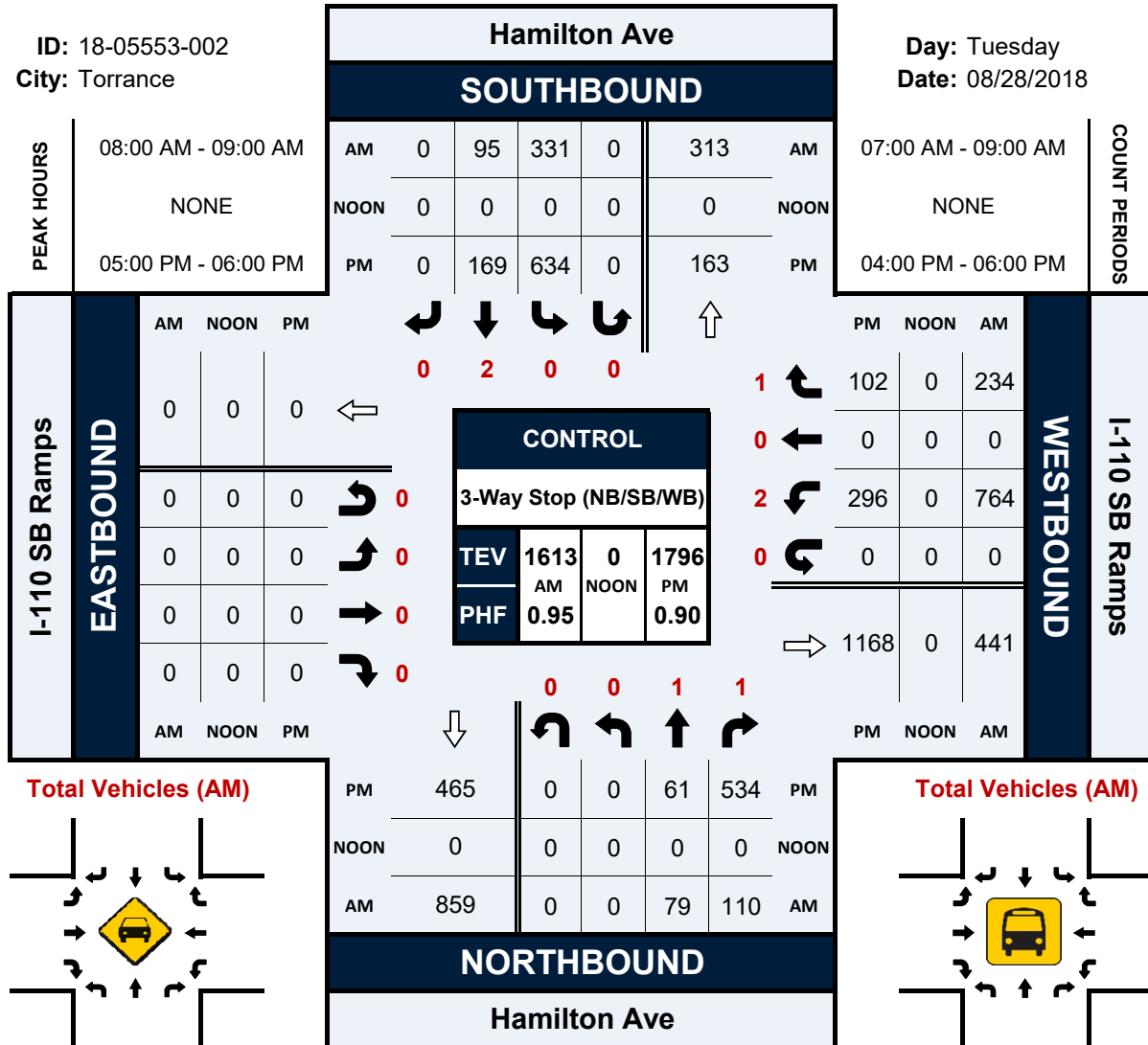
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	1 NR	0 NU	0 SL	2 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	2 WL	0 WT	1 WR	0 WU	
4:00 PM	0	11	80	0	149	29	0	0	0	0	0	0	76	0	33	0	378
4:15 PM	0	20	105	0	153	25	0	0	0	0	0	0	80	0	31	0	414
4:30 PM	0	17	88	0	145	21	0	0	0	0	0	0	87	0	33	0	391
4:45 PM	0	13	133	0	162	17	0	0	0	0	0	0	71	0	27	0	423
5:00 PM	0	17	106	0	165	39	0	0	0	0	0	0	67	0	25	0	419
5:15 PM	0	20	183	0	152	47	0	0	0	0	0	0	69	0	29	0	500
5:30 PM	0	14	118	0	144	41	0	0	0	0	0	0	86	0	24	0	427
5:45 PM	0	10	127	0	173	42	0	0	0	0	0	0	74	0	24	0	450
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	122	940	0	1243	261	0	0	0	0	0	0	610	0	226	0	3402
	0.00%	11.49%	88.51%	0.00%	82.65%	17.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	72.97%	0.00%	27.03%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	61	534	0	634	169	0	0	0	0	0	0	296	0	102	0	1796
PEAK HR FACTOR :	0.000	0.763	0.730	0.000	0.916	0.899	0.000	0.000	0.000	0.000	0.000	0.000	0.860	0.000	0.879	0.000	0.898
	0.733				0.934								0.905				

Hamilton Ave & I-110 SB Ramps

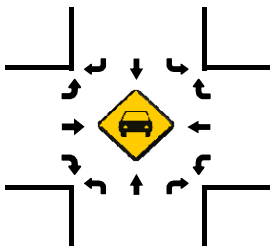
Peak Hour Turning Movement Count

ID: 18-05553-002
City: Torrance

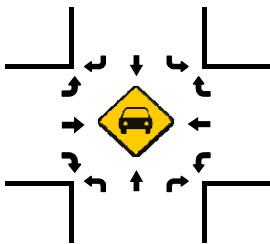
Day: Tuesday
Date: 08/28/2018



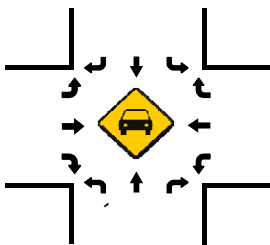
Total Vehicles (AM)



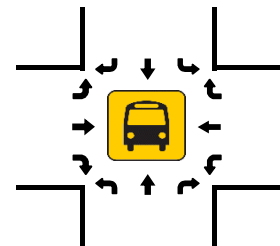
Total Vehicles (NOON)



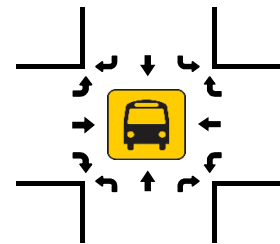
Total Vehicles (PM)



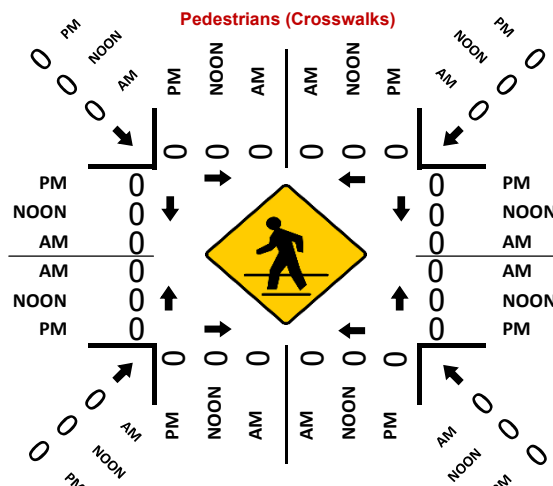
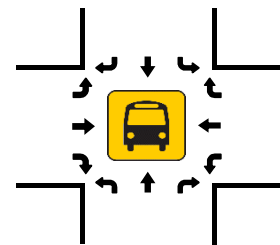
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Figueroa St & Del Amo Blvd
City: Carson
Control: Signalized

Project ID: 18-05553-003
Date: 8/28/2018

Total

NS/EW Streets:	Figueroa St				Figueroa St				Del Amo Blvd				Del Amo Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
7:00 AM	27	131	52	0	9	41	68	0	14	43	20	2	31	174	29	1	642
7:15 AM	36	124	49	0	5	69	80	0	10	49	16	0	25	248	41	0	752
7:30 AM	32	133	69	0	14	103	96	0	12	60	10	0	23	219	24	0	795
7:45 AM	54	173	94	0	12	80	111	0	16	75	23	0	31	235	26	0	930
8:00 AM	55	153	84	0	10	79	71	1	15	66	25	1	34	194	27	0	815
8:15 AM	50	182	73	2	13	85	71	0	12	59	19	0	17	172	20	0	775
8:30 AM	46	133	63	0	9	45	70	0	16	51	23	0	31	197	18	0	702
8:45 AM	32	111	50	0	8	37	56	1	15	69	23	0	20	153	13	0	588
TOTAL VOLUMES :	NL 332	NT 1140	NR 534	NU 2	SL 80	ST 539	SR 623	SU 2	EL 110	ET 472	ER 159	EU 3	WL 212	WT 1592	WR 198	WU 1	TOTAL 5999
APPROACH %'s :	16.53%	56.77%	26.59%	0.10%	6.43%	43.33%	50.08%	0.16%	14.78%	63.44%	21.37%	0.40%	10.58%	79.48%	9.89%	0.05%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL 3315
PEAK HR VOL :	191	641	320	2	49	347	349	1	55	260	77	1	105	820	97	0	
PEAK HR FACTOR :	0.868	0.880	0.851	0.250	0.875	0.842	0.786	0.250	0.859	0.867	0.770	0.250	0.772	0.872	0.898	0.000	0.891
	0.899				0.876				0.862				0.875				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
4:00 PM	12	105	69	0	40	110	45	2	17	186	40	1	29	161	23	0	840
4:15 PM	22	82	68	1	23	107	49	1	18	179	35	0	31	129	21	0	766
4:30 PM	18	116	75	0	32	108	54	1	13	178	28	0	34	123	21	0	801
4:45 PM	23	96	67	3	49	131	56	1	20	199	35	0	30	133	27	0	870
5:00 PM	12	114	90	0	38	178	58	0	19	200	35	0	51	120	19	0	934
5:15 PM	15	113	78	1	43	221	50	0	16	209	31	0	50	150	24	0	1001
5:30 PM	8	84	72	1	53	163	42	1	13	199	31	0	62	130	17	0	876
5:45 PM	4	75	71	0	37	181	57	0	12	220	18	0	45	125	12	0	857
TOTAL VOLUMES :	NL 114	NT 785	NR 590	NU 6	SL 315	ST 1199	SR 411	SU 6	EL 128	ET 1570	ER 253	EU 1	WL 332	WT 1071	WR 164	WU 0	TOTAL 6945
APPROACH %'s :	7.63%	52.51%	39.46%	0.40%	16.31%	62.09%	21.28%	0.31%	6.56%	80.43%	12.96%	0.05%	21.19%	68.35%	10.47%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL 3681
PEAK HR VOL :	58	407	307	5	183	693	206	2	68	807	132	0	193	533	87	0	
PEAK HR FACTOR :	0.630	0.893	0.853	0.417	0.863	0.784	0.888	0.500	0.850	0.965	0.943	0.000	0.778	0.888	0.806	0.000	0.919
	0.899				0.863				0.983				0.907				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Figueroa St & I-110 NB Ramps
City: Carson
Control: Signalized

Project ID: 18-05553-004
Date: 8/28/2018

Total

NS/EW Streets:	Figueroa St				Figueroa St				I-110 NB Ramps				I-110 NB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	2 NT	0 NR	0 NU	0 SL	2 ST	1 SR	0 SU	1.5 EL	0 ET	0.5 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
7:00 AM	167	107	0	0	0	64	29	0	102	0	44	0	0	0	0	0	513
7:15 AM	154	117	0	0	0	89	24	0	103	0	45	0	0	0	0	0	532
7:30 AM	168	154	0	0	0	111	32	0	78	0	42	0	0	0	0	0	585
7:45 AM	179	157	0	0	0	99	32	0	165	0	68	0	0	0	0	0	700
8:00 AM	163	136	0	0	0	97	35	0	166	0	57	0	0	0	0	0	654
8:15 AM	147	152	0	0	0	104	27	0	140	0	56	0	0	0	0	0	626
8:30 AM	140	145	0	0	0	59	31	0	111	0	62	0	0	0	0	0	548
8:45 AM	155	87	0	0	0	55	32	0	108	0	61	0	0	0	0	0	498
TOTAL VOLUMES :	NL 1273	NT 1055	NR 0	NU 0	SL 0	ST 678	SR 242	SU 0	EL 973	ET 0	ER 435	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 4656
APPROACH %'s :	54.68%	45.32%	0.00%	0.00%	0.00%	73.70%	26.30%	0.00%	69.11%	0.00%	30.89%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	657	599	0	0	0	411	126	0	549	0	223	0	0	0	0	0	2565
PEAK HR FACTOR :	0.918	0.954	0.000	0.000	0.000	0.926	0.900	0.000	0.827	0.000	0.820	0.000	0.000	0.000	0.000	0.000	0.916
	0.935				0.939				0.828								

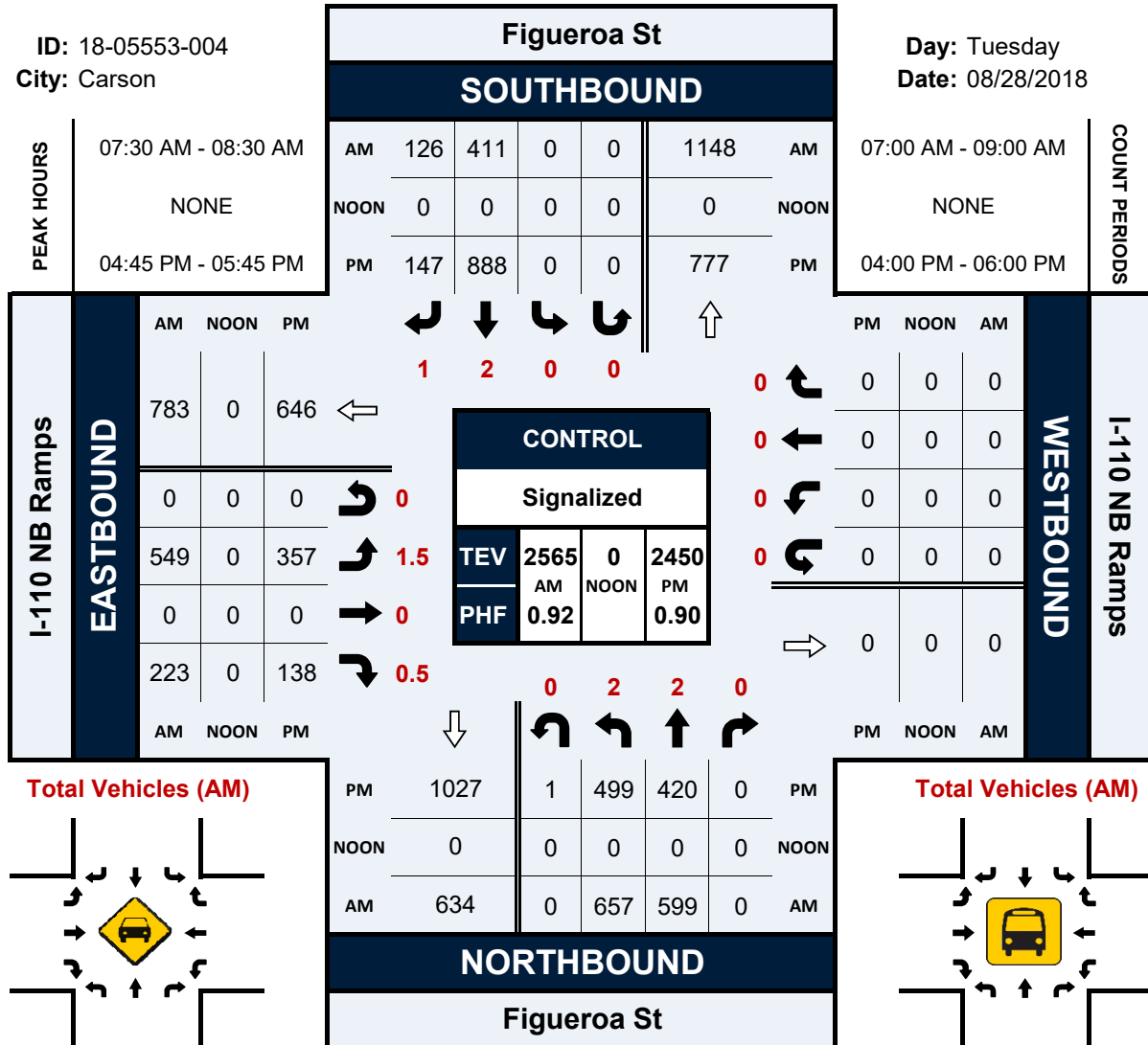
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	2 NT	0 NR	0 NU	0 SL	2 ST	1 SR	0 SU	1.5 EL	0 ET	0.5 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	152	89	0	0	0	131	44	1	91	0	30	0	0	0	0	0	538
4:15 PM	106	71	0	1	0	140	36	0	101	0	26	0	0	0	0	0	481
4:30 PM	155	115	0	0	0	120	49	0	85	0	35	1	0	0	0	0	560
4:45 PM	132	106	0	0	0	164	32	0	95	0	45	0	0	0	0	0	574
5:00 PM	117	115	0	0	0	224	38	0	93	0	31	0	0	0	0	0	618
5:15 PM	126	117	0	0	0	277	37	0	91	0	34	0	0	0	0	0	682
5:30 PM	124	82	0	0	0	223	40	0	78	0	28	0	0	0	0	0	575
5:45 PM	126	70	0	0	0	208	37	0	77	0	28	0	0	0	0	0	546
TOTAL VOLUMES :	NL 1038	NT 765	NR 0	NU 1	SL 0	ST 1487	SR 313	SU 1	EL 711	ET 0	ER 257	EU 1	WL 0	WT 0	WR 0	WU 0	TOTAL 4574
APPROACH %'s :	57.54%	42.41%	0.00%	0.06%	0.00%	82.57%	17.38%	0.06%	73.37%	0.00%	26.52%	0.10%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	499	420	0	0	0	888	147	0	357	0	138	0	0	0	0	0	2449
PEAK HR FACTOR :	0.945	0.897	0.000	0.000	0.000	0.801	0.919	0.000	0.939	0.000	0.767	0.000	0.000	0.000	0.000	0.000	0.898
	0.945				0.824				0.884								

Figueroa St & I-110 NB Ramps

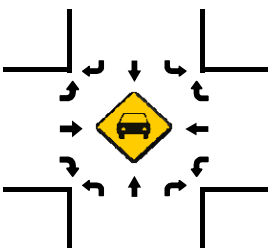
Peak Hour Turning Movement Count

ID: 18-05553-004
City: Carson

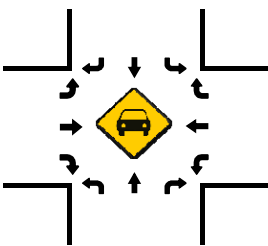
Day: Tuesday
Date: 08/28/2018



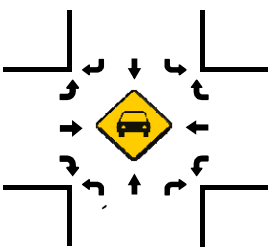
Total Vehicles (AM)



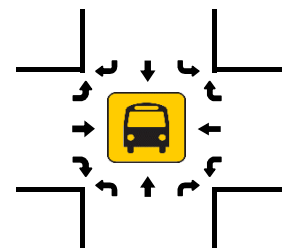
Total Vehicles (NOON)



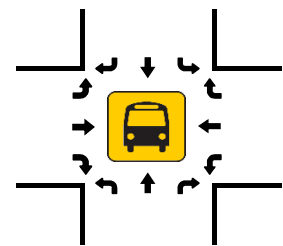
Total Vehicles (PM)



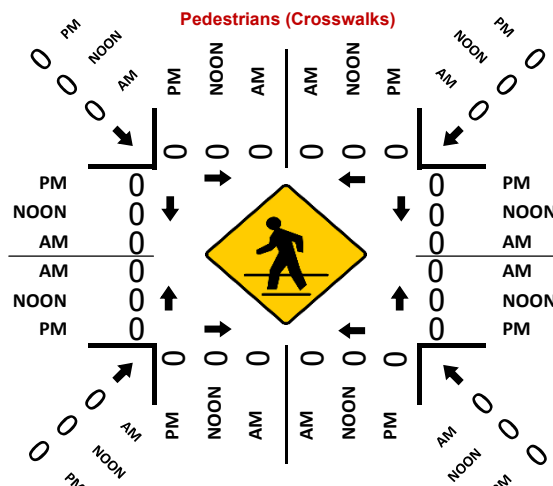
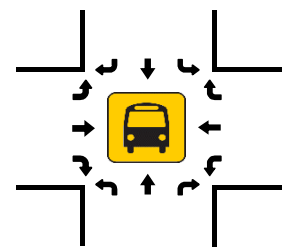
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



Turning Movement Count Report AM

Location ID: 2
 North/South: Albertoni Street
 East/West: SR-91 ramps

Date: 09/27/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
7:00	46	0	24	13	104	0	0	0	0	0	48	66	301
7:15	36	0	44	23	120	1	0	0	0	0	50	52	326
7:30	37	0	43	16	133	0	0	0	0	0	70	68	367
7:45	70	0	72	18	136	0	0	0	0	0	72	63	431
8:00	63	0	105	30	118	0	0	0	0	0	95	77	488
8:15	56	0	58	24	108	0	0	0	0	0	91	67	404
8:30	51	0	59	15	97	0	0	0	0	0	62	71	355
8:45	64	0	59	9	98	0	0	0	0	0	63	49	342

Total Volume:	423	0	464	148	914	1	0	0	0	0	551	513	3014
Approach %	48%	0%	52%	14%	86%	0%	0%	0%	0%	0%	52%	48%	

Peak Hr Begin:	7:30												
PHV	226	0	278	88	495	0	0	0	0	0	328	275	1690
PHF	0.750			0.946			0.000			0.876			0.866

Turning Movement Count Report PM

Location ID: 2
 North/South: Albertoni Street
 East/West: SR-91 ramps

Date: 09/27/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	72	0	97	15	100	0	0	0	0	0	209	49	542
16:15	97	0	118	19	81	0	0	0	0	0	235	43	593
16:30	67	0	98	13	94	1	0	0	0	0	176	65	514
16:45	68	0	113	15	76	0	0	0	0	0	195	57	524
17:00	39	0	102	9	92	0	0	0	0	0	211	73	526
17:15	53	0	109	18	108	0	0	0	0	0	191	58	537
17:30	56	0	123	10	111	0	0	0	0	0	187	57	544
17:45	52	0	88	3	67	0	0	0	0	0	146	48	404

Total Volume:	504	0	848	102	729	1	0	0	0	0	1550	450	4184
Approach %	37%	0%	63%	12%	88%	0%	0%	0%	0%	0%	78%	23%	

Peak Hr Begin:	16:00												
PHV	304	0	426	62	351	1	0	0	0	0	815	214	2173
PHF	0.849			0.900			0.000			0.925			0.916

Pedestrian/Bicycle Count Report

Location ID: 2
 North/South: Albertoni Street
 East/West: SR-91 ramps

Date: 09/27/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	1	0	0	0	0	0	0	0
7:15	1	0	1	0	0	0	0	0
7:30	1	2	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0
8:45	1	0	0	0	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	1	0	0	0	0	0	0	0
16:15	2	1	0	0	0	0	0	0
16:30	1	0	0	0	0	0	0	0
16:45	3	1	0	0	0	0	0	0
17:00	0	1	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0
17:45	2	0	0	0	0	0	0	0

Turning Movement Count Report AM

Location ID: 1
 North/South: Main Street
 East/West: Broadway Street

Date: 09/27/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
7:00	3	113	0	0	0	0	0	98	44	38	0	0	296
7:15	4	142	0	0	0	0	0	88	53	38	0	0	325
7:30	0	246	0	0	0	0	0	144	57	49	0	0	496
7:45	1	170	0	0	0	0	0	189	84	50	0	0	494
8:00	2	140	0	0	0	0	0	163	59	43	0	0	407
8:15	2	124	0	0	0	0	0	172	69	42	0	0	409
8:30	2	93	0	0	0	0	0	132	48	37	0	0	312
8:45	3	85	0	0	0	0	0	97	41	37	0	0	263

Total Volume:	17	1113	0	0	0	0	0	1083	455	334	0	0	3002
Approach %	2%	98%	0%	0%	0%	0%	0%	70%	30%	100%	0%	0%	

Peak Hr Begin:	7:30												
PHV	5	680	0	0	0	0	0	668	269	184	0	0	1806
PHF	0.696			0.000			0.858			0.920			0.910

Turning Movement Count Report PM

Location ID: 1
 North/South: Main Street
 East/West: Broadway Street

Date: 09/27/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	1	169	2	0	0	0	0	149	56	119	0	0	496
16:15	2	145	0	0	0	0	0	147	30	98	0	0	422
16:30	4	187	0	0	0	0	0	151	54	123	0	0	519
16:45	4	150	0	0	0	0	0	186	61	102	0	0	503
17:00	6	187	0	0	0	0	0	171	48	148	0	0	560
17:15	4	159	0	0	0	0	0	170	52	117	0	0	502
17:30	3	161	0	0	0	0	0	166	43	127	0	0	500
17:45	0	143	0	0	0	0	0	128	33	98	0	0	402

Total Volume:	24	1301	2	0	0	0	0	1268	377	932	0	0	3904
Approach %	2%	98%	0%	0%	0%	0%	0%	77%	23%	100%	0%	0%	

Peak Hr Begin:	16:30												
PHV	18	683	0	0	0	0	0	678	215	490	0	0	2084
PHF	0.908			0.000			0.904			0.828			0.930

Pedestrian/Bicycle Count Report

Location ID: 1
 North/South: Main Street
 East/West: Broadway Street

Date: 09/27/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0

Turning Movement Count Report AM

Location ID: 1
 North/South: Main Street
 East/West: MLK Jr Street

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
8:00	0	41	8	7	0	17	18	42	0	0	0	0	133
8:15	0	38	16	7	0	12	28	48	0	0	0	0	149
8:30	0	53	17	8	0	8	21	39	0	0	0	0	146
8:45	0	47	9	6	0	18	21	45	0	0	0	0	146
9:00	0	36	13	15	0	19	17	38	0	0	0	0	138
9:15	0	41	11	7	0	16	18	33	0	0	0	0	126
9:30	0	37	14	10	0	13	16	42	0	0	0	0	132
9:45	0	59	15	12	0	14	17	40	0	0	0	0	157

Total Volume:	0	352	103	72	0	117	156	327	0	0	0	0	1127
Approach %	0%	77%	23%	38%	0%	62%	32%	68%	0%	0%	0%	0%	

Peak Hr Begin:	8:15												
PHV	0	174	55	36	0	57	87	170	0	0	0	0	579
PHF	0.818			0.684			0.845			0.000			0.971

Turning Movement Count Report PM

Location ID: 1
 North/South: Main Street
 East/West: MLK Jr Street

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	0	60	18	25	0	14	21	60	0	0	0	0	198
16:15	0	60	23	19	0	13	27	55	0	0	0	0	197
16:30	0	46	20	13	0	21	23	45	0	0	0	0	168
16:45	0	44	19	17	0	22	28	46	0	0	0	0	176
17:00	0	46	13	17	0	13	26	58	0	0	0	0	173
17:15	0	45	19	12	0	17	23	56	0	0	0	0	172
17:30	0	43	16	9	0	18	18	64	0	0	0	0	168
17:45	0	37	21	14	0	11	20	54	0	0	0	0	157

Total Volume:	0	381	149	126	0	129	186	438	0	0	0	0	1409
Approach %	0%	72%	28%	49%	0%	51%	30%	70%	0%	0%	0%	0%	

Peak Hr Begin:	16:00												
PHV	0	210	80	74	0	70	99	206	0	0	0	0	739
PHF	0.873			0.923			0.930			0.000			0.933

Pedestrian/Bicycle Count Report

Location ID: 1
 North/South: Main Street
 East/West: MLK Jr Street

Date: 05/05/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
8:00	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0
9:00	0	0	0	0	0	0	0	0
9:15	0	0	0	0	0	0	0	0
9:30	0	0	0	0	0	0	0	0
9:45	0	0	0	0	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0
17:15	0	0	0	1	0	0	0	0
17:30	0	0	0	0	0	0	0	0
17:45	0	0	2	0	0	0	0	0

Turning Movement Count Report Mid-Day

Location ID: 4
 North/South: Main Street
 East/West: I-405 NB Ramps

Date: 09/22/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
11:00	10	117	0	13	11	13	0	71	2	0	0	0	237
11:15	9	91	0	36	22	18	0	62	3	0	0	0	241
11:30	8	99	0	15	35	15	0	74	3	0	0	0	249
11:45	4	101	2	26	11	19	0	83	3	0	0	0	249
12:00	5	104	1	24	24	9	0	77	5	0	0	0	249
12:15	4	95	0	25	15	8	0	69	3	0	0	0	219
12:30	13	108	0	24	18	19	0	73	5	0	0	0	260
12:45	6	89	0	17	18	12	0	68	6	0	0	0	216

Total Volume:	59	804	3	180	154	113	0	577	30	0	0	0	1920
Approach %	7%	93%	0%	40%	34%	25%	0%	95%	5%	0%	0%	0%	

Peak Hr Begin:	11:15												
PHV	26	395	3	101	92	61	0	296	14	0	0	0	988
PHF	0.964			0.836			0.901			0.000			0.992

Pedestrian/Bicycle Count Report

Location ID: 4
 North/South: Main Street
 East/West: I-405 NB Ramps

Date: 09/22/18
 City: Carson, CA

	<i>North</i>		<i>East</i>		<i>South</i>		<i>West</i>	
Leg:	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>
11:00	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0
12:45	0	0	0	1	0	0	0	0

Turning Movement Count Report Mid-Day

Location ID: 5
 North/South: Main Street
 East/West: I-405 SB Ramps

Date: 09/22/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
11:00	0	91	37	0	0	0	13	64	0	1	20	6	232
11:15	0	82	25	0	0	0	8	58	0	10	17	0	200
11:30	0	100	13	0	0	0	6	74	0	5	14	8	220
11:45	0	97	22	0	0	0	7	76	0	6	18	7	233
12:00	0	87	23	0	0	0	13	85	0	3	19	1	231
12:15	0	72	31	0	0	0	19	72	0	2	26	2	224
12:30	0	110	16	0	0	0	25	66	0	4	14	9	244
12:45	0	83	15	0	0	0	15	72	1	4	19	3	212

Total Volume:	0	722	182	0	0	0	106	567	1	35	147	36	1796
Approach %	0%	80%	20%	0%	0%	0%	16%	84%	0%	16%	67%	17%	

Peak Hr Begin:	11:45												
PHV	0	366	92	0	0	0	64	299	0	15	77	19	932
PHF	0.909			0.000			0.926			0.895			0.955

Pedestrian/Bicycle Count Report

Location ID: 5
 North/South: Main Street
 East/West: I-405 SB Ramps

Date: 09/22/18
 City: Carson, CA

	<i>North</i>		<i>East</i>		<i>South</i>		<i>West</i>	
Leg:	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>
11:00	0	0	0	0	0	0	0	1
11:15	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	1
12:30	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0

Turning Movement Count Report AM

Location ID: 6
 North/South: Avalon Blvd
 East/West: SR-91 WB On-Ramp

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
8:00	0	104	27	40	0	44	34	70	1	0	0	0	320
8:15	0	120	29	40	0	44	33	60	0	0	0	0	326
8:30	0	111	33	45	0	51	41	66	1	0	0	0	348
8:45	0	134	41	56	0	50	45	102	0	0	0	0	428
9:00	0	114	26	51	0	53	43	83	0	0	0	0	370
9:15	0	157	26	48	0	39	54	87	1	0	0	0	412
9:30	0	130	36	54	0	47	50	112	1	0	0	0	430
9:45	0	152	43	41	0	48	58	93	2	0	0	0	437

Total Volume:	0	1022	261	375	0	376	358	673	6	0	0	0	3071
Approach %	0%	80%	20%	50%	0%	50%	35%	65%	1%	0%	0%	0%	

Peak Hr Begin:	9:00												
PHV	0	553	131	194	0	187	205	375	4	0	0	0	1649
PHF	0.877			0.916			0.896			0.000			0.943

Turning Movement Count Report PM

Location ID: 6
 North/South: Avalon Blvd
 East/West: SR-91 WB On-Ramp

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00	0	168	21	55	0	85	37	164	0	0	0	0	530
16:15	0	155	25	49	0	99	55	142	1	0	0	0	526
16:30	0	144	27	54	0	76	58	139	1	0	0	0	499
16:45	0	173	25	63	0	96	51	170	2	0	0	0	580
17:00	0	158	19	57	0	85	69	164	0	0	0	0	552
17:15	0	148	27	34	0	83	63	156	1	0	0	0	512
17:30	0	143	35	50	0	96	55	140	3	0	0	0	522
17:45	0	121	23	52	0	73	64	144	0	0	0	0	477

Total Volume:	0	1210	202	414	0	693	452	1219	8	0	0	0	4198
Approach %	0%	86%	14%	37%	0%	63%	27%	73%	0%	0%	0%	0%	

Peak Hr Begin:	16:45												
PHV	0	622	106	204	0	360	238	630	6	0	0	0	2166
PHF	0.919			0.887			0.938			0.000			0.934

Pedestrian/Bicycle Count Report

Location ID: 6
 North/South: Avalon Blvd
 East/West: SR-91 WB On-Ramp

Date: 05/05/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
8:00	0	0	0	0	0	0	0	0
8:15	0	0	1	1	0	0	0	0
8:30	0	0	0	0	0	0	0	0
8:45	0	0	0	1	0	0	0	0
9:00	0	0	2	1	0	0	0	0
9:15	0	0	0	0	0	0	0	0
9:30	0	0	0	0	0	0	0	0
9:45	0	0	0	1	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	0	0	1	0	0	0
16:15	0	0	1	1	0	0	0	0
16:30	0	0	0	0	0	0	0	0
16:45	0	0	0	1	0	0	0	0
17:00	0	0	2	1	0	0	0	0
17:15	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0
17:45	0	0	0	1	0	0	0	0

Turning Movement Count Report AM

Location ID: 11
 North/South: Avalon Blvd
 East/West: MLK Jr Street

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
8:00	6	106	0	0	0	0	0	112	7	6	0	9	246
8:15	9	127	0	0	0	0	0	125	9	11	0	12	293
8:30	7	147	0	0	0	0	0	140	14	10	0	8	326
8:45	8	163	1	0	0	0	0	158	8	8	0	3	349
9:00	14	167	0	0	0	0	0	137	16	14	0	6	354
9:15	8	174	0	0	0	0	0	116	11	19	0	4	332
9:30	11	186	0	0	0	0	0	146	8	8	0	12	371
9:45	7	169	0	0	0	0	0	142	13	17	0	1	349

Total Volume:	70	1239	1	0	0	0	0	1076	86	93	0	55	2620
Approach %	5%	95%	0%	0%	0%	0%	0%	93%	7%	63%	0%	37%	

Peak Hr Begin:	8:45												
PHV	41	690	1	0	0	0	0	557	43	49	0	25	1406
PHF	0.929			0.000			0.904			0.804			0.947

Turning Movement Count Report PM

Location ID: 11
 North/South: Avalon Blvd
 East/West: MLK Jr Street

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	11	192	0	0	0	0	0	212	23	14	0	20	472
16:15	11	220	0	0	0	0	0	218	19	20	0	18	506
16:30	13	211	0	0	0	0	0	251	17	19	0	14	525
16:45	13	211	0	0	0	0	0	202	15	18	0	21	480
17:00	10	218	0	0	0	0	0	222	21	17	0	15	503
17:15	5	200	0	0	0	0	0	238	20	17	0	27	507
17:30	13	179	1	0	0	0	0	229	11	12	0	9	454
17:45	8	204	0	0	0	0	0	203	21	22	0	11	469

Total Volume:	84	1635	1	0	0	0	0	1775	147	139	0	135	3916
Approach %	5%	95%	0%	0%	0%	0%	0%	92%	8%	51%	0%	49%	

Peak Hr Begin:	16:30												
PHV	41	840	0	0	0	0	0	913	73	71	0	77	2015
PHF	0.966			0.000			0.920			0.841			0.960

Pedestrian/Bicycle Count Report

Location ID: 11
 North/South: Avalon Blvd
 East/West: MLK Jr Street

Date: 05/05/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
8:00	0	0	0	0	0	0	0	0
8:15	0	0	0	0	1	0	1	0
8:30	0	0	0	0	0	0	0	1
8:45	0	0	0	0	1	0	0	0
9:00	0	0	0	0	0	0	0	0
9:15	0	0	0	0	0	0	0	0
9:30	0	0	0	0	0	1	0	0
9:45	0	0	0	0	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	1
17:45	0	0	0	0	0	0	0	0

Turning Movement Count Report AM

Location ID: 12
 North/South: Avalon Blvd
 East/West: Elsmere Drive

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
8:00	0	107	5	5	0	10	4	107	0	0	0	0	238
8:15	0	130	3	3	0	10	3	128	0	0	0	0	277
8:30	0	153	6	5	0	1	6	150	0	0	0	0	321
8:45	0	171	2	7	0	11	6	158	1	0	0	0	356
9:00	0	164	7	8	0	10	7	147	1	0	0	0	344
9:15	0	180	12	7	0	11	4	127	0	0	0	0	341
9:30	0	177	6	5	0	9	7	141	0	0	0	0	345
9:45	0	187	7	8	0	14	15	147	1	0	0	0	379

Total Volume:	0	1269	48	48	0	76	52	1105	3	0	0	0	2601
Approach %	0%	96%	4%	39%	0%	61%	4%	95%	0%	0%	0%	0%	

Peak Hr Begin:	9:00												
PHV	0	708	32	28	0	44	33	562	2	0	0	0	1409
PHF	0.954			0.818			0.916			0.000			0.929

Turning Movement Count Report PM

Location ID: 13
 North/South: Avalon Blvd
 East/West: Turmont Street

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	0	216	9	7	0	16	6	220	1	0	0	0	475
16:15	0	217	13	3	0	11	12	227	0	0	0	0	483
16:30	0	221	11	10	0	7	11	250	0	0	0	0	510
16:45	0	220	12	7	0	10	12	204	0	0	0	0	465
17:00	0	219	17	6	0	11	13	246	0	0	0	0	512
17:15	0	188	8	9	0	9	13	255	1	0	0	0	483
17:30	0	205	5	4	0	12	10	222	0	0	0	0	458
17:45	0	217	10	10	0	10	13	220	1	0	0	0	481

Total Volume:	0	1703	85	56	0	86	90	1844	3	0	0	0	3867
Approach %	0%	95%	5%	39%	0%	61%	5%	95%	0%	0%	0%	0%	

Peak Hr Begin:	16:15												
PHV	0	877	53	26	0	39	48	927	0	0	0	0	1970
PHF	0.985			0.956			0.934			0.000			0.962

Pedestrian/Bicycle Count Report

Location ID: 13
 North/South: Avalon Blvd
 East/West: Turmont Street

Date: 05/05/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
8:00	0	0	3	1	1	0	0	0
8:15	0	0	6	1	0	0	0	0
8:30	0	0	0	0	0	0	0	0
8:45	0	0	3	1	0	0	0	0
9:00	0	0	0	0	0	0	0	0
9:15	0	0	1	0	0	1	0	0
9:30	0	0	1	0	0	0	0	0
9:45	0	0	2	2	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	2	0	1	0	0	0
16:15	0	0	0	0	0	0	0	0
16:30	0	0	1	2	1	0	0	0
16:45	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0
17:15	0	0	0	1	0	0	0	0
17:30	0	0	1	0	2	0	0	0
17:45	0	0	0	0	0	1	0	0

Turning Movement Count Report AM

Location ID: 13
 North/South: Avalon Blvd
 East/West: Turmont Street

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
8:00	0	113	1	6	0	28	13	96	5	0	0	0	262
8:15	0	143	3	7	0	14	33	129	7	0	0	0	336
8:30	0	148	5	10	0	32	24	146	3	0	0	0	368
8:45	0	177	7	16	0	36	26	143	10	0	0	0	415
9:00	0	162	5	6	0	32	33	144	6	0	0	0	388
9:15	0	201	7	6	0	33	24	120	6	0	0	0	397
9:30	0	182	7	3	0	34	30	155	7	0	0	0	418
9:45	0	194	6	9	0	30	41	160	6	0	0	0	446

Total Volume:	0	1320	41	63	0	239	224	1093	50	0	0	0	3030
Approach %	0%	97%	3%	21%	0%	79%	16%	80%	4%	0%	0%	0%	

Peak Hr Begin:	9:00												
PHV	0	739	25	24	0	129	128	579	25	0	0	0	1649
PHF	0.918			0.981			0.884			0.000			0.924

Turning Movement Count Report PM

Location ID: 12
 North/South: Avalon Blvd
 East/West: Elsmere Drive

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	0	205	11	4	0	32	42	204	3	0	0	0	501
16:15	0	234	9	11	0	25	49	251	6	0	0	0	585
16:30	0	225	5	10	0	28	52	236	4	0	0	0	560
16:45	0	216	15	5	0	28	40	222	7	0	0	0	533
17:00	0	201	16	11	0	16	43	237	8	0	0	0	532
17:15	0	218	8	7	0	18	36	260	1	0	0	0	548
17:30	0	191	11	10	0	18	38	203	10	0	0	0	481
17:45	0	206	15	12	0	22	45	251	6	0	0	0	557

Total Volume:	0	1696	90	70	0	187	345	1864	45	0	0	0	4297
Approach %	0%	95%	5%	27%	0%	73%	15%	83%	2%	0%	0%	0%	

Peak Hr Begin:	16:15												
PHV	0	876	45	37	0	97	184	946	25	0	0	0	2210
PHF	0.948			0.882			0.944			0.000			0.944

Pedestrian/Bicycle Count Report

Location ID: 12
 North/South: Avalon Blvd
 East/West: Elsmere Drive

Date: 05/05/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
8:00	0	0	3	1	0	0	0	0
8:15	0	0	1	2	0	0	0	0
8:30	0	0	0	0	0	0	0	0
8:45	0	0	3	1	0	0	0	0
9:00	0	0	4	0	0	0	0	0
9:15	0	0	3	0	0	0	0	0
9:30	0	0	1	0	0	0	0	0
9:45	0	0	4	1	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	1	0	0	0	0	0
16:15	0	0	5	0	0	0	0	0
16:30	0	0	0	2	0	0	0	0
16:45	0	0	2	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0
17:15	0	0	0	2	0	0	0	0
17:30	0	1	1	0	0	0	0	0
17:45	1	0	0	2	0	0	0	0

Turning Movement Count Report AM

Location ID: 14
 North/South: Avalon Blvd
 East/West: Del Amo Blvd

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
8:00	17	108	28	10	55	61	13	79	8	9	39	15	442
8:15	25	104	38	18	57	54	15	110	12	9	60	39	541
8:30	29	120	42	22	47	57	35	119	18	22	48	35	594
8:45	27	148	43	9	75	53	25	114	13	14	49	38	608
9:00	29	134	45	14	51	55	25	143	25	22	38	33	614
9:15	36	142	55	22	59	62	32	101	23	24	66	16	638
9:30	27	154	52	24	72	58	31	142	22	20	68	30	700
9:45	30	118	63	25	74	57	27	144	20	15	49	29	651

Total Volume:	220	1028	366	144	490	457	203	952	141	135	417	235	4788
Approach %	14%	64%	23%	13%	45%	42%	16%	73%	11%	17%	53%	30%	

Peak Hr Begin:	9:00												
PHV	122	548	215	85	256	232	115	530	90	81	221	108	2603
PHF	0.950			0.918			0.942			0.869			0.930

Turning Movement Count Report PM

Location ID: 14
 North/South: Avalon Blvd
 East/West: Del Amo Blvd

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	29	148	54	30	70	45	40	165	18	32	73	34	738
16:15	39	172	62	30	60	48	44	205	23	18	74	32	807
16:30	33	158	68	18	58	44	35	231	17	32	96	33	823
16:45	24	159	57	27	71	55	41	178	33	16	57	37	755
17:00	30	174	54	31	66	55	30	203	16	20	84	37	800
17:15	29	148	57	27	69	51	44	223	26	7	55	30	766
17:30	34	136	61	18	77	32	35	210	14	27	72	42	758
17:45	23	138	47	25	45	58	31	196	22	22	74	43	724

Total Volume:	241	1233	460	206	516	388	300	1611	169	174	585	288	6171
Approach %	12%	64%	24%	19%	46%	35%	14%	77%	8%	17%	56%	28%	

Peak Hr Begin:	16:15												
PHV	126	663	241	106	255	202	150	817	89	86	311	139	3185
PHF	0.943			0.920			0.933			0.832			0.967

Pedestrian/Bicycle Count Report

Location ID: 14
 North/South: Avalon Blvd
 East/West: Del Amo Blvd

Date: 05/05/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
8:00	1	0	4	1	1	0	0	0
8:15	1	0	5	1	1	0	0	0
8:30	2	0	5	0	2	0	1	0
8:45	1	0	4	0	1	0	1	0
9:00	1	0	12	0	3	1	2	0
9:15	3	1	4	1	2	0	2	0
9:30	0	0	4	1	3	0	0	0
9:45	1	0	5	0	0	0	1	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	2	0	7	0	1	0	1	0
16:15	0	0	10	3	1	0	1	0
16:30	0	0	6	1	2	0	2	0
16:45	0	0	4	1	0	0	0	0
17:00	2	0	4	0	1	0	1	0
17:15	1	0	9	2	4	0	0	1
17:30	1	0	9	0	2	0	0	1
17:45	0	0	5	1	2	0	1	0

Turning Movement Count Report AM

Location ID: 15
 North/South: Avalon Blvd
 East/West: I-405 NB Ramps

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
8:00	70	128	0	38	1	24	0	160	56	0	0	0	477
8:15	53	145	0	60	0	15	0	182	93	0	0	0	548
8:30	56	149	0	76	0	17	0	170	86	0	0	0	554
8:45	61	167	0	71	0	20	0	260	87	0	0	0	666
9:00	59	159	0	65	0	15	0	209	74	0	0	0	581
9:15	69	167	0	67	0	18	0	244	73	0	0	0	638
9:30	78	171	0	63	0	17	0	248	79	0	0	0	656
9:45	71	151	0	105	0	20	0	273	63	0	0	0	683

Total Volume:	517	1237	0	545	1	146	0	1746	611	0	0	0	4803
Approach %	29%	71%	0%	79%	0%	21%	0%	74%	26%	0%	0%	0%	

Peak Hr Begin:	9:00												
PHV	277	648	0	300	0	70	0	974	289	0	0	0	2558
PHF	0.929			0.740			0.940			0.000			0.936

Turning Movement Count Report PM

Location ID: 15
 North/South: Avalon Blvd
 East/West: I-405 NB Ramps

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00	119	260	0	103	0	25	0	293	68	0	0	0	868
16:15	156	260	0	83	0	27	0	298	62	0	0	0	886
16:30	151	226	0	106	0	22	0	309	62	0	0	0	876
16:45	147	250	0	77	0	18	0	289	83	0	0	0	864
17:00	146	234	0	87	0	19	0	294	83	0	0	0	863
17:15	139	256	0	80	1	19	0	278	83	0	0	0	856
17:30	128	205	0	94	0	13	0	275	68	0	0	0	783
17:45	121	203	0	74	0	17	0	231	65	0	0	0	711

Total Volume:	1107	1894	0	704	1	160	0	2267	574	0	0	0	6707
Approach %	37%	63%	0%	81%	0%	18%	0%	80%	20%	0%	0%	0%	

Peak Hr Begin:	16:00												
PHV	573	996	0	369	0	92	0	1189	275	0	0	0	3494
PHF	0.943			0.900			0.984			0.000			0.986

Pedestrian/Bicycle Count Report

Location ID: 15
 North/South: Avalon Blvd
 East/West: I-405 NB Ramps

Date: 05/05/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
8:00	0	0	2	1	1	0	0	0
8:15	0	0	0	0	1	0	0	0
8:30	0	0	1	0	2	0	1	0
8:45	0	0	2	0	1	0	1	0
9:00	0	0	2	0	3	0	2	0
9:15	0	0	2	1	2	0	0	0
9:30	0	0	0	0	3	0	0	0
9:45	0	0	0	0	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	2	0	1	0	0	0
16:15	0	0	0	2	1	0	0	0
16:30	0	0	1	1	2	0	2	0
16:45	0	0	1	0	0	0	0	0
17:00	0	0	1	0	1	0	0	0
17:15	0	0	2	0	4	0	0	0
17:30	0	0	0	1	2	0	0	0
17:45	0	0	3	0	2	0	0	0

Turning Movement Count Report AM

Location ID: 16
 North/South: Avalon Blvd
 East/West: I-405 SB Ramps

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
8:00	27	101	0	0	0	0	15	132	0	82	1	91	449
8:15	42	136	0	0	0	0	15	156	0	78	0	103	530
8:30	23	123	0	0	0	0	20	132	0	66	1	127	492
8:45	34	133	0	0	0	0	18	194	0	88	0	138	605
9:00	42	139	0	0	0	0	24	190	0	95	1	108	599
9:15	46	150	0	0	0	0	22	210	0	74	1	95	598
9:30	35	135	0	0	0	0	31	193	0	78	2	116	590
9:45	37	147	0	0	0	0	38	230	0	63	1	115	631

Total Volume:	286	1064	0	0	0	0	183	1437	0	624	7	893	4494
Approach %	21%	79%	0%	0%	0%	0%	11%	89%	0%	41%	0%	59%	

Peak Hr Begin:	9:00												
PHV	160	571	0	0	0	0	115	823	0	310	5	434	2418
PHF	0.932			0.000			0.875			0.918			0.958

Turning Movement Count Report PM

Location ID: 16
 North/South: Avalon Blvd
 East/West: I-405 SB Ramps

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	83	194	0	0	0	0	28	238	0	97	0	127	767
16:15	71	192	0	0	0	0	21	227	0	83	1	122	717
16:30	71	218	0	0	0	0	26	245	0	100	4	147	811
16:45	59	188	0	0	0	0	40	202	0	77	5	136	707
17:00	66	195	0	0	0	0	29	261	0	85	1	143	780
17:15	86	184	0	0	0	0	26	212	0	82	4	138	732
17:30	63	169	0	0	0	0	22	207	0	88	1	121	671
17:45	63	169	0	0	0	0	25	203	0	73	2	124	659

Total Volume:	562	1509	0	0	0	0	217	1795	0	685	18	1058	5844
Approach %	27%	73%	0%	0%	0%	0%	11%	89%	0%	39%	1%	60%	

Peak Hr Begin:	16:30												
PHV	282	785	0	0	0	0	121	920	0	344	14	564	3030
PHF	0.923			0.000			0.897			0.918			0.934

Pedestrian/Bicycle Count Report

Location ID: 16
 North/South: Avalon Blvd
 East/West: I-405 SB Ramps

Date: 05/05/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
8:00	0	0	2	2	1	0	0	0
8:15	0	0	0	0	1	0	0	0
8:30	0	0	0	0	2	0	1	0
8:45	0	0	0	0	1	0	1	1
9:00	0	0	3	1	3	0	2	0
9:15	0	0	3	1	2	0	0	0
9:30	0	0	1	1	3	0	0	0
9:45	0	0	2	0	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	2	1	1	0	0	0
16:15	0	0	2	2	1	1	0	0
16:30	0	0	1	1	2	0	2	0
16:45	0	0	1	0	0	0	0	0
17:00	0	0	0	0	1	0	0	0
17:15	0	0	0	0	4	0	0	0
17:30	0	0	2	1	2	0	0	0
17:45	0	0	2	0	2	0	0	0

Turning Movement Count Report AM

Location ID: 17
 North/South: Main Street
 East/West: WB SR-91 Ramps

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
8:00	0	39	18	27	0	28	13	34	0	0	0	0	159
8:15	0	39	9	34	0	22	21	53	1	0	0	0	179
8:30	0	52	13	33	0	30	22	45	0	0	0	0	195
8:45	0	33	9	27	0	28	28	34	1	0	0	0	160
9:00	0	35	11	26	0	16	28	36	0	0	0	0	152
9:15	0	48	12	33	0	25	34	38	0	0	0	0	190
9:30	0	46	17	26	0	30	31	50	1	0	0	0	201
9:45	0	51	8	31	0	34	28	45	0	0	0	0	197

Total Volume:	0	343	97	237	0	213	205	335	3	0	0	0	1433
Approach %	0%	78%	22%	53%	0%	47%	38%	62%	1%	0%	0%	0%	

Peak Hr Begin:	9:00												
PHV	0	180	48	116	0	105	121	169	1	0	0	0	740
PHF	0.905			0.850			0.887			0.000			0.920

Turning Movement Count Report PM

Location ID: 17
 North/South: Main Street
 East/West: WB SR-91 Ramps

Date: 05/05/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
16:00	0	54	8	45	0	27	26	29	0	0	0	0	189
16:15	0	57	9	13	0	22	22	47	0	0	0	0	170
16:30	0	42	8	21	0	23	19	59	0	0	0	0	172
16:45	0	36	8	21	0	29	23	37	1	0	0	0	155
17:00	0	44	5	36	0	21	22	60	1	0	0	0	189
17:15	0	44	9	20	0	22	20	51	1	0	0	0	167
17:30	0	43	6	17	0	20	18	44	1	0	0	0	149
17:45	0	34	7	42	0	16	20	31	0	0	0	0	150

Total Volume:	0	354	60	215	0	180	170	358	4	0	0	0	1341
Approach %	0%	86%	14%	54%	0%	46%	32%	67%	1%	0%	0%	0%	

Peak Hr Begin:	16:00												
PHV	0	189	33	100	0	101	90	172	1	0	0	0	686
PHF	0.841			0.698			0.843			0.000			0.907

Pedestrian/Bicycle Count Report

Location ID: 17
 North/South: Main Street
 East/West: WB SR-91 Ramps

Date: 05/05/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
8:00	0	0	0	0	1	0	0	0
8:15	0	0	0	0	1	0	0	0
8:30	0	0	0	0	2	0	1	0
8:45	0	0	0	0	1	0	1	0
9:00	0	0	0	0	3	0	2	0
9:15	0	0	0	0	2	0	0	0
9:30	0	0	0	0	3	0	0	0
9:45	0	0	0	0	0	0	0	0

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
16:00	0	0	0	0	1	0	0	0
16:15	0	0	0	0	1	0	0	0
16:30	0	0	0	0	2	0	2	0
16:45	0	0	1	0	1	0	0	0
17:00	0	0	0	0	1	0	0	0
17:15	0	0	0	0	4	0	0	0
17:30	0	0	0	2	2	0	0	0
17:45	0	0	0	0	2	0	0	0

Turning Movement Count Report Midday

Location ID: 1
 North/South: I-110 NB On-Ramp
 East/West: 190th Street

Date: 10/06/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
11:00	0	0	0	36	98	0	0	0	0	0	148	80	362
11:15	0	0	0	38	118	1	0	0	0	0	155	85	397
11:30	0	0	0	44	100	2	0	0	0	0	162	85	393
11:45	0	0	0	47	126	2	0	0	0	0	163	89	427
12:00	0	0	0	44	111	0	0	0	0	0	150	98	403
12:15	0	0	0	48	96	0	0	0	0	0	160	104	408
12:30	0	0	0	31	107	0	0	0	0	0	121	92	351
12:45	0	0	0	40	78	0	0	0	0	0	147	100	365

Total Volume:	0	0	0	328	834	5	0	0	0	0	1206	733	3106
Approach %	0%	0%	0%	28%	71%	0%	0%	0%	0%	0%	62%	38%	

Peak Hr Begin:	11:30												
PHV	0	0	0	183	433	4	0	0	0	0	635	376	1631
PHF	0.000			0.886			0.000			0.957			0.955

Pedestrian/Bicycle Count Report

Location ID: 1
 North/South: I-110 NB On-Ramp
 East/West: 190th Street

Date: 10/06/18
 City: Carson, CA

	North		East		South		West	
Leg:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
11:00	0	1	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0
12:00	0	3	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0

Turning Movement Count Report Mid-Day

Location ID: 6
 North/South: SR-110 SB Off-Ramp
 East/West: W 190th Street

Date: 09/29/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
11:00	59	0	43	0	101	0	0	0	0	0	178	0	381
11:15	63	0	29	0	85	0	0	0	0	0	211	0	388
11:30	65	0	43	0	102	0	0	0	0	0	174	0	384
11:45	59	0	35	0	122	0	0	0	0	0	180	0	396
12:00	56	0	35	0	137	0	0	0	0	0	210	0	438
12:15	77	0	37	0	121	0	0	0	0	0	235	0	470
12:30	90	0	58	0	116	0	0	0	0	0	220	0	484
12:45	132	0	102	0	98	0	0	0	0	0	235	0	567

Total Volume:	601	0	382	0	882	0	0	0	0	0	1643	0	3508
Approach %	61%	0%	39%	0%	100%	0%	0%	0%	0%	0%	100%	0%	

Peak Hr Begin:	12:00												
PHV	355	0	232	0	472	0	0	0	0	0	900	0	1959
PHF	0.627			0.861			0.000			0.957			0.864

Pedestrian/Bicycle Count Report

Location ID: 6
 North/South: SR-110 SB Off-Ramp
 East/West: W 190th Street

Date: 09/29/18
 City: Carson, CA

	<i>North</i>		<i>East</i>		<i>South</i>		<i>West</i>	
Leg:	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>
11:00	0	0	0	0	0	0	0	0
11:15	0	1	0	0	0	0	0	0
11:30	0	2	0	0	0	0	0	0
11:45	1	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	2	0
12:30	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0

Turning Movement Count Report Mid-Day

Location ID: 1
 North/South: Albertoni Street
 East/West: SR-91 ramps

Date: 09/22/18
 City: Carson, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	Totals:
11:00	25	0	58	22	63	0	0	0	0	0	64	92	324
11:15	31	0	63	14	69	0	0	0	0	0	59	39	275
11:30	28	0	48	13	78	0	0	0	0	0	62	58	287
11:45	22	0	49	25	57	0	0	0	0	0	52	57	262
12:00	28	0	59	12	70	0	0	0	0	0	71	72	312
12:15	33	0	64	18	68	1	0	0	0	0	64	67	315
12:30	24	0	38	20	78	0	0	0	0	0	61	74	295
12:45	33	0	47	17	67	0	0	0	0	0	67	55	286

Total Volume:	224	0	426	141	550	1	0	0	0	0	500	514	2356
Approach %	34%	0%	66%	20%	79%	0%	0%	0%	0%	0%	49%	51%	

Peak Hr Begin:	12:00												
PHV	118	0	208	67	283	1	0	0	0	0	263	268	1208
PHF	0.840			0.895			0.000			0.928			0.959

Pedestrian/Bicycle Count Report

Location ID: 1
 North/South: Albertoni Street
 East/West: SR-91 ramps

Date: 09/22/18
 City: Carson, CA

	<i>North</i>		<i>East</i>		<i>South</i>		<i>West</i>	
Leg:	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>	<i>Peds</i>	<i>Bicycle</i>
11:00	1	0	0	0	0	0	0	0
11:15	1	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0
11:45	5	0	0	0	0	0	0	0
12:00	2	1	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0
12:45	1	0	0	0	0	0	0	0

Comment Letter 4



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SENT VIA E-MAIL AND USPS:

rkristan@dpw.lacounty.gov

Ryan Kristan, Project Manager
County of Los Angeles Department of Public Works
Project Management Division II
900 South Fremont Avenue, 5th Floor
Alhambra, CA 91803

June 25, 2019

**Draft Environmental Impact Report (Draft EIR) for the Proposed
Carol Kimmelman Athletic and Academic Campus (SCH No.: 2018071074)**

South Coast Air Quality Management District (South Coast AQMD) staff appreciates the opportunity to comment on the above-mentioned document. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final EIR.

4-1

South Coast AQMD Staff's Summary of Project Description

The Lead Agency proposes to construct a 25,000-square-foot learning center, a 62-court tennis center, and eight soccer fields on 87 acres (Proposed Project). The Proposed Project is located at 340 Martin Luther King Jr. Street on the southwest corner of South Avalon Boulevard and Martin Luther King Jr. Street within the City of Carson. Construction of the Proposed Project will last 12 to 15 months, beginning in Summer/Fall of 2019 with an anticipated completion date of Summer/Fall of 2020¹. The Proposed Project will incorporate design features such as Energy Star rated appliances, high-efficiency lightbulbs, and U.S. Green Building Code cool roof standards². Sensitive receptors are located within 150 feet of the Project Proposed³.

4-2

South Coast AQMD Staff's Summary of Air Quality Analysis

In the Air Quality Analysis section, the Lead Agency quantified the Proposed Project's construction emissions and compared those emissions to South Coast AQMD's recommended regional and localized air quality CEQA significance thresholds. Based on the analyses, the Lead Agency found that the Proposed Project's regional construction air quality impacts would be significant for NOx emissions at 239 pounds/per day (lbs/day)⁴. After the implementation of Mitigation Measures (MM)-AQ-1 and MM-AQ-2, the Proposed Project's regional construction NOx emissions would remain significant and unavoidable at 111 lbs/day⁵. MM-AQ-1 through MM-AQ-2⁶ require off-road construction equipment that meets Tier 4 emission standards, as available, and a Fugitive Dust Plan to demonstrate compliance with South Coast AQMD Rule 403 – Fugitive Dust⁷. The Lead Agency also found that operational NOx emissions will be significant and unavoidable at 57 lbs/day, with the implementation of MM-AQ-3 which requires infrastructure for electric vehicle (EV) charging⁸. Additionally, the Lead Agency discussed South

4-3

¹ Draft EIR, Section 4.2 Air Quality, Page 4.2-26.

² *Ibid.* Section 1 Summary, Pages 1-12 through 1-13.

³ *Ibid.* Section 4.2 Air Quality, Page 4.2-8.

⁴ *Ibid.* Section 3 Project Description, Page 3.2-28.

⁵ *Ibid.* Section 4.2 Air Quality, Page 4.2-44.

⁶ *Ibid.* Pages 4.2-41 through 4.2-44.

⁷ South Coast AQMD, Rule 403 – Fugitive Dust, Accessed at: <https://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf>.

⁸ *Ibid.* Section 4.2 Air Quality, Page 4.2-44.

Ryan Kristan

June 25, 2019

Coast AQMD Rules specific to the Proposed Project, such as Rule 402 – Nuisance⁹ and Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities¹⁰.

↑ 4-3Cont.

South Coast AQMD's 2016 Air Quality Management Plan

On March 3, 2017, South Coast AQMD's Governing Board adopted the 2016 AQMP¹¹, which was later approved by the California Air Resources Board (CARB) on March 23, 2017. Built upon the progress in implementing the 2007 and 2012 AQMPs, the 2016 AQMP provides a regional perspective on air quality and the challenges facing the South Coast Air Basin. The most significant air quality challenge in the Basin is to achieve an additional 45 percent reduction in nitrogen oxide (NOx) emissions in 2023 and an additional 55 percent NOx reduction beyond 2031 levels for ozone attainment.

4-4

South Coast AQMD Staff's General Comments

As described in the 2016 AQMP, achieving NOx emissions reductions in a timely manner is critical to attaining the National Ambient Air Quality Standard (NAAQS) for ozone before the 2023 and 2031 deadlines. South Coast AQMD is committed to attaining the ozone NAAQS as expeditiously as practicable. The Proposed Project plays an important role in contributing to additional NOx emissions during the 12- to 15-month construction period and operations thereafter. Therefore, South Coast AQMD staff recommends that the Lead Agency revise the existing MM-AQ-3 and incorporate additional recommended mitigation measures in the Final EIR to further reduce the Proposed Project's significant and unavoidable NOx emissions. Please see the attachment for more information.

4-5

South Coast AQMD Rules and Regulations

Since the Proposed Project will be developed on a former Class II municipal solid waste landfill site¹², the Lead Agency should incorporate a discussion to demonstrate compliance with South Coast AQMD Rules, including but not limited to, Rule 1150 – Excavation of Landfill Sites¹³, Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil¹⁴, and Rule 1466 - Control of Particulate Emissions from Soils with Toxic Air Contaminants¹⁵. Additionally, it is recommended that the Lead Agency consult with South Coast AQMD's Engineering and Permitting staff to determine if additional South Coast AQMD rules and regulations would apply, and if permits or plans such as an odor management plan would be required and should be discussed in the Air Quality Section of the Final EIR. If implementation of the Proposed Project requires an air permit from South Coast AQMD, the Final EIR should identify South Coast AQMD as a Responsible Agency for the Proposed Project. Questions on permits and applicable South Coast AQMD rules can be directed to South Coast AQMD's Engineering and Permitting staff at (909) 396-3385. If there is any information in the permitting process suggesting that the Proposed Project would result in significant adverse air quality impacts not analyzed in the Final EIR or substantially more severe air quality impacts than those analyzed in the Final EIR, the Lead Agency should commit to reevaluating the Proposed Project's air quality and health risks impacts through a CEQA process (CEQA Guidelines Section 15162). For more general information on permits, please visit SCAQMD's webpage at: <http://www.aqmd.gov/home/permits>.

4-6

4-7

⁹ South Coast AQMD. Rule 402 – Nuisance. Accessed at: <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-402.pdf>

¹⁰ South Coast AQMD. Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities. Accessed at: <http://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1403.pdf>

¹¹ South Coast AQMD. March 3, 2017. *2016 Air Quality Management Plan*. Accessed at: <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan>

¹² Draft EIR. Section 3 Project Description. Pages 3-3 through 3-5.

¹³ South Coast AQMD. Rule 1150 – Excavation of Landfill Sites. Accessed at: <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1150.pdf>

¹⁴ South Coast AQMD. Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil. Accessed at: <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1166.pdf>

¹⁵ South Coast AQMD. Rule 1466 - Control of Particulate Emissions from Soils with Toxic Air Contaminants. Accessed at: <https://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1466.pdf>

Ryan Kristan

June 25, 2019

Conclusion

Pursuant to California Public Resources Code Section 21092.5(a) and CEQA Guidelines Section 15088(b), South Coast AQMD staff requests that the Lead Agency provide South Coast AQMD staff with written responses to all comments contained herein prior to the certification of the Final EIR. In addition, issues raised in the comments should be addressed in detail giving reasons why specific comments and suggestions are not accepted. There should be good faith, reasoned analysis in response. Conclusory statements unsupported by factual information will not suffice (CEQA Guidelines Section 15088(c)). Conclusory statements do not facilitate the purpose and goal of CEQA on public disclosure and are not meaningful, informative, or useful to decision makers and to the public who are interested in the Proposed Project. Further, when the Lead Agency makes the finding that the recommended revisions to existing MM-AQ-3 and additional recommended mitigation measures are not feasible, the Lead Agency should describe the specific reasons for rejecting them in the Final EIR (CEQA Guidelines Section 15091).

4-8

South Coast AQMD staff is available to work with the Lead Agency to address any air quality questions that may arise from this comment letter. Please contact Alina Mullins, Assistant Air Quality Specialist, at amullins@aqmd.gov or (909) 396-2402, should you have any questions.

Sincerely,

Lijin Sun

Lijin Sun, J.D.

Program Supervisor, CEQA IGR

Planning, Rule Development & Area Sources

Attachment
LS:AM
LAC190516-02
Control Number

Ryan Kristan

June 25, 2019

ATTACHMENT

Recommended Revisions to Existing MM-AQ-3

1. The Lead Agency has committed to implementing MM-AQ-3, which requires that the Proposed Project will develop up to two percent of available parking spaces for on-site electric vehicle (EV) charging stations. South Coast AQMD staff recommends that the Lead Agency commit to developing at least five percent of the available parking spaces for on-site EV charging station. This recommendation will further reduce the Proposed Project's operational NOx emissions, and facilitate the achievement of the 2016 AQMP's goals and timelines for attaining NAAQS for ozone by promoting the use of the lowest emission technologies such as EV at the Proposed Project. It will also facilitate the implementation of nonresidential mandatory measures of the California Buildings Standards (Title 24, Part 11) regarding EV charging stations or designated spaces capable of supporting future charging stations based on the total number of actual parking spaces¹⁶. Therefore, South Coast AQMD staff recommends that the Lead Agency include the following revisions to MM-AQ-3 in the Final EIR.

MM-AQ-3

The proposed project shall provide circuitry and capacity for installation of electric vehicle (EV) charging stations consistent with the County of Los Angeles criteria. The proposed project shall develop up to ~~2%~~ 5% of the available parking spaces on site as EV charging stations.

Additional Recommended Mitigation Measures

2. CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized to minimize or eliminate any significant adverse air quality impacts. To further reduce the Proposed Project's significant and unavoidable air quality impacts from NOx emissions during construction and operation, South Coast AQMD staff recommends the following mitigation measures as suggested resources and guidance that the Lead Agency should review for incorporation in the Final EIR.

Mitigation Measures for Construction Air Quality Impacts

- The Proposed Project will include an estimated 22,136 haul trips during construction¹⁷, contributing to the Proposed Project's significant and unavoidable construction NOx emissions. Therefore, South Coast AQMD staff recommends that the Lead Agency require the use of zero-emission (ZE) or near-zero emission (NZE) on-road construction haul trucks (e.g., material delivery trucks and soil import/export) such as heavy-duty trucks with natural gas engines that meet the California Air Resources Board (CARB)'s adopted optional NOx emission standard at 0.02 grams per brake horsepower-hour (g/bhp-hr), or at a minimum, require that construction vendors, contractors, and/or haul truck operators commit to using 2010 model year¹⁸ haul trucks. When requiring ZE or NZE on-road haul trucks, the Lead Agency should include analyses to evaluate and identify sufficient power and supportive infrastructure available for ZE/NZE trucks in the Energy and Utilities and Service Systems Sections of the Final EIR, where appropriate.

¹⁶ For a nonresidential development with 201 spaces or more, 6% percent of total parking spaces are required to be equip with EV. 2016 California Green Building Standards Code California Code of Regulations, Title 24, Part 11. *California Building Standards Commission*. January 1, 2017. Page 35. Accessed at: https://www.ladbs.org/docs/default-source/publications/code-amendments/2016-calgreen_complete.pdf.

¹⁷ *Ibid*. Section 4.2 Air Quality. Pages 4.2-28 through 29.

¹⁸ CARB adopted the statewide On-Road Truck and Bus Regulation in 2010. The Regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet particulate matter filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. More information on the CARB's Truck and Bus Regulations is available here: <https://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm>.

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To monitor and ensure ZE, NZE, or 2010 model year trucks are used at the Proposed Project, the Lead Agency should require that operators maintain records of all trucks associated with the Proposed Project's construction and make these records available to the Lead Agency upon request. The records will serve as evidence to prove that each truck called to the Proposed Project during construction meets the minimum 2010 model year engine emission standards. Alternatively, the Lead Agency should require periodic reporting and provision of written records by contractors, and conduct regular inspections of the records to the maximum extent feasible and practicable.

- Encourage construction contractors to apply for South Coast AQMD "SOON" funds. The "SOON" program provides funds to applicable fleets for the purchase of commercially-available low-emission heavy-duty engines to achieve near-term reduction of NOx emissions from in-use off-road diesel vehicles. More information on this program can be found at South Coast AQMD's website: <http://www.aqmd.gov/home/programs/business/business-detail?title=off-road-diesel-engines>

Mitigation Measures for Operational Air Quality Impacts

- Since the Proposed Project includes operation of a learning and recreation center with a focus on elementary, middle, and high school students and community programs, the Lead Agency should take this opportunity to encourage operators of school bus fleets that would regularly visit the Proposed Project to seek funding opportunities to replace older diesel buses with cleaner school buses. South Coast AQMD's Lower-Emission School Bus Program provides funding to applicable fleets for the purchase of alternatively fueled buses or retrofits for older diesel buses. More information on this program can be found at South Coast AQMD's website: <https://www.aqmd.gov/home/programs/business/lower-emission-school-bus-program>

Funding opportunities are also available through the California Air Resources Board's (CARB) administration of the Volkswagen Environmental Mitigation Trust for California for Zero-Emission Transit, School, and Shuttle Buses, which is anticipated to become available fall of 2019. More information on funding opportunities through the CARB's program can be found at: <https://ww2.arb.ca.gov/our-work/programs/volkswagen-environmental-mitigation-trust-california/about>.

- Require the use of electric landscaping equipment, such as lawn mowers and leaf blowers.
- Require the use of electric or alternatively fueled sweepers with HEPA filters.
- Maximize the planting of trees in landscaping and parking lots.

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Response to Comment Letter 4
South Coast Air Quality Management District
June 25, 2019

- 4-1** The County acknowledges the comment as an introduction to comments that follow. This comment is included in the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project. No further response is required or necessary because the comment does not raise any environmental issues.
- 4-2** The County acknowledges the comment as a summary of the Project Description. The comment restates information contained in the Draft EIR and does not raise any environmental issues requiring responses. This comment is included in the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project.
- 4-3** The County acknowledges the comment as a summary of the proposed project's air quality analysis. The comment restates information contained in the Draft EIR and does not raise any environmental issues requiring responses. This comment is included in the Final EIR for review and consideration by the decision-makers prior to the final decision of the proposed project.
- 4-4** The County acknowledges the comment as a summary of the South Coast Air Quality Management District's 2016 Air Quality Management Plan. The comment restates information contained in the Draft EIR and does not raise any environmental issues requiring responses. This comment is included in the Final EIR for review and consideration by the decision-makers prior to the final decision of the proposed project.
- 4-5** In response to the SCAQMD's comment, the text on page 4.2-43 will be revised to include their recommended mitigation measures.

MM-AQ-3. The proposed project shall provide circuitry and capacity for installation of electric vehicles (EV) charging stations consistent with the County of Los Angeles criteria. The proposed project shall develop up to ~~2%~~ 5% of the available parking spaces on site as EV charging stations.

MM-AQ-4. The construction contractor shall require that construction vendors, contractors, and/or haul truck operators commit to using 2010 model year or newer diesel haul trucks. All construction truck operators shall maintain truck records and make these records available to the County upon request.

MM-AQ-5. The construction contractor shall encourage its construction contractors and vendors to apply for South Coast Air Quality Management Surplus Off-Road Opt-In for NO_x (“SOON”) funds to the extent available, which provide funds to applicable fleets for the purchase of commercially available low-emission heavy-duty engines to achieve near-term reduction of NO_x emissions from in-use off-road diesel vehicles.

MM-AQ-6. During operations, the operator of the Learning Center shall encourage school bus fleets under contract with the Learning Center to seek funding opportunities through the South Coast Air Quality Management District’s Lower-Emission School Bus Program, to the extent available, to replace older diesel busses with cleaner school buses.

MM-AQ-7. During operations, electric landscape equipment, such as lawn mowers and leaf blowers, shall be used to the extent commercially available.

MM-AQ-8. During operations, the project shall utilize electric or alternatively fueled parking lot sweepers with HEPA filters.

As discussed in the Project Description in the Draft EIR, page 3-7, the landscape design for the project will include shade trees along pedestrian pathways; evergreen material to buffer and windbreak the courts, play fields, and site perimeter; and signature trees to act as wayfinding elements at site and building entries. The former landfill conditions of the project and relate remediation actions may constrain the type and location of trees at the project site, therefore, the proposed mitigation measure to maximize trees in certain project site areas was not included.

4-6 The text on page 4.2-17 and 4.2-18 will be revised to include the following discussion of SCAQMD Rules 1150, 1166 and 1466.

- **Rule 1150** – Excavation of Landfill Sites: This rule generally requires that an Excavation Management Plan approved by the Executive Officer be obtained from the SCAQMD prior to the excavation of an active or inactive landfill.
- **Rule 1166** – Volatile Organic Compound Emissions from Decontamination of Soil: This rule that generally requires an approved mitigation plan be obtained from the SCAQMD prior to the handling of VOC-contaminated soil at or from an excavation or grading site.
- **Rule 1466** – Control of Particulate Emissions from Soils with Toxic Air Contaminants: This rule generally requires any owner or operator

conducting earth-moving activities of soil with applicable toxic air containments (TACs) at certain sites to preform specified particulate matter monitoring and control measures.

Additionally, the text on page 4.2-28 will be updated to read as follows:

During construction, the project would comply with SCAQMD Rule 1150, 1166 and 1466 to the extent applicable.

4-7 The Project Description of the Draft EIR, page 3-13, identifies that other actions may be required by other local, regional and state agencies, including the SCAQMD among others. The text on page 3-13 of the Draft EIR be revised to identify SCAQMD as a potential Responsible Agency and now reads as follows:

- Other actions as may be required by other local, regional and state agencies including, but not limited to the City of Carson, the Department of Toxic Substances Control, the Los Angeles Regional Water Quality Control Board, Caltrans, and the South Coast Air Quality Management District (SCAQMD). Therefore, these agencies may be responsible agencies under CEQA.

4-8 The County acknowledges the comment as a summary of the CEQA Guidelines regarding public disclosure and the SCAQMD requesting written responses to their comments on the Draft EIR. The comment does not raise any environmental issues requiring responses. This comment is included in the Final EIR for review and consideration by the decision-makers prior to the final decision of the proposed project.

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Comment Letter 5

From: William Bayliss <william_bayliss@goodyear.com>
Sent: Monday, May 20, 2019 10:10 AM
To: Ryan Kristan (Consultant) <rkristan@dpw.lacounty.gov>
Cc: Kenny Rogers <kenny_rogers@goodyear.com>; Tony Sanico <tony_sanico@goodyear.com>; Jeff Sussman <jeff_sussman@goodyear.com>
Subject: Carson EIR - Blimp Base

Good morning Ryan,

After reviewing the EIR for the Dominguez Hills Project, the concern we have here for safe operation of our airship is compliance with 14 CFR 77.9. Attached is a powerpoint outlining some of the basics if you are not familiar.

5-1

Any questions feel free to contact me.

Regards,

Bill

 ** William Bayliss
 ** Chief Pilot Wingfoot Two
 ** Goodyear Airship Operations
 ** 19200 South Main Street
 ** Gardena, CA 90248
 ** office: (310) 327-6565
 ** mobile: (310) 386-7960
 ** facsimile: (310) 768-8516
 ** e-mail: william_bayliss@goodyear.com



Objects affecting navigable airspace

1. 14 CFR (Code of Federal Regulations) PART 77.9
2. Instrument Approaches
3. Instrument Departures
4. United States Standard for Terminal Instrument Procedures

1

References

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIR TRAFFIC ORGANIZATION POLICY
ORDER JO 7400.2K. "Procedures for Handling Airspace Matters."

FEDERAL AVIATION ADMINISTRATION
NOTICE CRITERIA TOOL – Desk Reference Guide V_2014.2.0
<https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm>

FEDERAL AVIATION ADMINISTRATION
AERONAUTICAL INFORMATION MANUAL
Official Guide to Basic Flight Information and ATC Procedures

2

References

FEDERAL AVIATION ADMINISTRATION
INSTRUMENT PROCEDURES HANDBOOK

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
ORDER 8260.3C.

“United States Standard for Terminal Instrument Procedures”

3

14 CFR 77.9

NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

§ 77.9 Form and time of notice.

(a) If you are required to file notice under § 77.9, you must submit to the FAA a completed FAA Form 7460-1, Notice of Proposed Construction or Alteration. FAA Form 7460-1 is available at FAA regional offices and on the Internet.

(b) You must submit this form at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest.

(c) If you propose construction or alteration that is also subject to the licensing requirements of the Federal Communications Commission (FCC), you must submit notice to the FAA on or before the date that the application is filed with the FCC.

(d) If you propose construction or alteration to an existing structure that exceeds 2,000 ft. in height above ground level (AGL), the FAA presumes it to be a hazard to air navigation that results in an inefficient use of airspace. You must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.

(e) The 45-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. You may provide notice to the FAA by any available, expeditious means. You must file a completed FAA Form 7460-1 within 5 days of the initial notice to the FAA. Outside normal business hours, the nearest flight service station will accept emergency notices.

§ 77.9 Construction or alteration requiring notice.

If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:

(a) Any construction or alteration that is more than 200 ft. AGL at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:

(1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

(g) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.

(d) Any construction or alteration on any of the following airports and heliports:

(1) A public use airport listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications;

(2) A military airport under construction, or an airport under construction that will be available for public use;

(3) An airport operated by a Federal agency or the DOD.

(4) An airport or heliport with at least one FAA-approved instrument approach procedure.

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;

(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;

(3) Any construction or alteration for which notice is required by any other FAA regulation.

(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

INSTRUCTIONS FOR COMPLETING FAA FORM 7460-1

PLEASE TYPE OR PRINT

ITEM #1. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #2. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #3. New Construction would be a structure that has not yet been built.

Alteration is a change to an existing structure such as the addition of a side mounted antenna, a change to the marling and lighting, a change to power and/or frequency, or a change to the height. The nature of the alteration shall be included in ITEM #21 "Complete Description of Proposal".

Existing would be a correction to the latitude and/or longitude, a correction to the height, or if filling on an existing structure which has never been studied by the FAA. The reason for the notice shall be included in ITEM #21 "Complete Description of Proposal".

ITEM #4. If Permanent, so indicate. If Temporary, such as a crane or drilling derrick, enters the estimated length of time the temporary structure will be up.

ITEM #5. Enter the date that construction is expected to start and the date that construction should be completed.

ITEM #5. Enter the date that construction is expected to start and the date

ITEM #6. Please indicate the type of structure. DO NOT LEAVE BLANK.

ITEM #. Please indicate the type of structure. **DO NOT LEAVE BLANK.**

ITEM #7. In the event that obstruction marking and lighting is required, please indicate type desired. If no preference, check "other" and indicate "no preference." **DO NOT LEAVE BLANK.** NOTE: High intensity lighting shall be used only for structures over 500' AGL. In the absence of high intensity lighting for structures over 500' AGL, marking is also required.

ITEM #8. If this is an existing tower that has been registered with the FCC, enter the FCC Antenna Structure Registration number here.

ITEM #9 and #10: Latitude and longitude must be geographic coordinates, accurate to within the nearest second or to the nearest hundredth of a second if known. Latitude and longitude derived solely from a hand-held GPS instrument is NOT acceptable. A hand-held GPS is only accurate to within 100 meters (328 feet) 95 percent of the time. This data, when plotted, should match the site description submitted under ITEM #20.

ITEM #11. NAD 83 is preferred; however, latitude and longitude may be submitted in NAD 27. Also, in some geographic areas where NAD 27 and NAD 83 are not available other datum may be used. It is important to know which datum is used. DO NOT LEAVE BLANK.

ITEM #12. Enter the name of the nearest city and state to the site. If the structure is or will be in a city, enter the name of that city and state.

ITEM #13. Enter the full name of the nearest public-use (not private-use) airport or heliport or military airport or heliport to the site.

ITEM #14. Enter the distance from the airport or heliport listed in #13 to the structure.

ITEM #15. Enter the direction from the airport or heliport listed in #13 to the structure.

ITEM #16. Enter the site elevation above mean sea level and expressed in whole feet rounded to the nearest foot (e.g. 17'3" rounds to 17', 17'5" rounds to 18'). This data should match the nearest contour elevations for site location submitted under ITEM #20.

The total structure height shall include anything mounted on top of the structure, such as antennas, obstruction lights, lightning rods, etc.

ITEM #18. Enter the overall height above mean sea level and expressed in whole feet. This will be the total of ITEM #16 + ITEM #17.

ITEM #19. If an FAA aeronautical study was previously conducted, enter the previous study number.

ITEM #20. Enter the relationship of the structure to roads, airports, prominent terrain, existing

ITEM #20. Enter the relationship of the structure to roads, airports, prominent terrain, existing structures, etc. Attach an 8-1/2" x 11" non-reduced copy of the appropriate 7.5 minute U.S. Geological Survey (USGS) quadrangle map MARKED WITH A PRECISE INDICATION OF THE SITE LOCATION. To obtain maps, contact USGS at 1-888-275-8747 or via internet at <http://store.usgs.gov>. If available, attach a copy of a documented site survey with the surveyor's certification stating the amount of vertical and horizontal accuracy in feet.

ITEM #21.

- For transmitting stations, include maximum effective radiated power (ERP) and all frequencies.
- For antennas, include the type of antenna and center of radiation (attach the antenna pattern, if available).
- For overhead wires or transmission lines, include size and configuration of wires and their supporting structures (Attach depiction).
- For each pole/support, include coordinates, site elevation, and structure height above ground level or water.
- For buildings, include site orientation, coordinates of each corner, dimension, and construction materials.
- For alterations, explain the alteration thoroughly.
- For existing structures, thoroughly explain the reason for notifying the FAA (e.g., record or previous study, etc.).

Filing this information with the FAA does not relieve the sponsor of this construction or alteration from complying with any other federal, state or local rules or regulations. If you are not sure what other rules or regulations apply to your proposal, contact local/state aviation's and zoning authorities.

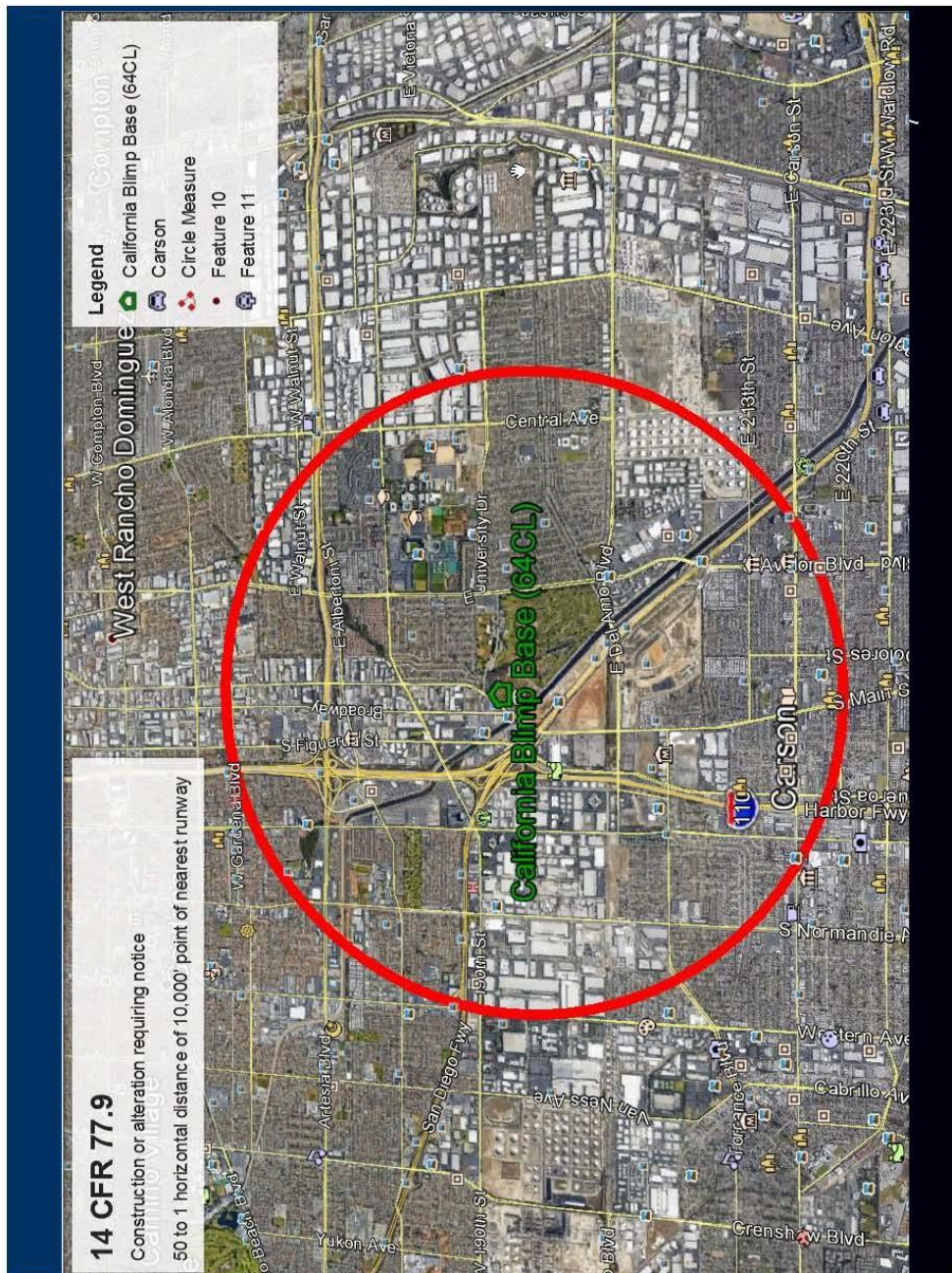
[illegible]

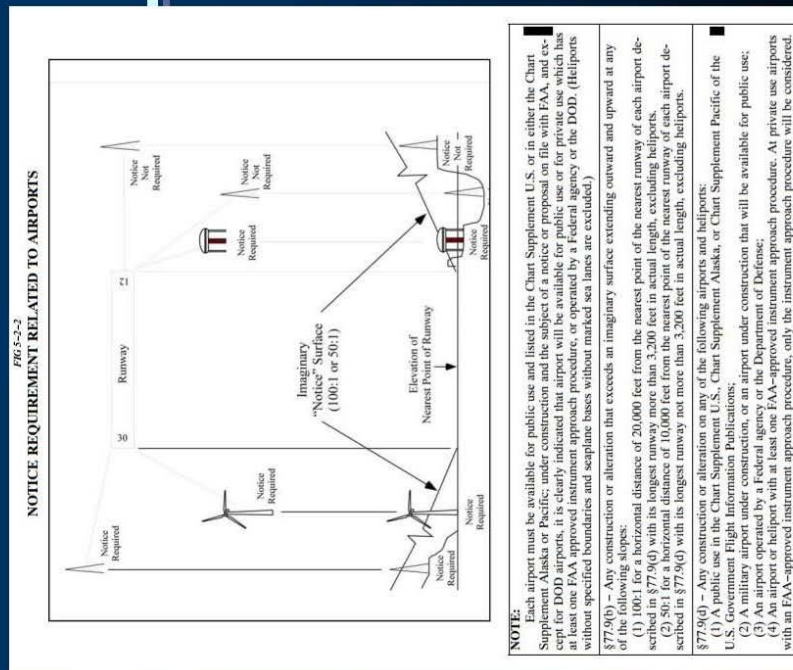
Form 7460-1 (2-12) Superseded Previous Edition

Electronic Version (AutoSet)

NSAC 0062-QQ-012-0009

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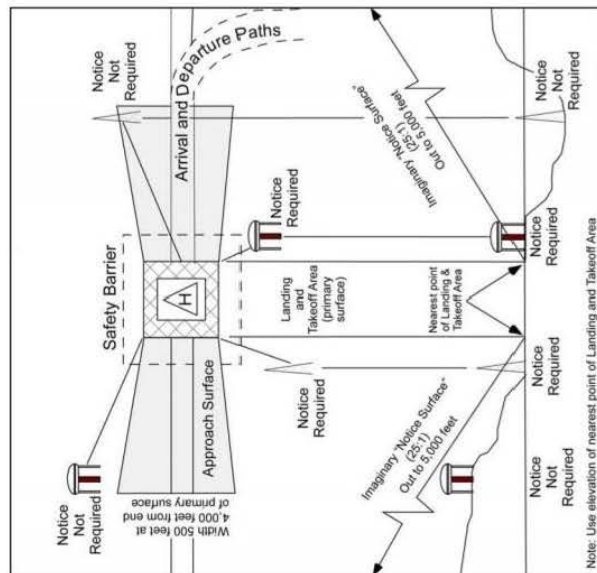




64CL
(California Blimp Base)
FAA Approved
Instrument Approach
Procedure
AIRSHIP RNAV
(GPS)-338°

This example shows
examples with
varying runway
lengths
We would be
considered in 50:1
range for a "runway"
length of about 1500'

FIG. 5-2-3
NOTICE REQUIREMENT RELATED TO HELIPORTS



Subpart B – Notice of Construction or Alteration

§77.9(b) – Any construction or alteration that exceeds an imaginary surface extending outward and upward at any one of the following slopes:

- (1) 25:1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph d of this section.

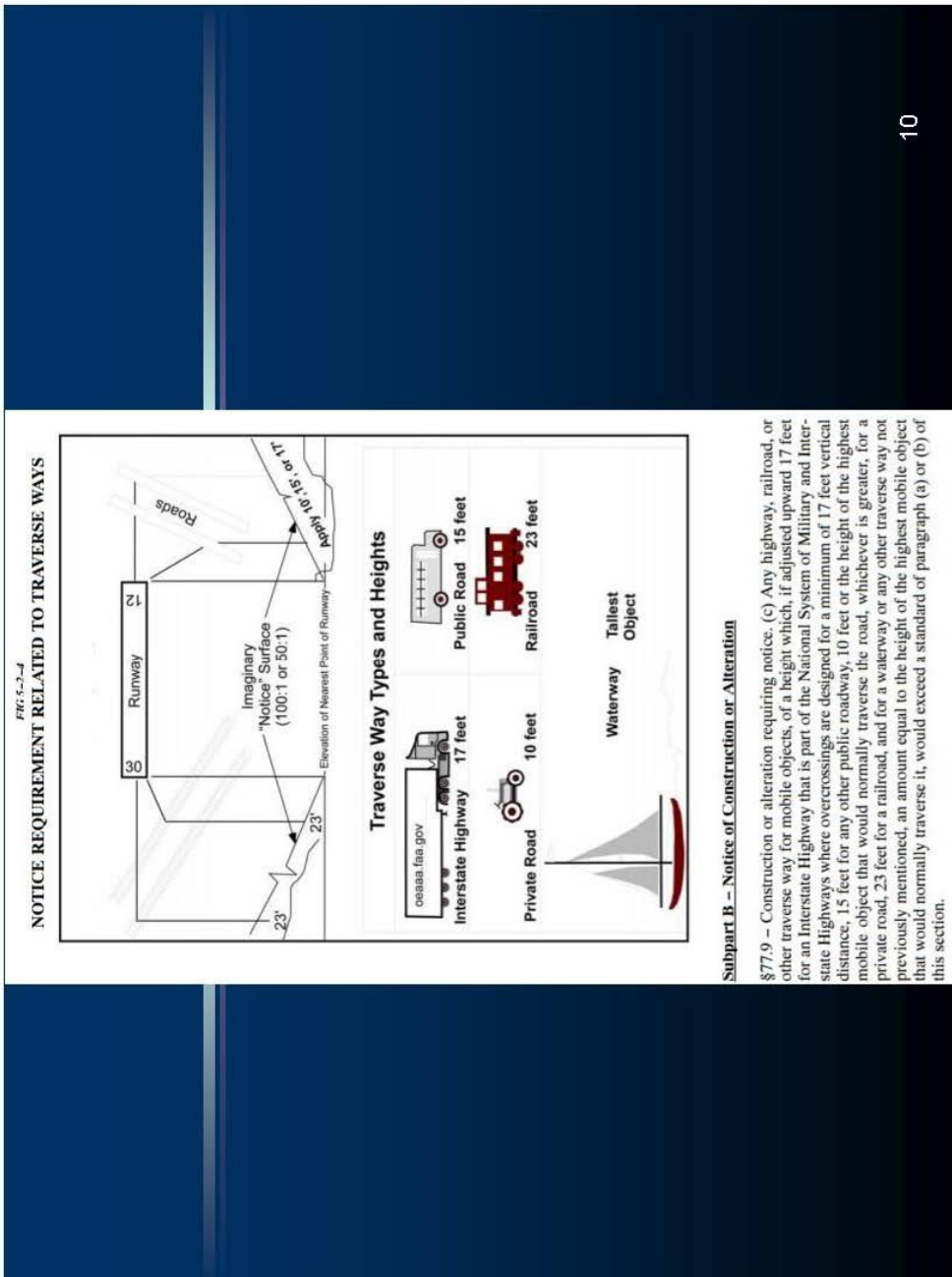
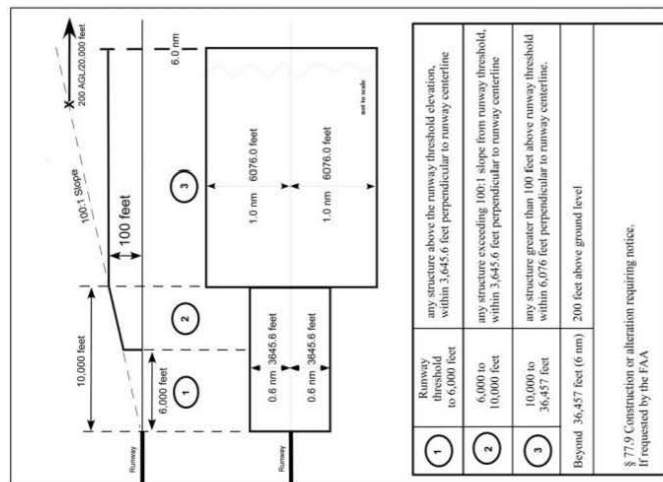
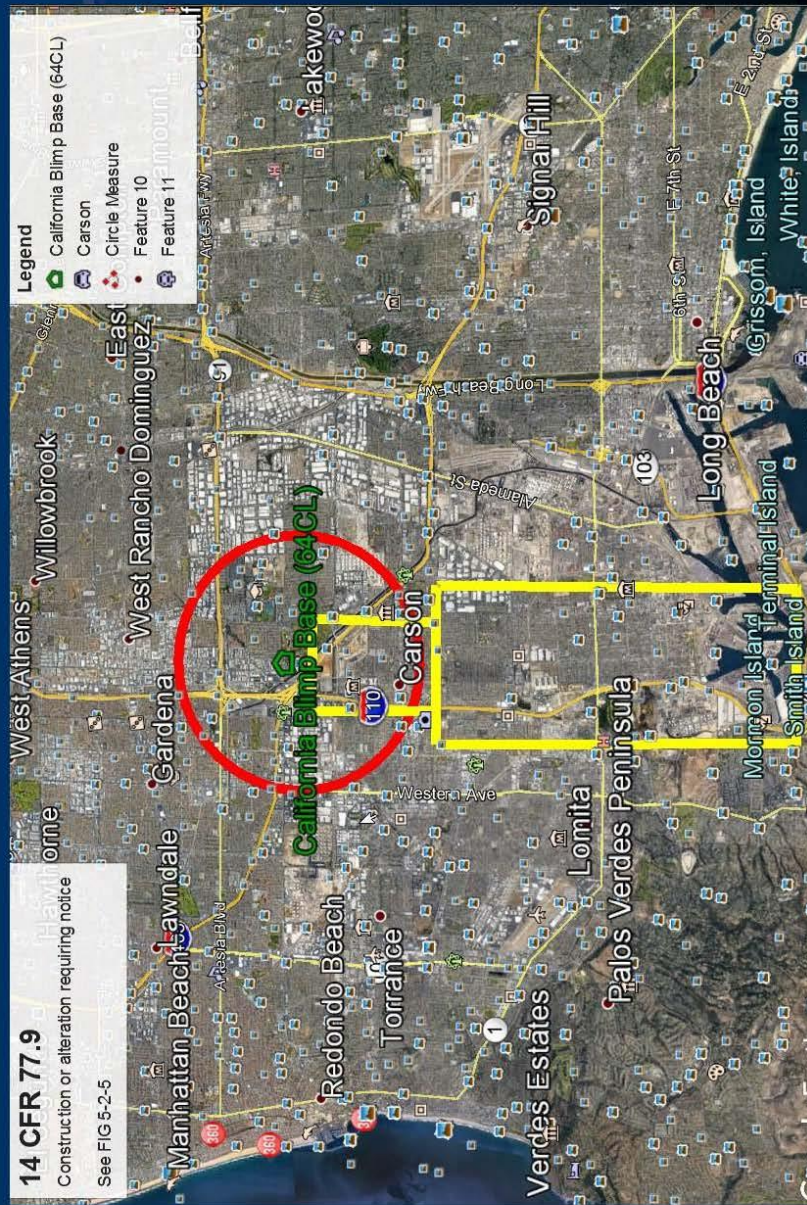


FIG. 5-2-5
NOTICE REQUIREMENT RELATED TO AIRPORT INSTRUMENT APPROACH AREA
Notice of Construction or Alteration



Profile and plan view
for instrument
approach area



The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference CFR Title 14 Part 77.9.

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc.) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the FAA Co-location Policy
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.

Latitude:	33	Deg	51	M	1.23	S	N
Longitude:	118	Deg	16	M	29.74	S	W
Horizontal Datum:	NAD83						
Site Elevation (SE):	22	(nearest foot)					
Structure Height:	60	(nearest foot)					
Traverseway:	No Traverseway						
(Additional height is added to certain structures under 77.9(c)) User can increase the default height adjustment for Traverseway, Private Roadway and Waterway							
Is structure on airport:	<input checked="" type="radio"/> No <input type="radio"/> Yes						
<input type="button" value="Submit"/>							

Example of using
FAA Notice Criteria
Tool for location, site
elevation and
structure height.

These inputs show
proposing a 60'
structure between
405 freeway and
Dominguez Channel
just south of our
base.

13

Results

You exceed the following Notice Criteria:

Your proposed structure is in proximity to a navigation facility and may impact the assurance of navigation signal reception. The FAA, in accordance with 77.9, requests that you file.

The FAA requests that you file

Notice that falls within Compton Airport area but output graphics do not show our Blimp Base as an airport and/or approach corridor consideration

14

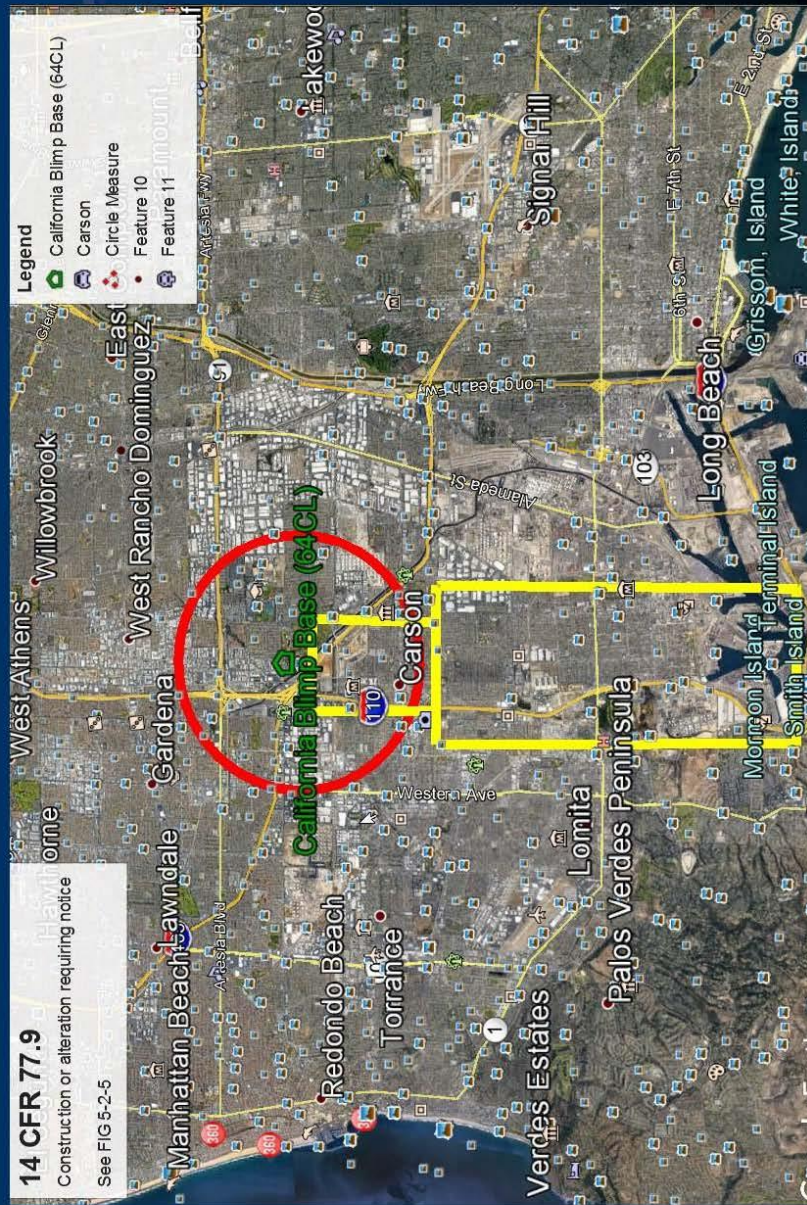
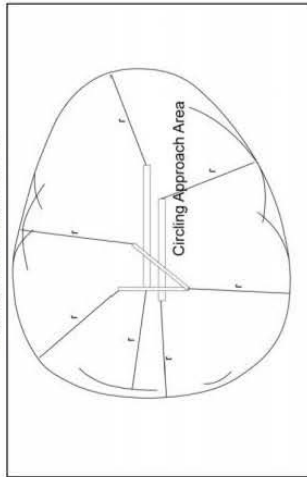


FIG 5-4-27
Final Approach Obstacle Clearance



NOTE—
Circling approach area radii vary according to approach category and MSL circling altitude due to TAS changes—
see FIG 5-4-28.

FIG 5-4-28

Standard and Expanded Circling Approach Radii in the U.S. TPP

STANDARD CIRCLING APPROACH MANEUVERING RADIUS

Circling approach protected areas developed prior to late 2012 used the radius distances shown in the following table, expressed in nautical miles (NM), dependent on aircraft approach category. The approaches using standard circling approach areas can be identified by the absence of the **C** symbol on the circling line of minima.

Circling MDA in feet MSL	Approach Category and Circling Radius (NM)				
	CAT A	CAT B	CAT C	CAT D	CAT E
All Altitudes	1.3	1.5	1.7	2.3	4.5

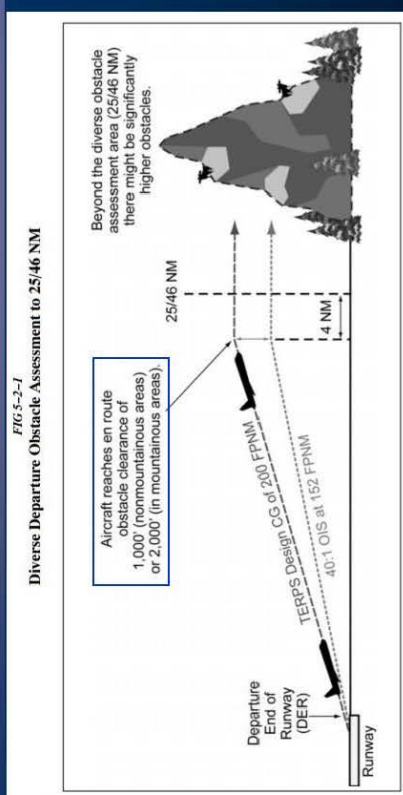
EXPANDED CIRCLING APPROACH MANEUVERING AIRSPACE RADIUS

Circling approach protected areas developed after late 2012 use the radius distances shown in the following table, expressed in nautical miles (NM), dependent on aircraft approach category, and the altitude of the circling MDA, which accounts for true airspeed increase with altitude. The approaches using expanded circling approach areas can be identified by the presence of the **C** symbol on the circling line of minima.

Circling MDA in feet MSL	Approach Category and Circling Radius (NM)				
	CAT A	CAT B	CAT C	CAT D	CAT E
1000 or less	1.3	1.7	2.7	3.6	4.7
1001-3000	1.3	1.8	2.8	3.7	4.6
3001-5000	1.3	1.8	2.9	3.8	4.8
5001-7000	1.3	1.9	3.0	4.0	5.0
7001-9000	1.4	2.0	3.2	4.2	5.3
9001 and above	1.4	2.1	3.3	4.4	5.5

Upon completion of an instrument approach an aircraft must remain clear of obstacles within a set distance at the minimum descent altitude.

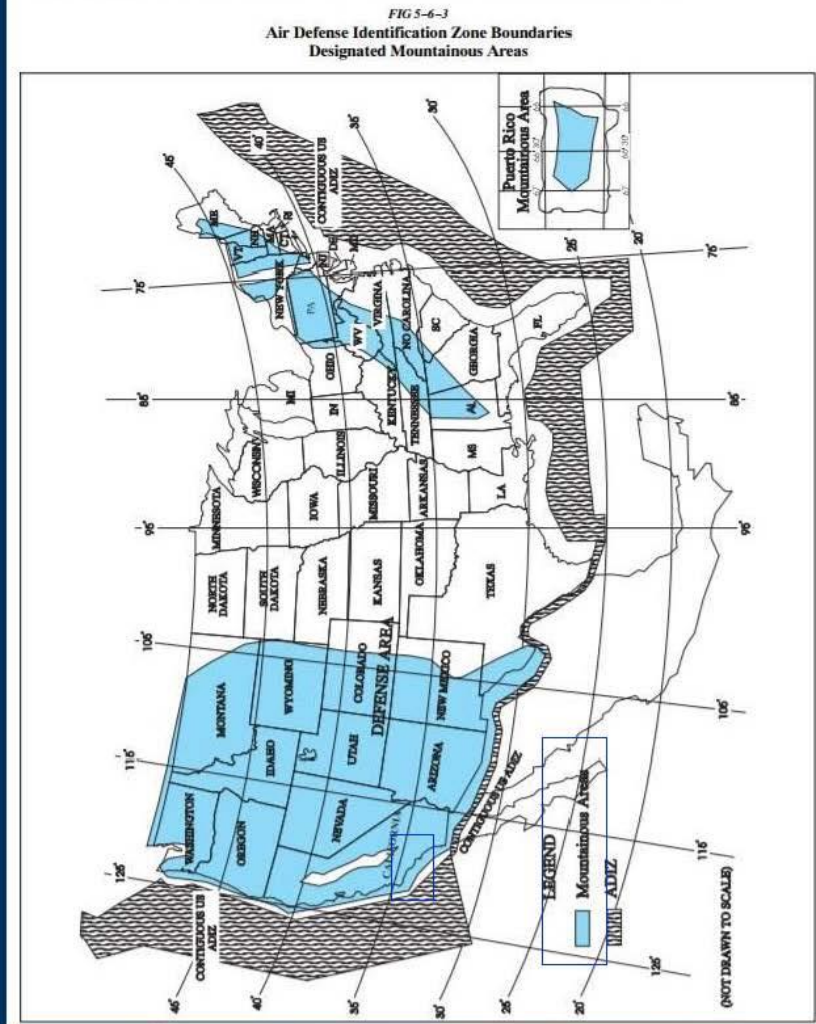
Airship is Category A which is at a speed of less than 91 knots.



An instrument departure like ours requires a diverse departure obstacle assessment which allows for obstacle clearance.

Design criteria is leaving departure end of runway at 35' and maintaining the required 200 FPNM climb gradient out to 46 NM in mountainous areas.

5-6-5. ADIZ Boundaries and Designated Mountainous Areas (See FIG 5-6-3.)



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Response to Comment Letter 5
Goodyear Airship Operations
May 20, 2019

- 5-1** The comment provides information regarding Federal Aviation Administration (FAA) regulations related to effects on navigable airspace. The information is included in the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project. As discussed in Section 4.8, Hazards and Hazardous Materials, of the Draft EIR, the proposed project buildings and lighting are not expected to exceed approximately 60 feet in height. Specifically, the project athletic lighting that may be up to 60 feet in height with project buildings being one-to two- stories in height. The proposed project development would be more than 1,000 feet from the Airship Base landing pad. As outlined in the Draft EIR, the applicant will comply with all applicable requirements imposed by the FAA. As such, impacts would be less than significant.

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Comment Letter 6



COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

GRACE ROBINSON HYDE
Chief Engineer and General Manager

July 1, 2019

Ref. DOC 5135539

Mr. Ryan Kristan
County of Los Angeles
Department of Public Works
900 South Fremont Avenue
Alhambra, CA 91803

Dear Mr. Kristan:

DEIR Response to the Carol Kimmelman Athletic and Academic Campus

The Sanitation Districts of Los Angeles County (Districts) received a Draft Environmental Impact Report (DEIR) for the subject project on May 16, 2019. The proposed project is located within the jurisdictional boundaries of District No. 8. We offer the following comments:

1. 4.15.1 Existing Conditions, page 4.15-1, Sewer Service first paragraph – The two parallel sewers within South Avalon Boulevard connect to the LACSD 24-inch diameter Del Amo Trunk Sewer. Just downstream of that discharge point, the Del Amo Trunk Sewer's diameter increases to 27-inches.
2. 4.15.4 Impact Analysis, page 4.15-18, Wastewater Treatment Facilities second paragraph – Based on the approximate 80,000 square feet of structure proposed and the proposed characteristics described in section 3.4 of the report, the expected average wastewater flow from the project is 25,300 gallons per day.

6-1

6-2

All other information concerning Districts' facilities and sewerage service contained in the document is current. If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:ar

cc: A. Schmidt
A. Howard

DOC 5210003.D08

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Response to Comment Letter 6
County Sanitation Districts of Los Angeles County
July 1, 2019

- 6-1** In response to the comment from the County Sanitation Districts of Los Angeles County (Districts) providing clarifying information, the text on page 4.15-1 of the Draft EIR will be revised to reflect the correct sewer configuration. The EIR will now read as follows:

The two parallel sewers within South Avalon Boulevard connect to the LACSD ~~24~~7-inch-diameter Del Amo trunk sewer, located in South Avalon Boulevard south of Del Amo Boulevard, approximately 0.4 miles southeast of the project site. This trunk sewer, which increases in diameter to 27 inches just downstream of the parallel sewer discharge points, ~~is 24 inches in diameter,~~ has a capacity of 3.7 million gallons per day (mgd), and was conveying a peak flow of 2.4 mgd when last measured in 2015 (Appendix L; LACSD 2018a; 2019).

- 6-2** The analysis in Section 4.15, Utilities and Service Systems, of the Draft EIR identified that the proposed project would increase the amount of wastewater that is generated on the project site. The project site currently produces and average wastewater flow of approximately 4,542 gallons per day (gpd) with a peak flow of 0.017 cubic feet per second (cfs). Based on calculations included in Appendix L of the Draft EIR, the project is expected to generate an average flow of approximately 19,700 gpd of wastewater. This calculation was determined by multiplying the total building area for each project component (e.g., Leaning Center, Welcome Center) by average wastewater generation factors established by the Los Angeles County Sanitation District (see Table 1, *Loadings for Each Class of Land Use*, of Appendix E, *County of Los Angeles Sanitation District – Sanitary Sewer Discharge Table*, of Appendix L, *Utility Report*, of the Draft EIR).

Based on this comment letter, the County Sanitation Districts indicates that the proposed project is expected to generate 25,300 gpd of wastewater; however, no background or supporting information identifying how this number was derived is provided. This wastewater generation quantity would result in an increase in average daily wastewater generation (over existing conditions) of 20,758 gpd. This increase represents 1.6% of the remaining capacity of the Del Amo Trunk Sewer capacity and 0.01% of the remaining capacity of LACSD's JWPCP in Carson.

Similarly, the Draft EIR states that the project would generate 19,700 gpd of wastewater, which represents 1.5% of the remaining capacity of the Del Amo Trunk Sewer capacity and 0.01% of the remaining capacity of LACSD's JWPCP in Carson. Based on these calculations, the discrepancy in wastewater generation numbers between the project wastewater analysis and the quantity supplied by the County Sanitation District in the comment letter is negligible with respect to the available sewage transmission and treatment capacity. Impacts would remain less than significant, and the conclusions within Section 4.15 of the Draft EIR would not change.

Comment Letter 7



BARBARA FERRER, Ph.D., M.P.H., M.Ed.
Director

MUNTU DAVIS, M.D., M.P.H.
Health Officer

CYNTHIA A. HARDING, M.P.H.
Chief Deputy Director

ANGELO J. BELLOMO, MS, REHS, QEP
Deputy Director, Health Protection

LIZA FRIAS, REHS
Director of Environmental Health

BRENDA J. LOPEZ, REHS
Assistant Director of Environmental Health

5050 Commerce Drive
Baldwin Park, California 91706
TEL (626) 430-5374 • FAX (626) 813-3000

www.publichealth.lacounty.gov/eh/



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Fifth District

June 27, 2019

Mr. Ryan Kristan
County of Los Angeles Department of Public Works
Project Management Division II
900 South Fremont Avenue, 5th Floor
Alhambra, California 91803
Email: rkristan@dpw.lacounty.gov

**SUBJECT: DEIR (SCH# 2018071074) RESPONSE FOR THE CAROL KIMMELMAN
ATHLETIC AND ACADEMIC CAMPUS PROJECT AT THE FORMER BKK
LANDFILL, CARSON (SWIS #19-AQ-0014)**

Dear Mr. Kristan,

Thank you for allowing the Los Angeles County Department of Public Health's Solid Waste Management Program, acting as Local Enforcement Agency (LEA), to provide comments on the proposed project and for your agency's consideration of these comments as part of the California Environmental Quality Act (CEQA) process.

7-1

Project Description

The Carol Kimmelman Center, LLC, is proposing to develop an athletic and academic venue to include three primary centers:

The Learning Center would include approximately 25,000 square feet of building accessed via Martin Luther King, Jr. street. The Learning Center would host after-school and summer programs. Two basketball courts would be adjacent to the building and surface parking would be located to the south of the building.

7-2

June 27, 2019
Carol Kimmelman Center
Page 2

The Tennis Center would be located in the northern approximately 28 acres of the site and would include up to 62 tennis courts, a tennis exhibition court, welcome center, player development building, tournament/league administration building, maintenance buildings, and other recreational amenities. There will also be associated restrooms, storage facilities, and parking.

The Soccer Center will include up to eight soccer fields, two multi-purpose fields, maintenance buildings, associated restrooms, storage, and parking on approximately 58 acres.

Comments

Post-Closure land use plans, complying with Title 27 of the California Code of Regulations (CCR) Section 21190, must be submitted to the LEA for approval prior to any development activity. Maintaining the integrity of the landfill cover layer is of utmost importance and the plans should include details of any potential landfill cover impacts.

Landfill methane gas monitoring and controls must comply with 27 CCR Sections 20921 – 20945. Any destruction of existing methane gas monitoring wells or the installation of new methane gas monitoring wells must have prior LEA and CalRecycle approvals.

Please provide the LEA with copies of all future correspondence, notices, or subsequent CEQA documents. A minimum of 10 days prior notification of public hearings would be appreciated.

If you have any questions regarding these comments, please contact me at 626.430.5540 or curbach@ph.lacounty.gov.

Sincerely,



P. Christine Urbach, MPH REHS
Environmental Health Specialist III
LA County LEA Permitting and Investigations

7-2
Cont.

7-3

7-4

7-5

Response to Comment Letter 7
County of Los Angeles Public Health
June 27, 2019

7-1 The County acknowledges the comment as an introduction to comments that follow. This comment is included in the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project. In addition, the comment notes that the Los Angeles County Department of Public Health's Solid Waste Management Division is the Local Enforcement Agency. In response to this comment Section 4.8.2, Relevant Plans, Policies and Ordinances of the Draft EIR will be revised as follows:

The California Department of Resources Recycling and Recovery (CalRecycle) regulates landfills under Title 27 of the California Code of Regulations (Title 27). State law provides that CalRecycle operate locally through a Local Enforcement Agency (LEA). The LEA for the former BKK Landfill is the Los Angeles County Department of ~~Health and Services~~ Public Health's Solid Waste Management Division.

7-2 The County acknowledges the comment as a summary of the proposed project. The comment restates information contained in the Draft EIR and does not raise any environmental issues requiring responses. This comment is included in the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project.

7-3 The comment requests that post-closure land use plans, complying with Title 27 of the California Code of Regulations (CCR) Section 21190, be submitted to the Local Enforcement Agency (LEA) for approval prior to any development activity. The requirements of Title 22 of the CCR are discussed in Section 4.8.2, Relevant Plans, Policies, and Ordinances of the Draft EIR. In addition, Section 4.8.4, Impact Analysis, HAZ-1 on page 4.8-18 provides that existing local, state and federal laws, such as those listed under Section 4.8.2, would be enforced for the project site.

7-4 The comment states that landfill methane gas monitoring and controls must comply with 27 CCR Sections 20921-20945 and that any destruction of existing methane gas monitoring wells or the installation of new methane gas monitoring wells must have prior LEA and CalRecycle approvals. The requirements of Title 22 of the CCR are discussed in Section 4.8.2, Relevant Plans, Policies, and Ordinances of the Draft EIR. In addition, Section 4.8.4, Impact Analysis, HAZ-1 on page 4.8-18 provides that existing local, state and federal laws, such as those listed under Section 4.8.2, would be

enforced for the project site, including applicable County requirements for landfill gas monitoring and building protection systems.

- 7-5** The County acknowledges the comment and notes that it provides concluding remarks and providing contact information for questions. The comment requests that the LEA be included in all future correspondence, notices, or subsequent CEQA documents. Upon this request, going forward, the LEA will be added to all future mailing lists and included on correspondence related to topics contained in Comments and Responses 6-1 through 6-4 for this project. The comment does not raise new or additional environmental issues concerning the adequacy of the Draft EIR. This comment is included in the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project.

Comment Letter 8

Los Angeles Unified School District

Office of Environmental Health and Safety

AUSTIN BEUTNER
Superintendent of Schools

VIVIAN EKCHIAN
Deputy Superintendent

CARLOS A. TORRES
Director, Environmental Health and Safety

JENNIFER FLORES
Deputy Director, Environmental Health and Safety

June 28, 2019

Ryan Kristan, Project Manager
County of Los Angeles, Kenneth Hahn Hall of Administration
500 W. Temple Street
Los Angeles, CA, 90012

SUBJECT: PROJECT NAME: Kimmelman Athletic and Academic Campus & The Creek
PROJECT LOCATION: 340 Martin Luther King, Jr. Street, Carson, 90746
CLEARINGHOUSE NUMBER: 2018071074, 2018081078

Presented below are comments submitted on behalf of the Los Angeles Unified School District (LAUSD) regarding the project located at 340 Martin Luther King, Jr. Street, Carson, 90746

Based on the extent/location of the proposed development, it is our opinion that significant environmental impacts on the surrounding community (air quality, hazards, noise, traffic, pedestrian safety) will occur. Due to the fact that Towne Avenue Elementary School is located across the street from the proposed project site, LAUSD is concerned about the potential negative impacts of the development to our students, staff and parents traveling to and from the referenced campuses. Since the project will have a significant impact on LAUSD schools, mitigation measures designed to help reduce or eliminate such impacts are included in this response.

8-1

Air Quality

District students and school staff should be considered sensitive receptors to air pollution impacts. Construction activities for the proposed project would result in short term impacts on ambient air quality in the area resulting from equipment emissions and fugitive dust. To ensure that effective mitigation is applied to reduce construction air pollutant impacts on the schools, we ask that the following language be included as a mitigation measure for air quality impacts

- If the proposed mitigation measures do not reduce air quality impacts to a level of insignificance, the project applicant shall develop new and appropriate measures to effectively mitigate construction related air emissions at the affected schools. Provisions shall be made to allow the school and or designated representative(s) to notify the project applicant when such measures are warranted.

8-2

Hazards Section

The Environmental Conditions Summary, dated February 27, 2019 and completed by Roux Associates, Inc., reported that operation of the former landfill may have impacted shallow groundwater quality, vadose zone and near-surface soils, and is a contributor to volatile organic compounds (VOCs) and methane in soil gas. Grading plans by TAIT (2018) include preliminary estimates on grading volumes that include about 140,000 cubic yards of cut/fill/import material, which could exposure hazard to the students and staff at the Towne Avenue Elementary School during construction. LAUSD recommends that SCAQMD Rule 1166 be strictly followed to prevent any hydrocarbon exposure during the excavation, soil handling and soil transport activities during construction. Furthermore, plans should be completed for notifications of complaints and to shut down construction if there are complaints at the LAUSD school facility.

8-3

333 South Beaudry Avenue, 21st Floor, Los Angeles, CA 90017 • Telephone (213) 241-3199 • Fax (213) 241-6816

*Our Mission: To ensure a safe and healthy environment for students to learn, teachers to teach, and employees to work.
Our Vision: To eliminate all environmental, health, and safety risks at schools.*

(2018071074, 2018081078)

Noise

Noise created by construction activities may affect the school in proximity to the proposed project site. These construction activities include grading, earth moving, hauling, and use of heavy equipment. The California Environmental Quality Act requires that such impacts be quantified and eliminated or reduced to a level of insignificance.

LAUSD established maximum allowable noise levels to protect students and staff from noise impacts. These standards were established based on regulations set forth by the California Department of Transportation and the City of Los Angeles. LAUSD's exterior noise standard is 67 dBA Leq and the interior noise standard is 45 dBA Leq. A noise level increase of 3 dBA or more over ambient noise levels is considered significant for existing schools and would require mitigation to achieve levels within 2 dBA of pre-project ambient level. To ensure that effective mitigations are employed to reduce construction related noise impacts on District sites, we ask that the following language be included in the mitigation measures for noise impacts:

If the proposed mitigation measures do not reduce noise impacts to a level of insignificance, the project applicant shall develop new and appropriate measures to effectively mitigate construction related noise at the affected schools. Provisions shall be made to allow the school and or designated representative(s) to notify the project applicant when such measures are warranted.

8-4

Traffic/Transportation

LAUSD's Transportation Branch **must be contacted** at (213) 580-2950 regarding the potential impact upon existing school bus routes. The Project Manager or designee will have to notify the LAUSD Transportation Branch of the expected start and ending dates for various portions of the project that may affect traffic within nearby school areas. To ensure that effective mitigations are employed to reduce construction and operation related transportation impacts on District sites, we ask that the following language be included in the mitigation measures for traffic impacts:

- During the construction phase, truck traffic and construction vehicles may not cause traffic delays for our transported students.
- During and after construction changed traffic patterns, lane adjustment, traffic light patterns, and altered bus stops may not affect school buses' on-time performance and passenger safety.
- Construction trucks and other vehicles are required to stop when encountering school buses using red-flashing-lights must-stop-indicators per the California Vehicle Code.
- Contractors must install and maintain appropriate traffic controls (signs and signals) to ensure vehicular safety.
- Contractors must maintain ongoing communication with LAUSD school administrators, providing sufficient notice to forewarn children and parents when existing vehicle routes to school may be impacted.

8-5

Pedestrian Safety

Construction activities that include street closures, the presence of heavy equipment and increased truck trips to haul materials on and off the project site can lead to safety hazards for people walking in the vicinity of the construction site. To ensure that effective mitigations are employed to reduce construction and

8-6

(2018071074, 2018081078)

operation related pedestrian safety impacts on District sites, we ask that the following language be included in the mitigation measures for pedestrian safety impacts:

- Contractors must maintain ongoing communication with LAUSD school administrators, providing sufficient notice to forewarn children and parents when existing pedestrian routes to school may be impacted.
- Contractors must maintain safe and convenient pedestrian routes to all nearby schools. The District will provide School Pedestrian Route Maps upon your request.
- Contractors must install and maintain appropriate traffic controls (signs and signals) to ensure pedestrian and vehicular safety.
- Haul routes are not to pass by any school, except when school is not in session.
- No staging or parking of construction-related vehicles, including worker-transport vehicles, will occur on or adjacent to a school property.
- Funding for crossing guards at the contractor's expense is required when safety of children may be compromised by construction-related activities at impacted school crossings.
- Barriers and/or fencing must be installed to secure construction equipment and to minimize trespassing, vandalism, short-cut attractions, and attractive nuisances.
- Contractor's are required to provide security patrols (at their expense) to minimize trespassing, vandalism, and short-cut attractions.

The District's charge is to protect the health and safety of students and staff, and the integrity of the learning environment. The comments presented above identify potential environmental impacts related to the proposed project that must be addressed to ensure the welfare of the students attending Towne Avenue Elementary School their teachers and the staff, as well as to assuage the concerns of the parents of these students. Therefore, the measures set forth in these comments should be adopted as conditions of project approval to offset unmitigated impacts on the affected school students and staff.

Thank you for your attention to this matter. If you need additional information please contact me at (213) 241-4210.

Regards,



Alex Campbell
Assistant CEQA Project Manager

8-6
Cont.

8-7

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Response to Comment Letter 8
Los Angeles Unified School District,
Office of Environmental Health and Safety
June 28, 2019

- 8-1** The comment addresses the general subject areas of air quality, hazards, noise, traffic, pedestrian safety that received extensive analysis in Sections 4.2 Air Quality, 4.8 Hazards and Hazardous Materials, 4.11 Noise, and 4.13 Transportation, of the Draft EIR. The comment expresses concern with the project's proximity to Towne Avenue Elementary School. As discussed in Section 4.2, Air Quality, Towne Avenue Elementary was identified as one of the nearest sensitive-receptors to the project site and a Localized Significance Threshold (LST) analysis was prepared consistent with South Coast Air Quality Management District (SCAQMD) guidelines to determine potential impacts to nearby sensitive receptors during construction of the project, including Towne Avenue Elementary. As indicated in Section 4.2.3, the SCAQMD recommends the evaluation of localized NO₂, CO, PM₁₀, and PM_{2.5} impacts to sensitive receptors in the immediate vicinity of the project site that would occur as a result of construction activities. Section 4.2.4 concludes that construction activities would not exceed site-specific LSTs for all pollutants and, thus, impacts would be less than significant. See Response 8-2 for further discussions of this topic.

As concluded in Section 4.8, Hazards and Hazardous Materials, there is the potential for project construction activities to handle hazardous materials within one-quarter mile of two elementary schools. However, regulations are in place regarding the handling of hazardous materials. With compliance with MM-HAZ-1, MM-HAZ-2 and existing regulations, project construction would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school such that significant impacts would occur. See Response 8-3 for further discussions of this topic.

As discussed in Section 4.11, Noise, with adherence to MM-NOI-1 through MM-NOI-4, temporary construction noise impacts as a result of the proposed project would be minimized. However, it may not be technically feasible to use sonic pile driving for the installation of piles at the project site, therefore it was conservatively concluded that short-term construction noise impacts would remain significant and unavoidable after mitigation. See Response 8-4 below for further discussion of this issue.

As discussed in Section 4.13, Transportation, a Construction Traffic Management Plan shall be implemented, providing advanced notification to adjacent property owners and occupants, as well as nearby schools, of upcoming construction activities, including

durations and daily hours of construction. See Response 8-5 below for further discussion of this issue.

- 8-2** This comment states that Los Angeles Unified School District (LAUSD) students and staff should be considered sensitive receptors to air pollution impact and include additional mitigation measures to reduce impacts to air quality.

As discussed in Section 4.2 Air Quality, the analysis did include the nearby Towne Avenue Elementary School as a sensitive receptor, and the proposed project did not exceed the SCAQMD's LSTs for any pollutant. Additionally, as requested by the SCAQMD the project is adding six additional mitigation measures to further reduce criteria air pollutant emissions from both construction and operation of the project. These five new mitigation measures, MM-AQ-4 through MM-AQ-8 read as follows:

MM-AQ-4. The construction contractor shall require that construction vendors, contractors, and/or haul truck operators commit to using 2010 model year or newer diesel haul trucks. All construction truck operators shall maintain truck records and make these records available to the County upon request.

MM-AQ-5. The construction contractor shall encourage its construction contractors and vendors to apply for South Coast Air Quality Management Surplus Off-Road Opt-In for NO_x ("SOON") funds to the extent available, which provide funds to applicable fleets for the purchase of commercially available low-emission heavy-duty engines to achieve near-term reduction of NO_x emissions from in-use off-road diesel vehicles.

MM-AQ-6. During operations, the operator of the Learning Center shall encourage school bus fleets under contract with the Learning Center to seek funding opportunities through the South Coast Air Quality Management District's Lower-Emission School Bus Program, to the extent available, to replace older diesel busses with cleaner school buses.

MM-AQ-7. During operations, electric landscape equipment, such as lawn mowers and leaf blowers, shall be used to the extent commercially available.

MM-AQ-8. During operations, the project shall utilize electric or alternatively fueled parking lot sweepers with HEPA filters.

- 8-3** This comment requests that SCAQMD Rule 1166 be strictly followed to prevent any hydrocarbon exposure during the excavation, soil handling and soil transport activities

during construction. As discussed in Section 4.2, Air Quality of the Draft EIR, the project will comply with all applicable regulations, including SCAQMD regulations, during project construction. Additionally, in response to comments submitted by SCAQMD (see Comments and Responses 4-1 through 4-8), the following has been added into Section 4.2, Air Quality, within in the Draft EIR:

- **Rule 1150** – Excavation of Landfill Sites: This rule generally requires that an Excavation Management Plan approved by the Executive Officer be obtained from the SCAQMD prior to the excavation of an active or inactive landfill.
- **Rule 1166** – Volatile Organic Compound Emissions from Decontamination of Soil: This rule that generally requires an approved mitigation plan be obtained from the SCAQMD prior to the handling of VOC-contaminated soil at or from an excavation or grading site.
- **Rule 1466** – Control of Particulate Emissions from Soils with Toxic Air Contaminants: This rule generally requires any owner or operator conducting earth-moving activities of soil with applicable toxic air containments (TACs) at certain sites to preform specified particulate matter monitoring and control measures.

8-4 This comment addresses potential construction-related noise impacts at the nearby Towne Avenue Elementary School. The comment provides citation of LAUSD's established maximum allowable noise levels to protect students and staff from noise impacts, namely an exterior noise standard is 67 dBA Leq and an interior noise standard of 45 dBA Leq. Exposure limits of this type are generally applied to long-term exposure rather than to short-term events such as construction noise. Potential construction-related noise impacts at the school were evaluated in the Draft EIR, and all feasible mitigation to reduce potential construction noise impacts was incorporated. As discussed in Section 4.11, Noise, with adherence to MM-NOI-1 through MM-NOI-4, temporary construction noise impacts as a result of the proposed project would be minimized. However, it may not be technically feasible to use sonic pile driving for the installation of piles at the project site, therefore it was conservatively concluded that short-term construction noise impacts would remain significant and unavoidable after mitigation. MM-NOI-4 outlines conditions that the construction contractor must adhere to throughout construction, including providing contact information for the contractor to address construction related issues. In response to the request made by LAUSD, the following mitigation language has been added to MM-NOI-4.

MM-NOI-4**Construction Noise Reduction**

The County of Los Angeles shall require the contractor to adhere to the following measures as a condition of granting a grading permit to the contractor:

- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers.
- Construction noise reduction methods such as shutting off idling equipment, construction of a temporary noise barrier, maximizing the distance between construction equipment staging areas and adjacent residences, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible.
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances.
- At the request of the school administration for Towne Avenue Elementary School, the contractor will meet with the school principal or other representative each week to discuss anticipated upcoming construction activities and applicable noise reduction measures.

8-5

The proposed project will implement Project Design Feature PDF-TRAF-2 – Construction Traffic Management Plan to reduce potential traffic impacts related to construction traffic. Some of the measures requested by the LAUSD are already addressed in PDF-TRAF-2. Per the request of LAUSD, PDF-TRAF-2, as shown in pages 4.13-68 and 4.13-69 of the Draft EIR, will be modified to include the following additional items:

PDF-TRAF-2 Prior to issuance of a grading permit, the proposed project will develop a Construction Traffic Management Plan for construction activities that would impact public streets.

The Construction Traffic Management Plan shall be based on the nature and timing of the specific construction and

other projects in the vicinity of the project site and shall include the following elements as appropriate:

- Advance notification to adjacent property owners and occupants, as well as, nearby schools, of upcoming construction activities, including durations and daily hours of construction.
- The project's construction manager shall contact LAUSD's Transportation Branch at (213) 580-2950 regarding the potential impact upon existing school bus routes, and the expected start and ending dates for various portions of the project construction that may affect traffic within nearby school areas.
- Prohibition of construction worker parking on adjacent residential streets, and identify construction employee parking locations and protocols.
- Temporary traffic control during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways (e.g., flag men flagmen). The temporary traffic controls shall minimize traffic delays for LAUSD transported students.
- Prohibition of construction-related vehicle parking on surrounding public streets.
- Safety precautions for pedestrian and bicyclists through such measures as alternate routing and protection barriers as appropriate, including along all identified Los Angeles Unified School District (LAUSD) and Compton Unified School District (CUSD) pedestrian routes to nearby schools.
- Scheduling of construction-related deliveries, haul trips, etc., so as to occur outside the commuter peak hours to the extent feasible, and so as to not impede school drop-off and pick-up activities and students using LAUSD/CUSD's identified pedestrian routes to nearby schools.

- Coordination with public transit agencies to provide advanced notifications of any anticipated stop relocations and durations.
- Provision of advanced notification of any temporary on-street parking removals and duration of removals.
- Establish construction hours that are in compliance with Carson Municipal Code (CMC).
- Establish a construction phone number which shall be posted on the site, and appoint a construction liaison officer to respond to concerns or inquiries regarding project construction.
- Construction trucks and other vehicles are required to stop when encountering school buses using red-flashing-lights must-stop-indicators per the California Vehicle Code.
- Contractors shall install and maintain appropriate traffic controls (signs and signals) for vehicular safety.
- Contractors shall maintain ongoing communication with LAUSD school administrators, for the school to provided sufficient notice to children and parents when existing vehicle and pedestrian routes to school may be impacted.
- Maintain unimpeded emergency access to the project site and nearby properties.
- Establish truck access and staging areas, and review haul route approved with the project.
- Provide construction site security.
- Prohibition of staging or parking of construction-related vehicles, including worker-transport vehicles, on or adjacent to a school property without the express written permission of the applicable school district.
- Funding for crossing guards at the contractor's expense to the extent required when safety of children may be compromised by construction-related activities at impacted school crossings.

8-6 See Response 8-5 above.

8-7 The comment reiterates the concerns expressed in the comments above and requests that the measures provided in the letter be adopted as conditions of project approval. Please refer to Responses 8-2 through 8-6 for discussion of the recommended measures. The comment provides concluding remarks that do not raise new or additional environmental issues concerning the adequacy of the Draft EIR; as such, no further response to this comment is provided.

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Comment Letter 9



June 25, 2019

Ryan Kristan

County of Los Angeles
Department of Public Works
Project Management Division II
900 S. Fremont Avenue, 5th Floor
Alhambra, California 91803
rkristan@dpw.lacounty.gov

Dear Mr. Kristan:

The proposed Carol Kimmelman Athletic and Academic Campus will make a tremendous contribution to Southern California. Please support this project.

Whether you're playing on a team or cheering from the sidelines, I've seen firsthand how sports can connect people. The Kimmelman campus is an important opportunity for us to bring the community closer together through the magic of sports.

I've been playing tennis my whole life and look forward to seeing the next generation get the benefit of the fun activities and professional-level instruction that will be made available to them at this amazing site. Tennis can give kids the discipline, drive and sportsmanship skills that will serve them well on and off the court.

Additionally, the scale of this campus and investment that it brings will be an economic boost to our region.

I'm eager to see County of Los Angeles approve the project so it can move forward.

Yours respectfully,

William J. Kellogg
President, La Jolla Beach & Tennis Club
Past President of the Southern California Tennis Association

9-1

2000 Spindrift Drive, La Jolla, CA 92037 858-454-7126 Fax: 858-456-5805

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Response to Comment Letter 9
La Jolla Beach and Tennis Club
June 25, 2019

- 9-1** This letter indicating support for the project is noted for the record and has been incorporated into the Final EIR for review and consideration by the decision-makers prior to any action on the project.

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Comment Letter 10

From: Ryan Kristan (Consultant) <rkristan@dpw.lacounty.gov>
Sent: Thursday, June 27, 2019 1:04 PM
To: Nicole Cobleigh
Subject: Fwd: Carol Kimmelman Athletic and Academic Campus

Begin forwarded message:

From: Giles Austin <giles@lets-teach.org>
Date: June 27, 2019 at 11:12:04 PDT
To: rkristan@dpw.lacounty.gov
Subject: Carol Kimmelman Athletic and Academic Campus

Dear Mr. Kristan:

My organization, Let's Teach, works tirelessly to make a positive impact on our Southern California youth. It's important we have more community partners, like the Carol Kimmelman Athletic and Academic Campus. Through its incredible proposed facilities and vision for programming, the Center can help us reach more of our youth, helping them fulfill their potential academically and athletically. It takes a village, as they say, and this campus and the resources it will offer will help make our village stronger.

My team is ready to put in the hard work, and work with Kimmelman and community to make this happen. Please do not let this opportunity pass us by.

Respectfully,

Giles Austin
 Executive Director
 Let's Teach, Inc.
www.lets-teach.org
 (217) 369-5227 (cell)



10-1



Response to Comment Letter 10

Let's Teach

June 27, 2019

- 10-1** This letter indicating support for the project is noted for the record and has been incorporated into the Final EIR for review and consideration by the decision-makers prior to any action on the project.

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Comment Letter 11

Begin forwarded message:

From: <jerome@first1break.com>
Date: June 27, 2019 at 13:32:21 PDT
To: <kristan@dpw.lacounty.gov>
Subject: Carol Kimmelman Athletic & Academic Campus

Dear Mr. Kristan:

This email is in regards to the Carol Kimmelman Athletic & Academic Campus.

The First Break Academy runs a Tennis/Academic/Life skills program in Carson, CA. at the Dignity Health Sports Park. We service hundreds of youth from Carson as well as surrounding communities. Throughout the six years we've been in existence, 1000's of youth have matriculated through our program.

It's exciting to see a new place like the Kimmelman Campus being built in the South Bay/Carson. This will be an important center for everyone - people young and old, people at all skill levels and with different needs. In addition to all the sports and academic options, I'm impressed that the project will also aim to bring other members of the community in by offering a large, accessible outdoor space that can be used by community members of all ages. This would be a wonderful way to really bring the neighborhood together!

It's one of the most exciting and groundbreaking developments to come to our area in years, and we need to make this happen. I fully support this project, and I hope that county officials do the same.

Thank you for your consideration.

Jerome Jones
 Executive Director
 First Break Academy

11-1

310-415-4442
www.first1break.com

Response to Comment Letter 11
First Break Academy
June 27, 2019

- 11-1** This letter indicating support for the project is noted for the record and has been incorporated into the Final EIR for review and consideration by the decision-makers prior to any action on the project.

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Comment Letter 12



June 27, 2019

Dear Mr. Kristan:

The Sloane Stephens Foundation works tirelessly to make a positive impact on our Southern California youth. Partners like the Carol Kimmelman Athletic and Academic Campus are essential to the growth of our program and other programs serving Southern California youth. Through its incredible proposed facilities and vision for programming, the Center will help us reach more of our youth, helping them fulfill their potential academically and athletically.

Our community knows it takes a village to raise a child. The resources offered at the Carol Kimmelman Athletic and Academic Campus will help make our village stronger.

My team is ready to put in the hard work with the Kimmelman community to make this happen. Please do not let this opportunity pass us by.

Respectfully,

A handwritten signature in black ink, appearing to read "Sybil Smith".

Sybil Smith, Ed.D
Executive Director

12-1

5109 Nagle Avenue, Sherman Oaks, CA 91423
Phone (559) 250.6393 FAX (310) 943.2324
www.SloaneStephensFoundation.org

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Response to Comment Letter 12
Sloane Stephens Foundation
June 27, 2019

- 12-1** This letter indicating support for the project is noted for the record and has been incorporated into the Final EIR for review and consideration by the decision-makers prior to any action on the project.

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Comment Letter 13

Pasadena Tennis Association



June 27, 2019

Ryan Kristan
County of Los Angeles
Department of Public Works

Dear Mr. Kristan,

My organization Pasadena Tennis Association is dedicated to supporting the well-being of our local youth and providing them with the resources and services to live a happy, healthy and successful life. I believe the team behind the new Carol Kimmelman Athletic and Academic Campus share in these values and goals and will be an important asset to our community.

This incredible campus will foster an active, healthier lifestyle through its state-of-the-art facilities, sports instruction and rich programming. And they're doing it right by reaching out and working with national partners, community partners like Pasadena Tennis Association, and local leaders to ensure that they are serving the community's best interests and needs.

We are excited to welcome them to Southern California and support their efforts to expand opportunity for our local youth, especially those who are most at-risk.

13-1

Cordially,
Esther Hendershott

Esther Hendershott

Executive Director
Pasadena Tennis Association
USTA NJTL Chapter

"Creating change in and through the sport of tennis"

P.O. Box 50606, Pasadena CA 91115
(626) 598-1170
www.tennispasadena.com

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Response to Comment Letter 13
Pasadena Tennis Association
June 27, 2019

- 13-1** This letter indicating support for the project is noted for the record and has been incorporated into the Final EIR for review and consideration by the decision-makers prior to any action on the project.

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Comment Letter 14

From: Marty Woods <pbsf2009@aol.com>
Sent: Friday, June 28, 2019 8:56 AM
To: Ryan Kristan (Consultant) <rkristan@dpw.lacounty.gov>
Cc: pbsf2009@aol.com
Subject: Kimmelman Campus

Dear Mr. Kristan:

My organization Pete Brown Jr Tennis Program works tirelessly to make a positive impact on our Southern California youth. It's important we have more community partners, like the Carol Kimmelman Athletic and Academic Campus. Through its incredible proposed facilities and vision for programming, the Center can help us reach more of our youth, helping them fulfill their potential academically and athletically. It takes a village, as they say, and this campus and the resources it will offer will help make our village stronger.

My team is ready to put in the hard work, and work with Kimmelman and community to make this happen. Please do not let this opportunity pass us by.

Respectfully,
Marty Woods CEO Pete Brown Jr Tennis Program

14-1

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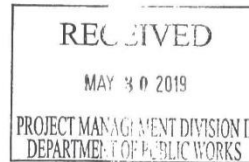
Response to Comment Letter 14
Pete Brown Jr. Tennis Program
June 28, 2019

- 14-1** This letter indicating support for the project is noted for the record and has been incorporated into the Final EIR for review and consideration by the decision-makers prior to any action on the project.

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Comment Letter 15

CT



May 16, 2019

Ryan Kristan
County of Los Angeles Department of Public Works
Project Management Division II,
900 South Fremont Avenue, 5th Floor,
Alhambra, CA 91803

Re: Notice of Completion and Availability of a Draft Environmental Impact Report // To: 3M Company

Case No.

Dear Sir/Madam:

After checking our records and the records of the State of CA, it has been determined that C T Corporation System is not the registered agent for an entity by the name of 3M Company.

CT was unable to forward.

Very truly yours,

C T Corporation System

Log# 535494801

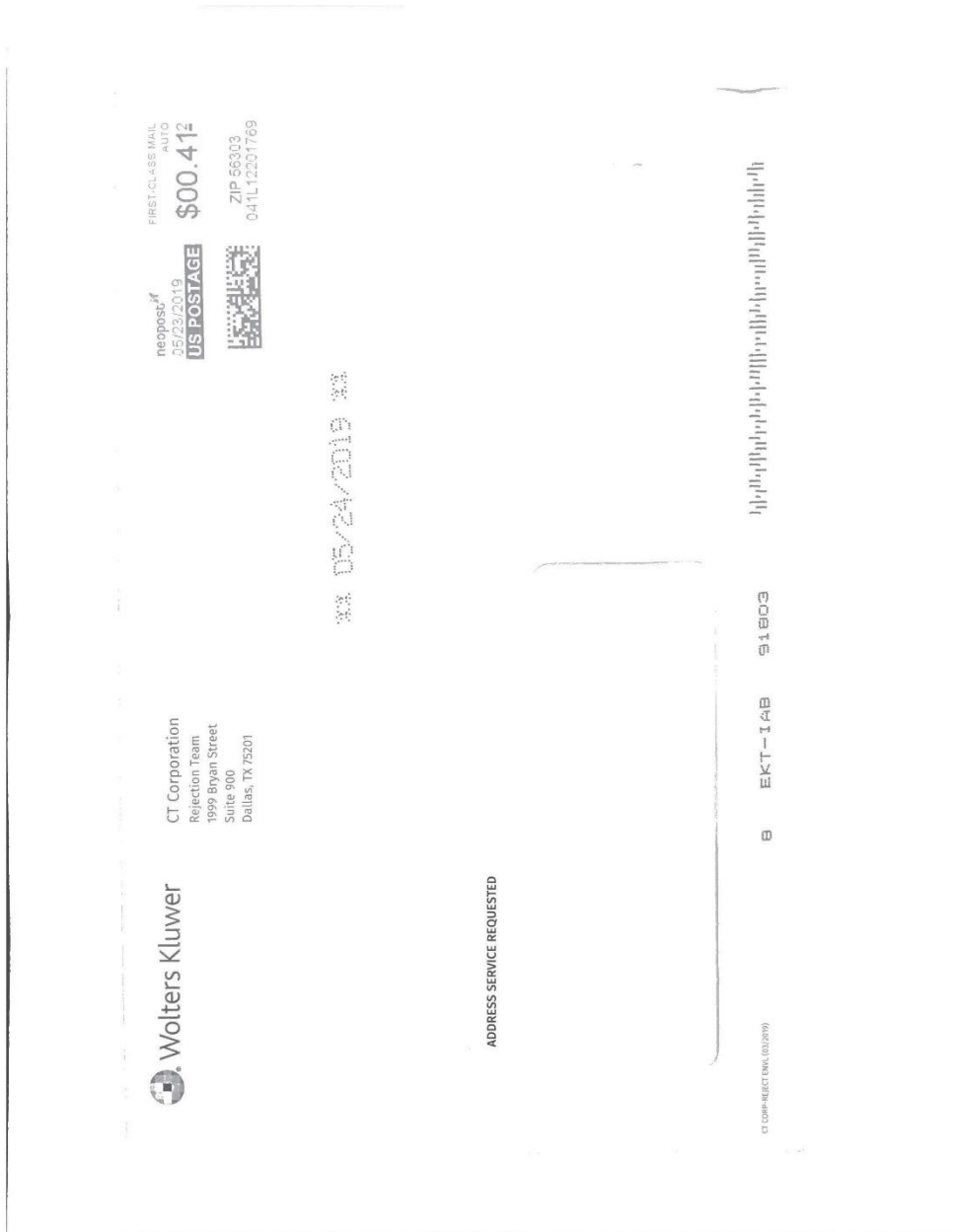
Sent By Regular Mail

cc: --

15-1

(Returned To)

Ryan Kristan
County of Los Angeles Department of Public Works
Project Management Division II,
900 South Fremont Avenue, 5th Floor,
Alhambra, CA 91803



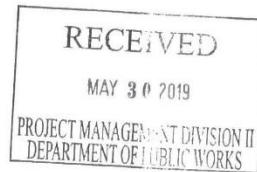
Response to Comment Letter 15
CT Corporation
May 16, 2019

- 15-1** The comment is in response to receiving a Notice of Completion and Availability for the Draft EIR addressed to 3M Company. The comment indicates that CT Corporation System is not the registered agency for the entity of 3M Company. The Notice of Completion and Notice of Availability were sent to all entities provided within the Department of Toxic Substance Control (DTSC)'s mailing list as well as all property owners and occupants within a 500-foot radius of the project site for the proposed project, among others. The County notes the comment and will remove the address for future mailings.

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Comment Letter 16

CT



May 16, 2019

Ryan Kristan
County of Los Angeles Department of Public Works
900 South Fremont Avenue, 5th Floor,
Alhambra, CA 91803

Re: 340 Martin Luther King Jr. Street, Carson // To: 3M Company

Case No.

Dear Sir/Madam:

After checking our records and the records of the State of CA, it has been determined that C T Corporation System is not the registered agent for an entity by the name of 3M Company.

CT was unable to forward.

Very truly yours,

C T Corporation System

Log# 535495217

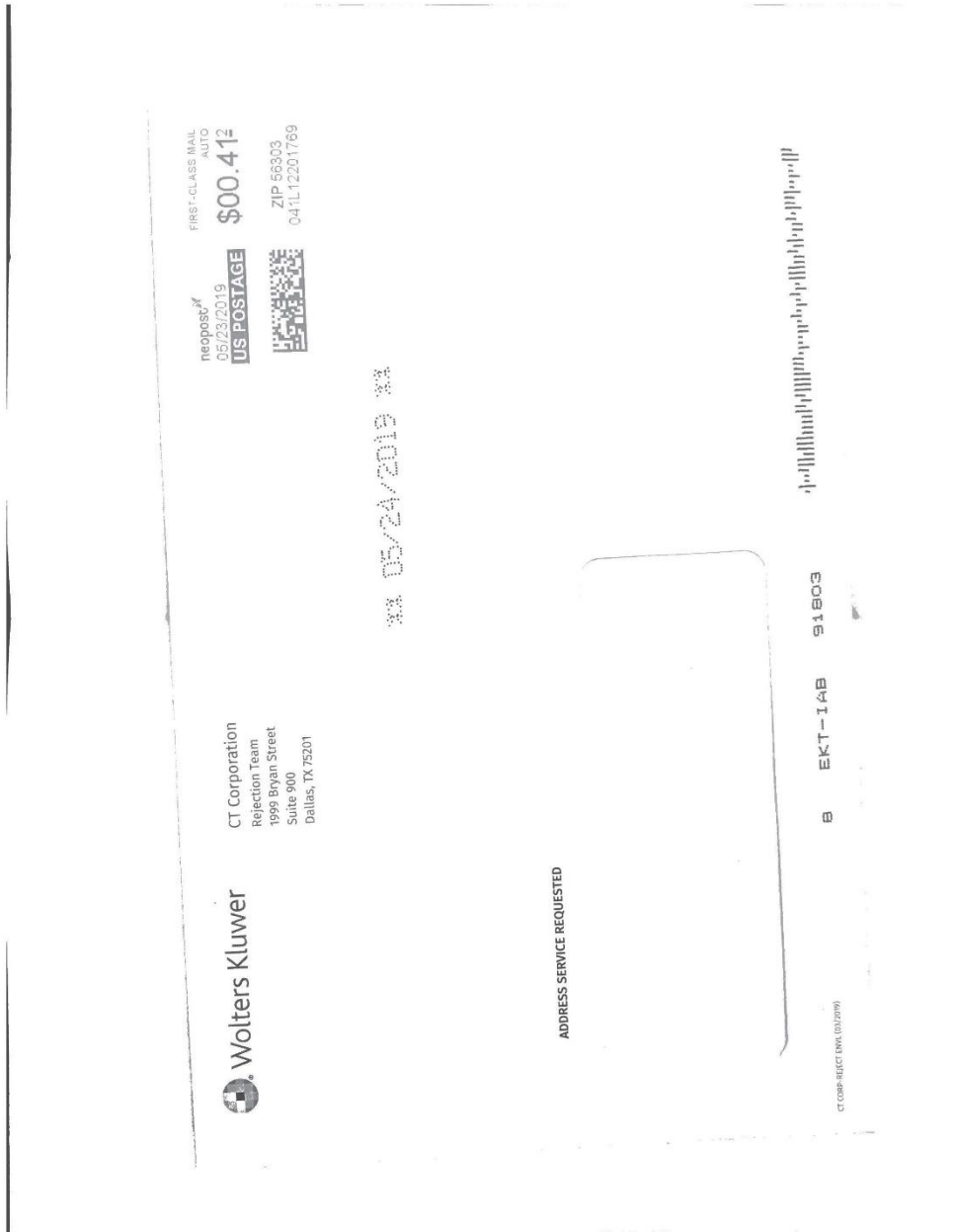
Sent By Regular Mail

cc: --

16-1

(Returned To)

Ryan Kristan
County of Los Angeles Department of Public Works
900 South Fremont Avenue, 5th Floor,
Alhambra, CA 91803



Response to Comment Letter 16

CT Corporation

May 16, 2019

- 16-1** The comment is in response to receiving a Notice of Completion and Availability for the Draft EIR addressed to 3M Company. The comment indicates that CT Corporation System is not the registered agency for the entity of 3M Company. The Notice of Completion and Notice of Availability were sent to all entities provided within the Department of Toxic Substance Control (DTSC)'s mailing list as well as all property owners and occupants within a 500-foot radius of the project site for the proposed project, among others. The County notes the comment will remove the address for future mailings.

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Comment Letter 17

From: vince goshi <vincegoshi@cox.net>
Sent: Thursday, May 16, 2019 3:32 PM
To: Ryan Kristan (Consultant) <rkristan@dpw.lacounty.gov>
Subject: EIR For Kimmelman and Plenitude Projects

Ryan:

I received your letters notifying that the EIR for the subjects, dated May 2019, are available for review. I downloaded both reports and did a quick scan of each looking at the impacts and mitigation of these projects on the existing golf recreation provided to the over 2000 people who regularly use the course. The Plenitude report says, basically, there are other courses nearby and does not discuss how this would impact Victoria's golfers as well as the golfers at the other courses who would be impacted. This appears to totally ignore the comments I made at the EIR scoping meeting. Kimmelman's report totally eliminated the paragraph on recreation impacts and does nothing to respond to the comments I submitted at the EIR scoping meeting.

17-1

17-2

This is very disappointing.

Vincent Goshi
310 303 9218 (cell)

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Response to Comment Letter 17

Vincent Goshi

May 16, 2019

17-1 The County acknowledges the comment as an introduction to the comments that follow. The comment restates information contained in the Draft EIR and does not raise any environmental issues requiring responses. This comment is included in the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project.

17-2 This comment states that the EIR does not include a paragraph on recreation impacts and does not respond to the concerns expressed by the commenter at the EIR scoping meeting.

The Draft EIR addresses impacts to parks in Section 4.12, Public Services. Whether a project constitutes a potentially significant impact to public services (including parks) is determined by the following threshold, pursuant to CEQA Guidelines Appendix G: the project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services (including parks).

The analysis in Section 4.12 of the Draft EIR describes the existing setting relative to parks and assesses the potential for the proposed project to trigger a need for new or physically altered park facilities. As explained in Section 4.12 of the Draft EIR, the proposed project is not expected to result in substantial, adverse physical impacts due to the need for new or physically altered park facilities in order to maintain acceptable service ratios. The need for new or expanded park facilities is usually caused when the residential population in a park's service area increases to the degree that a new or expanded park is required to meet the community's recreational and parkland needs. The proposed project would not involve construction of new homes, nor would the project result in substantial increases in employment at the project site or within the surrounding area, such that substantial population growth would occur. While the type of recreational use would change at the project site, the proposed project would not reduce the recreational resources that are available in the region. As such, the topic of impacts to recreation has not been omitted from the Draft EIR and is included in Section 4.12 of the Draft EIR.

The commenter also states that their input provided during the EIR scoping period was not considered. Scoping is used by agencies "in identifying the range of actions,

alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important” (CEQA Guidelines Section 15083(a)). In an effort to hone the scope of the EIR and to hear community concerns, the County gathered and considered comments from the public, agencies, and interested organizations during the scoping period at a scoping meeting and via written comment. During this time, the commenter provided several letters to the County, which are included in the Draft EIR as part of Appendix A. The County reviewed these letters and considered the comments in preparation of the EIR. The letters from the commenter expressed concerns regarding the change in recreational use at the site, potential effects to golfers (particularly senior golfers), and potential effects of construction on a former landfill (particularly the potential hazards that this could pose to nearby schools). The commenter included a list of senior golfers who use the existing course and also expressed concerns regarding the capabilities of nearby County golf courses to accommodate the seniors who golf in the early mornings at the Victoria Golf Course. Section 1.6 of the Draft EIR lists the areas of known controversy surrounding the project, as required by CEQA Guidelines Section 15123. This list includes concerns regarding the loss of the Golf Course and other recreational options, which were expressed by the commenter. This list also includes concerns related to the disturbance of the former landfill and potential effects on the remediation activities.

As described above, Section 4.12 of the Draft EIR included an analysis of the project’s impacts to park facilities. As noted by the commenter, the change in recreational use at the project site would affect individuals who use the existing golf course. To the extent that the change in recreational use could have impacts on the environment, those impacts have been analyzed in the Draft EIR (e.g., effects from project construction, effects from changes in traffic patterns, effects from an increased intensity of use at the site). However, effects to individuals’ recreational habits and choices would not be impacts on the environment. Nevertheless, the commenter’s concerns involving the wellbeing of golfers that currently use the Victoria Golf Course and the information provided by the commenter regarding current usage of the Victoria Golf Course will be provided to decision makers for their review and consideration as part of this Final EIR.

Effects related to construction of the proposed project on a former landfill are addressed in Section 4.6, Geology and Soils, Section 4.8, Hazards and Hazardous Materials, and Section 4.9, Hydrology and Water Quality. Section 4.8 specifically discusses impacts related to hazardous emissions and substances near a school. While impacts were identified in association with construction of the project on a former landfill, they were determined to be less than significant or less than significant after mitigation, as described and substantiated in Sections 4.6, 4.8, and 4.9 of the Draft EIR.

Comment Letter 18

From: Richard Chang <rchang@rca4results.com>
Sent: Tuesday, June 25, 2019 4:47 PM
To: Ryan Kristan (Consultant) <rkristan@dpw.lacounty.gov>
Cc: Richard Chang <rchang@rca4results.com>
Subject: Letter of Endorsement for the Carol Kimmelman Athletic and Academic Campus Development Project

Dear Mr. Kristan:

I'm an enthusiastic supporter of the Carol Kimmelman Athletic and Academic Campus. This is the kind of investment that will leave a lasting impact on our community! The project team is taking this long underutilized space and transforming it into a world-class sports and learning facility for everyone to enjoy and benefit.

I'm a longtime tennis player and fan and I'm especially excited about all the new tennis facilities, lessons and training that the campus is offering in conjunction with the U.S. Tennis Association. This kind of access to world-class tennis, together with all the other programs, will bring enormous value to my neighbors and to people throughout the area.

It's clear that the team behind the project are committed to the community. I hope it has your support.

Best regards,
Richard Chang
CEO, Richard Chang Associates, Inc.

Member of the Executive Committee, USTA Southern California Board of Directors
and Chair, USTA National Leadership and Team Development Committee

18-1

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Response to Comment Letter 18

Richard Chang

June 25, 2019

- 18-1** This letter indicating support for the project is noted for the record and has been incorporated into the Final EIR for review and consideration by the decision-makers prior to any action on the project.

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Comment Letter 19

From: Vivian Hatcher <vhatch11@gmail.com>
Sent: Monday, July 1, 2019 4:36 PM
To: Ryan Kristan (Consultant) <rkristan@dpw.lacounty.gov>
Subject: COMMENTS RE: EIRs FOR VICTORIA PARK DEVELOPMENT

Dear Mr. Kristan & Staff:

Thank you for this opportunity to comment on the Victoria Golf Park EIRs.

I am a resident of North Carson near this development. I perused the EIRs for the Carol Kimmelman Athletic and Academic Campus Project and the Creek at Dominguez Hills.

While I noticed that the EIRs mentioned many environmental concerns, my hope is that the developers and County have an adequate plan and will implement it in order to:

- Remediate the landfill gas, effectively address the soil/dust (during and after the construction), manage water contamination concerns, mitigate air pollution and minimize and/or eliminate noise, traffic congestion, lighting/glare nuisance from the location, and include education/signage to alert visitors that coyotes may be present.

Both developments will seemingly attract a large number of individuals. I hope the developers and the County:

- Contact the LA County Sheriffs and the LA County Fire Department to obtain their input regarding the security, health and safety of the facilities, staff and visitors to the project,
- Have plans to staff the projects in such a way that the project will be maintained, cleaned, secured and overseen to make them user friendly and well kept. (i.e. with full time housekeepers,, landkeepers/for grass, foliage, trails, paths, pet cleanup, information booths/gatekeepers, utility plant staff).

I hope the developers and County will:

- Establish a relationship with the Carson community to share feedback about the projects once they are fully developed.
- Be willing to hire local residents and to share tax revenues with the City of Carson.
- Engage in continuous quality improvement and environmental impact evaluations. The City of Carson has at least two major developments coming on line close to Victoria Park (North Carson). They are the Districts at South Bay (mall, shopping, restaurants, hotel, etc.), and the Union South Bay (357 multi-family residential apartment complex and commercial space. While we welcome having amenities, we are also concerned about the potential for traffic congestion and negative environmental conditions.

I applaud the Carol Kimmelman Foundation and Plenitude Holdings for wanting to help under served students and others by bringing athletic, wellness and educational activities to our city. I reached out to the Tiger Woods Foundation, philanthropists and dignitaries over 10 years ago and asked them to consider bringing a learning center to Carson. It did not materialize, so I am thrilled to hear that this project is in the works.

All the best to you, the foundations, the developers and the County of Los Angeles.

Sincerely,

(Ms.) Vivian Hatcher

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Response to Comment Letter 19

Vivian Hatch

July 1, 2019

- 19-1** The County acknowledges the comment as an introduction to the comments that follow. This comment is included in the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project.
- 19-2** The comment expresses general concern for environmental concerns previously addressed in Sections 4.1, Aesthetics, 4.2, Air Quality, 4.3, Biological Resources, 4.8, Hazards and Hazardous Material, 4.9, Hydrology and Water Quality, 4.11, Noise, and 4.13, Transportation, which received extensive analysis in the Draft EIR. The comment does not raise any specific issues regarding the analysis contained in the Draft EIR and, therefore, no more specific response can be provided or is required. The County will include the comment as part of the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project.
- 19-3** The commenter expresses a hope that the project developer and the County will contact the Los Angeles County Sheriff's Department and the Los Angeles County Fire Department to obtain input regarding the security, health, and safety of the facilities, staff, and visitors to the project.

As part of the EIR scoping process, the Los Angeles County Sheriff's Department and the Los Angeles County Fire Department were provided information about the project, the opportunity to comment on the project, and the opportunity to provide input on the scope of the EIR. These agencies were also alerted to the availability of the Draft EIR for public review and comment. Both agencies will remain on the mailing list for the proposed project, so that they are provided necessary updates regarding upcoming hearings and project status.

Information regarding the features of the project that would reduce the potential for crime or fire emergencies at the project site are described in Section 4.12, Public Services, in the Draft EIR. As stated in Section 4.12, the project would be designed and constructed in accordance with all applicable provisions of the fire code, which includes requirements for adequate fire flows, width of emergency access routes, turning radii, automatic sprinkler systems, fire alarms, and floor to sky height limits along emergency access routes. Compliance with fire code standards would be ensured through the plan check process prior to the issuance of building permits. As such, the Los Angeles County Fire Department would be involved in reviewing the project plans

and ensuring that the project is designed and constructed in accordance with fire protection requirements and specifications.

As further stated in Section 4.12, Public Services, in the Draft EIR, the proposed project would incorporate operational practices and design elements to increase on-site safety and to reduce the potential for crime to occur. During construction, the contractor would implement temporary security measures including security fencing, lighting, and locked entry. During operation, practices to increase safety could include, but would not be limited to, the following: on-site security services, wayfinding signage, security fences, alarms, and security cameras. Project design would employ defensible design, lighting, and landscaping to minimize secluded and nonvisible areas. These techniques would minimize spaces that are hidden from public view, which would help prevent loitering and crime. Building entries, parking areas, and walkways would be sufficiently lit, which would facilitate safe pedestrian movement and would be used to identify routes between parking areas and the different facilities within the project site. Additionally, during certain special events at the project site, an Event Management Plan would be put in place.

As stated above, the Los Angeles County Fire Department and the Los Angeles County Sheriff's Department will remain on the mailing list for the proposed project, so that they are provided with necessary updates regarding upcoming hearings and project status. In the event that the project is approved, coordination with both agencies would be ongoing to ensure that safety of facilities, staff, and visitors are maintained to the extent feasible during project construction and operation.

- 19-4** The commenter requests that the project be maintained, cleaned, secured and overseen to make the project site user friendly. The project as designed includes secure fencing around the site perimeter. Within the project itself, during project operations, the project would be staffed with maintenance workers, grounds keepers, and onsite security personnel to provide regular maintenance at the site. As discussed in Section 3, Project Description, the landscape design for the project will incorporate passive elements with unprogrammed open space consistent with a part aesthetic.
- 19-5** Public outreach efforts are conducted by the County where community feedback is welcomed and encouraged. The County acknowledges the comment and notes that it does not relate to any physical effect on the environment. The County will include the comment as part of the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project. No further response is required because the comment does not raise an environmental issue.

- 19-6** The commenter requests that the project applicant be willing to hire local residents and to share tax revenues with the City of Carson. It is anticipated that the Lease Agreement for the proposed project will include a local hiring component. With regard to tax revenues, the project will operate as a non-profit project and is not expected to generate property tax revenues. The County acknowledges the comment and notes that it does not relate to any physical effect on the environment. The County will include the comment as part of the Final EIR for review and consideration by the decision-makers prior to a final decision on the proposed project. No further response is required because the comment does not raise an environmental issue.
- 19-7** The County shall continue to engage in the environmental review process, as required by the California Environmental Quality Act (CEQA). The County acknowledges and is aware of upcoming projects in the City of Carson, and the referenced projects in the City were considered related projects and incorporated into the cumulative impact analysis throughout the Draft EIR.
- 19-8** This comment indicating support for the project is noted for the record and has been incorporated into the Final EIR for review and consideration by the decision-makers prior to any action on the project.

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CHAPTER 3 ERRATA

The comments received by the County of Los Angeles (County) during the public review period for the Draft EIR included information that has resulted in several minor revisions to the text of the Draft EIR. These revisions are shown below and are categorized by section number and page number. Text from the Draft EIR that has been removed is shown in strikethrough (i.e., ~~strikethrough~~), and text that has been added as part of the Final EIR is shown as underlined (i.e., underline). Revisions are shown with surrounding sentences for context. This errata merely clarifies and corrects minor facts and does not constitute “substantial revisions” requiring recirculation of the Draft EIR, as set forth in CEQA Guidelines, Section 15073.5.

1.0 SUMMARY

1.5.3 Project Design Features

Page 1-14

PDF-TRAF-2 Prior to issuance of a grading permit, the proposed project will develop a Construction Traffic Management Plan for construction activities that would impact public streets.

The Construction Traffic Management Plan shall be based on the nature and timing of the specific construction and other projects in the vicinity of the project site and shall include the following elements as appropriate:

- Advance notification to adjacent property owners and occupants, as well as, nearby schools, of upcoming construction activities, including durations and daily hours of construction.
- The project’s construction manager shall contact LAUSD’s Transportation Branch at (213) 580-2950 regarding the potential impact upon existing school bus routes, and the expected start and ending dates for various portions of the project construction that may affect traffic within nearby school areas.
- Prohibition of construction worker parking on adjacent residential streets, and identify construction employee parking locations and protocols.
- Temporary traffic control during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways (e.g., flag men flagmen). The temporary traffic controls shall minimize traffic delays for LAUSD transported students.
- Prohibition of construction-related vehicle parking on surrounding public streets.

- Safety precautions for pedestrian and bicyclists through such measures as alternate routing and protection barriers as appropriate, including along all identified Los Angeles Unified School District (LAUSD) and Compton Unified School District (CUSD) pedestrian routes to nearby schools.
- Scheduling of construction-related deliveries, haul trips, etc., so as to occur outside the commuter peak hours to the extent feasible, and so as to not impede school drop-off and pick-up activities and students using LAUSD/CUSD's identified pedestrian routes to nearby schools.
- Coordination with public transit agencies to provide advanced notifications of any anticipated stop relocations and durations.
- Provision of advanced notification of any temporary on-street parking removals and duration of removals.
- Establish construction hours that are in compliance with Carson Municipal Code (CMC).
- Establish a construction phone number which shall be posted on the site, and appoint a construction liaison officer to respond to concerns or inquiries regarding project construction.
- Construction trucks and other vehicles are required to stop when encountering school buses using red-flashing-lights must-stop-indicators per the California Vehicle Code.
- Contractors shall install and maintain appropriate traffic controls (signs and signals) for vehicular safety.
- Contractors shall maintain ongoing communication with LAUSD school administrators, for the school to provided sufficient notice to children and parents when existing vehicle and pedestrian routes to school may be impacted.
- Maintain unimpeded emergency access to the project site and nearby properties.
- Establish truck access and staging areas, and review haul route approved with the project.
- Provide construction site security.
- Prohibition of staging or parking of construction-related vehicles, including worker-transport vehicles, on or adjacent to a school property without the express written permission of the applicable school district.
- Funding for crossing guards at the contractor's expense to the extent required when safety of children may be compromised by construction-related activities at impacted school crossings.

Page 1-18

Table 1-1
Summary of Environmental Impacts and Mitigation Measures

Mitigation Measure(s)	Level of Significance After Mitigation
Air Quality	
<p>MM-AQ-3. The proposed project shall provide circuitry and capacity for installation of electric vehicle (EV) charging stations consistent with the County of Los Angeles criteria. The proposed project shall develop up to 25% of the available parking spaces on site as EV charging stations.</p> <p>MM-AQ-4. The construction contractor shall require that construction vendors, contractors, and/or haul truck operators commit to using 2010 model year or newer diesel haul trucks. All construction truck operators shall maintain truck records and make these records available to the County upon request.</p> <p>MM-AQ-5. The construction contractor shall encourage its construction contractors and vendors to apply for South Coast Air Quality Management Surplus Off-Road Opt-In for NO_x ("SOON") funds to the extent available, which provide funds to applicable fleets for the purchase of commercially available low-emission heavy-duty engines to achieve near-term reduction of NO_x emissions from in-use off-road diesel vehicles.</p> <p>MM-AQ-6. During operations, the operator of the Learning Center shall encourage school bus fleets under contract with the Learning Center to seek funding opportunities through the South Coast Air Quality Management District's Lower-Emission School Bus Program, to the extent available, to replace older diesel busses with cleaner school buses.</p> <p>MM-AQ-7. During operations, electric landscape equipment, such as lawn mowers and leaf blowers, shall be used to the extent commercially available.</p> <p>MM-AQ-8. During operations, the project shall utilize electric or alternatively fueled parking lot sweepers with HEPA filters.</p>	Significant and Unavoidable
Noise	
<p>MM-NOI-4. Construction Noise Reduction</p> <p>The County of Los Angeles shall require the contractor to adhere to the following measures as a condition of granting a grading permit to the contractor:</p> <ul style="list-style-type: none"> • All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. • Construction noise reduction methods such as shutting off idling equipment, construction of a temporary noise barrier, maximizing the distance between construction equipment staging areas and adjacent residences, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible. • During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors. • Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances. • <u>At the request of the school administration for Towne Avenue Elementary School, the contractor will meet with the school principal or other representative each week to discuss anticipated upcoming construction activities and applicable noise reduction measures.</u> 	Significant and Unavoidable

3.0 PROJECT DESCRIPTION

3.7 Project Approvals Required

Page 3-13

- Other actions as may be required by other local, regional and state agencies including, but not limited to the City of Carson, the Department of Toxic Substances Control, the Los Angeles Regional Water Quality Control Board, Caltrans, and the South Coast Air Quality Management District (SCAQMD). Therefore, these agencies may be responsible agencies under CEQA.

4.2 AIR QUALITY

4.2.2 Relevant Plans, Policies, and Ordinances

Page 4.2-17 and 18

- **Rule 1113 – Architectural Coatings:** This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.
- **Rule 1150 – Excavation of Landfill Sites:** This rule generally requires that an Excavation Management Plan approved by the Executive Officer be obtained from the SCAQMD prior to the excavation of an active or inactive landfill.
- **Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil:** This rule that generally requires an approved mitigation plan be obtained from the SCAQMD prior to the handling of VOC-contaminated soil at or from an excavation or grading site.
- **Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants:** This rule generally requires any owner or operator conducting earth-moving activities of soil with applicable toxic air containments (TACs) at certain sites to preform specified particulate matter monitoring and control measures.

Page 4.2-28

...worker vehicles would result in emissions of VOCs, NO_x, CO, PM₁₀, and PM_{2.5}. The application of architectural coatings, such as exterior application/interior paint and other finishes, and asphalt pavement would also produce VOC emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of SCAQMD's Rule 1113 (Architectural Coatings).

During construction, the project would comply with SCAQMD Rule 1150, 1166 and 1466 to the extent applicable.

Table 4.2-7 presents the estimated maximum daily construction emissions generated during construction of the project. The values shown are the maximum summer or winter daily emissions results from CalEEMod. Details of the emissions are provided in Appendix C.

4.2.5 Mitigation Measures

Page 4.2-43

- MM-AQ-3** The proposed project shall provide circuitry and capacity for installation of electric vehicles (EV) charging stations consistent with the County of Los Angeles criteria. The proposed project shall develop up to ~~2%~~ 5% of the available parking spaces on site as EV charging stations.
- MM-AQ-4** The construction contractor shall require that construction vendors, contractors, and/or haul truck operators commit to using 2010 model year or newer diesel haul trucks. All construction truck operators shall maintain truck records and make these records available to the County upon request.
- MM-AQ-5** The construction contractor shall encourage its construction contractors and vendors to apply for South Coast Air Quality Management Surplus Off-Road Opt-In for NO_x (“SOON”) funds to the extent available, which provide funds to applicable fleets for the purchase of commercially available low-emission heavy-duty engines to achieve near-term reduction of NO_x emissions from in-use off-road diesel vehicles.
- MM-AQ-6** During operations, the operator of the Learning Center shall encourage school bus fleets under contract with the Learning Center to seek funding opportunities through the South Coast Air Quality Management District’s Lower-Emission School Bus Program, to the extent available, to replace older diesel busses with cleaner school buses.
- MM-AQ-7** During operations, electric landscape equipment, such as lawn mowers and leaf blowers, shall be used to the extent commercially available.
- MM-AQ-8** During operations, the project shall utilize electric or alternatively fueled parking lot sweepers with HEPA filters.

4.2.6 Level of Significance After Mitigation

Page 4.2-44

The construction of the proposed project would result in a potentially significant impact prior to mitigation. Table 4.2-13 shows the results of the mass emissions analysis for the proposed project after implementation of **MM-AQ-1** and through **MM-AQ-25**. The detailed emissions assumptions and model outputs using CalEEMod are provided in Appendix C.

Table 4.2-13
Estimated Mitigated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
	<i>Pounds per Day</i>					
2019	6.23	111.81	112.75	0.43	18.32	7.90
2020	29.0	13.18	54.29	0.10	1.40	0.47
Maximum Daily Emissions	29.09	111.81	112.75	0.43	18.32	7.90
<i>SCAQMD Threshold</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>150</i>	<i>55</i>
Threshold Exceeded?	No	Yes	No	No	No	No

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = coarse particulate matter; PM_{2.5} = fine particulate matter; SCAQMD = South Coast Air Quality Management District.

See Appendix C for complete results.

The values shown are the maximum summer or winter daily emissions results from CalEEMod. These emissions reflect CalEEMod “mitigated” output, which accounts for compliance with SCAQMD Rule 403 (Fugitive Dust) and MM-AQ-1 and MM-AQ-2.

The mitigated results shown in Table 4.2-13 demonstrate that with implementation of **MM-AQ-1**; and through **MM-AQ-25**, NO_x emissions are substantially reduced, however, they would continue to exceed the SCAQMD’s daily construction threshold. Therefore construction impacts would be **significant and unavoidable** for NO_x. Similarly, because emissions would still exceed the SCAQMD thresholds, the project would have a significant and unavoidable cumulative impact.

Page 4.2-46

As discussed in Section 4.2.5, the reductions from **MM-AQ-3** through **MM-AQ-5** were not quantified, due to the lack of clarity on the quantity of reductions associated with these mitigation measures. Therefore, air quality impacts associated with emission from NO_x during operation would be significant and unavoidable after the inclusion of mitigation.

4.8 HAZARDS AND HAZARDOUS MATERIALS

4.8.2 Relevant Plans, Policies, and Ordinances

Page 4.8-13

The California Department of Resources Recycling and Recovery (CalRecycle) regulates landfills under Title 27 of the California Code of Regulations (Title 27). State law provides that CalRecycle operate locally through a Local Enforcement Agency (LEA). The LEA for the former BKK Landfill is the Los Angeles County Department of ~~Health and Services~~ Public Health's Solid Waste Management Division.

4.11 NOISE

4.11.5 Mitigation Measures

Page 4.11-21

MM-NOI-4 Construction Noise Reduction

The County of Los Angeles shall require the contractor to adhere to the following measures as a condition of granting a grading permit to the contractor:

- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers.
- Construction noise reduction methods such as shutting off idling equipment, construction of a temporary noise barrier, maximizing the distance between construction equipment staging areas and adjacent residences, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible.
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances.
- At the request of the school administration for Towne Avenue Elementary School, the contractor will meet with the school principal or other representative each week to discuss anticipated upcoming construction activities and applicable noise reduction measures.

4.13 TRANSPORTATION

4.13.5 Project Design Features and Mitigation Measures

Page 4.13-68

PDF-TRAF-2 Prior to issuance of a grading permit, the proposed project will develop a Construction Traffic Management Plan for construction activities that would impact public streets.

The Construction Traffic Management Plan shall be based on the nature and timing of the specific construction and other projects in the vicinity of the project site and shall include the following elements as appropriate:

- Advance notification to adjacent property owners and occupants, as well as, nearby schools, of upcoming construction activities, including durations and daily hours of construction.
- The project's construction manager shall contact LAUSD's Transportation Branch at (213) 580-2950 regarding the potential impact upon existing school bus routes, and the expected start and ending dates for various portions of the project construction that may affect traffic within nearby school areas.
- Prohibition of construction worker parking on adjacent residential streets, and identify construction employee parking locations and protocols.
- Temporary traffic control during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways (e.g., flag men flagmen). The temporary traffic controls shall minimize traffic delays for LAUSD transported students.
- Prohibition of construction-related vehicle parking on surrounding public streets.
- Safety precautions for pedestrian and bicyclists through such measures as alternate routing and protection barriers as appropriate, including along all identified Los Angeles Unified School District (LAUSD) and Compton Unified School District (CUSD) pedestrian routes to nearby schools.
- Scheduling of construction-related deliveries, haul trips, etc., so as to occur outside the commuter peak hours to the extent feasible, and so as to not impede school drop-off and pick-up activities and students using LAUSD/CUSD's identified pedestrian routes to nearby schools.
- Coordination with public transit agencies to provide advanced notifications of any anticipated stop relocations and durations.
- Provision of advanced notification of any temporary on-street parking removals and duration of removals.

- Establish construction hours that are in compliance with Carson Municipal Code (CMC).
- Establish a construction phone number which shall be posted on the site, and appoint a construction liaison officer to respond to concerns or inquiries regarding project construction.
- Construction trucks and other vehicles are required to stop when encountering school buses using red-flashing-lights must-stop-indicators per the California Vehicle Code.
- Contractors shall install and maintain appropriate traffic controls (signs and signals) for vehicular safety.
- Contractors shall maintain ongoing communication with LAUSD school administrators, for the school to provided sufficient notice to children and parents when existing vehicle and pedestrian routes to school may be impacted.
- Maintain unimpeded emergency access to the project site and nearby properties.
- Establish truck access and staging areas, and review haul route approved with the project.
- Provide construction site security.
- Prohibition of staging or parking of construction-related vehicles, including worker-transport vehicles, on or adjacent to a school property without the express written permission of the applicable school district.
- Funding for crossing guards at the contractor's expense to the extent required when safety of children may be compromised by construction-related activities at impacted school crossings.

4.15 UTILITIES AND SERVICE SYSTEMS

4.15.1 Existing Conditions

Page 4.15-1

The two parallel sewers within South Avalon Boulevard connect to the LACSD 24~~7~~-inch-diameter Del Amo trunk sewer, located in South Avalon Boulevard south of Del Amo Boulevard, approximately 0.4 miles southeast of the project site. This trunk sewer, which increases in diameter to 27 inches just downstream of the parallel sewer discharge points, is 24 inches in diameter, has a capacity of 3.7 million gallons per day (mgd), and was conveying a peak flow of 2.4 mgd when last measured in 2015 (Appendix L; LACSD 2018a; 2019).

4.15.8 References Cited

LACSD (Los Angeles County Sanitation District). 2019. *DEIR Response to the Carol Kimmelman Athletic and Academic Campus*. Letter to LACSD dated July 1, 2019.

APPENDIX K – TRAFFIC IMPACT STUDY

- Attachment 1 – Table 21 and Table 22
- Attachment 2 – Saturday Queuing Analysis
- Attachment 3 – Table 19 and Table 20
- Attachment 4 – Updated Appendix C of the Traffic Impact Study

APPENDIX K

Traffic Impact Study

ATTACHMENT 1

Table 21 and Table 22

TABLE 21
EXISTING OPERATING CONDITIONS (YEAR 2018)
FREEWAY OFF-RAMP QUEUE ANALYSIS

ID	Freeway Off-Ramp	Ramp and Lane Description	Adjusted Vehicle Storage Capacity [a]	Existing Conditions				Existing with Project Conditions			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	I-405 Northbound Off-Ramp to Main Street (Intersection #2)	I-405 Northbound Off-Ramp									
		Shared Left/Through	405	94		64		98		66	
		Shared Through/Right	405	79		96		82		106	
		Ramp	400	0	NO	0	NO	0	NO	0	NO
Q-2.	I-405 Northbound Off-Ramp to Avalon Boulevard (Intersection #15)	I-405 Northbound Off-Ramp									
		Left	150	9		15		9		15	
		Shared Left/Through	125	9		15		9		15	
		Right (Channelized)	125	0		0		0		0	
		Ramp	455	0	NO	0	NO	0	NO	0	NO
Q-3.	I-405 Southbound Off-Ramp to Avalon Boulevard (Intersection #16)	I-405 Southbound Off-Ramp									
		Left	385	35		29		36		30	
		Left	925	35		29		36		30	
		Through	925	1		0 19		0 1		0 19	
		Through	250	1		0 19		0 1		0 19	
		Right (Channelized)	--	0		0		0		0	
		Ramp	885	0	NO	0	NO	0	NO	0	NO
Q-4.	SR 91 Westbound Off-Ramp to Main Street (Intersection #17)	SR 91 Westbound Off-Ramp									
		Left	490	134		61		138		65	
		Right	490	118		97		120		100	
		Ramp	1,035	0	NO	0	NO	0	NO	0	NO
Q-5.	I-110 Southbound Off-Ramp to 190th Street (Interseciton #22)	I-110 Southbound Off-Ramp									
		Left	295	34		101		36		110	
		Right	295	208		189		212		194	
		Ramp	2,235	0	NO	0	NO	0	NO	0	NO
Q-6.	I-110 Southbound Off-Ramp to Hamilton Avenue (Interseciton #25)	I-110 Southbound Off-Ramp									
		Left	355	324		57		326		57	
		Shared Left/Right	355	265		50		267		50	
		Ramp	540	0	NO	0	NO	0	NO	0	NO
Q-7.	I-110 Northbound Off-Ramp to Figueroa Street (Intersection #27)	I-110 Northbound Off-Ramp									
		Left	300	168		121		170		127	
		Shared Left/Right	355	164		114		166		120	
		Ramp	550	0	NO	0	NO	0	NO	0	NO
Q-8.	SR 91 Eastbound Off-Ramp to Albertoni Street (Intersection #28)	SR 91 Eastbound Off-Ramp									
		Left	885	79		497 114		497 79		497 114	
		Right	885	63		497 114		497 68		497 83	
		Ramp	350	0	NO	0	NO	0	NO	0	NO

[a] Storage length capacity is the distance from the freeway mainline gore point to the terminus of the off-ramp, expressed in feet.

[b] 95th Percentile queue results per Vistro 5 (HCM 6th Edition Methodology).

TABLE 22
FUTURE OPERATING CONDITIONS (YEAR 2020)
FREEWAY OFF-RAMP QUEUE ANALYSIS

ID	Freeway Off-Ramp	Ramp and Lane Description	Adjusted Vehicle Storage Capacity [a]	Future without Project Conditions				Future with Project Conditions			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	I-405 Northbound Off-Ramp to Main Street (Intersection #2)	I-405 Northbound Off-Ramp									
		Shared Left/Through	405	107		90		111		94	
		Shared Through/Right	405	90		125		93		137	
		Ramp	400	0	NO	0	NO	0	NO	0	NO
Q-2.	I-405 Northbound Off-Ramp to Avalon Boulevard (Intersection #15)	I-405 Northbound Off-Ramp									
		Left	150	16		43		16		43	
		Shared Left/Through	125	16		43		16		43	
		Right (Channelized)	125	0		0		0		0	
		Ramp	455	0	NO	0	NO	0	NO	0	NO
Q-3.	I-405 Southbound Off-Ramp to Avalon Boulevard (Intersection #16)	I-405 Southbound Off-Ramp									
		Left	385	51		58		51		59	
		Left	925	51		58		51		59	
		Through	925	3		<u>0 36</u>		<u>0 3</u>		<u>0 36</u>	
		Through	250	3		<u>0 36</u>		<u>0 3</u>		<u>0 36</u>	
		Right (Channelized)	--	0		0		0		0	
		Ramp	885	0	NO	0	NO	0	NO	0	NO
Q-4.	SR 91 Westbound Off-Ramp to Main Street (Intersection #17)	SR 91 Westbound Off-Ramp									
		Left	490	153		73		158		76	
		Right	490	127		108		129		111	
		Ramp	1,035	0	NO	0	NO	0	NO	0	NO
Q-5.	I-110 Southbound Off-Ramp to 190th Street (Interseciton #22)	I-110 Southbound Off-Ramp									
		Left	295	50		153		52		164	
		Right	295	262		215		267		219	
		Ramp	2,235	0	NO	0	NO	0	NO	0	NO
Q-6.	I-110 Southbound Off-Ramp to Hamilton Avenue (Interseciton #25)	I-110 Southbound Off-Ramp									
		Left	355	355		123		355		123	
		Shared Left/Right	355	355		95		355		95	
		Ramp	540	95	NO	0	NO	99	NO	0	NO
Q-7.	I-110 Northbound Off-Ramp to Figueroa Street (Intersection #27)	I-110 Northbound Off-Ramp									
		Left	300	198		159		200		165	
		Shared Left/Right	355	196		151		199		158	
		Ramp	550	0	NO	0	NO	0	NO	0	NO
Q-8.	SR 91 Eastbound Off-Ramp to Albertoni Street (Intersection #28)	SR 91 Eastbound Off-Ramp									
		Left	885	83		<u>497 117</u>		<u>497 81</u>		<u>497 117</u>	
		Right	885	85		<u>497 89</u>		<u>497 81</u>		<u>497 98</u>	
		Ramp	350	0	NO	0	NO	0	NO	0	NO

[a] Storage length capacity is the distance from the freeway mainline gore point to the terminus of the off-ramp, expressed in feet.

[b] 95th Percentile queue results per Vistro 5 (HCM 6th Edition Methodology).

ATTACHMENT 2

Saturday Queuing Analysis

TABLE A
EXISTING OPERATING WEEKEND CONDITIONS (YEAR 2018)
FREEWAY OFF-RAMP QUEUE ANALYSIS

ID	Freeway Off-Ramp	Ramp and Lane Description	Adjusted Vehicle Storage Capacity [a]	Existing Conditions		Existing with Project Conditions	
				Saturday Peak Hour		Saturday Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	I-405 Northbound Off-Ramp to Main Street (Intersection #2)	I-405 Northbound Off-Ramp					
		Shared Left/Through	405	19		23	
		Shared Through/Right	405	18		22	
		Ramp	400	0	NO	0	NO
Q-2.	I-405 Northbound Off-Ramp to Avalon Boulevard (Intersection #15)	I-405 Northbound Off-Ramp					
		Left	150	15		15	
		Shared Left/Through	125	15		15	
		Right (Channelized)	125	0		0	
		Ramp	455	0	NO	0	NO
Q-3.	I-405 Southbound Off-Ramp to Avalon Boulevard (Intersection #16)	I-405 Southbound Off-Ramp					
		Left	385	71		77	
		Left	925	71		77	
		Through	925	2		2	
		Through	250	2		2	
		Right (Channelized)	--	0		0	
		Ramp	885	0	NO	0	NO
Q-4.	SR 91 Westbound Off-Ramp to Main Street (Intersection #17)	SR 91 Westbound Off-Ramp					
		Left	490	15		16	
		Right	490	15		15	
		Ramp	1,035	0	NO	0	NO
Q-5.	I-110 Southbound Off-Ramp to 190th Street (Interseciton #22)	I-110 Southbound Off-Ramp					
		Left	295	35		42	
		Right	295	65		69	
		Ramp	2,235	0	NO	0	NO
Q-8.	SR 91 Eastbound Off-Ramp to Albertoni Street (Intersection #28)	SR 91 Eastbound Off-Ramp					
		Left	885	45		45	
		Right	885	23		31	
		Ramp	350	0	NO	0	NO

[a] Storage length capacity is the distance from the freeway mainline gore point to the terminus of the off-ramp, expressed in feet.

[b] 95th Percentile queue results per Vistro 5 (HCM 6th Edition Methodology).

Data not available for intersections #25 & #27

TABLE B
FUTURE OPERATING WEEKEND CONDITIONS (YEAR 2020)
FREEWAY OFF-RAMP QUEUE ANALYSIS

ID	Freeway Off-Ramp	Ramp and Lane Description	Adjusted Vehicle Storage Capacity [a]	Future without Project Conditions		Future with Project Conditions	
				Saturday Peak Hour		Saturday Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	I-405 Northbound Off-Ramp to Main Street (Intersection #2)	I-405 Northbound Off-Ramp					
		Shared Left/Through	405	50		58	
		Shared Through/Right	405	45		51	
		Ramp	400	0	NO	0	NO
Q-2.	I-405 Northbound Off-Ramp to Avalon Boulevard (Intersection #15)	I-405 Northbound Off-Ramp					
		Left	150	120		125	
		Shared Left/Through	125	120		125	
		Right (Channelized)	125	0		0	
		Ramp	455	0	NO	0	NO
Q-3.	I-405 Southbound Off-Ramp to Avalon Boulevard (Intersection #16)	I-405 Southbound Off-Ramp					
		Left	385	286		308	
		Left	925	286		308	
		Through	925	78		81	
		Through	250	78		81	
		Right (Channelized)	--	0		0	
		Ramp	885	0	NO	0	NO
Q-4.	SR 91 Westbound Off-Ramp to Main Street (Intersection #17)	SR 91 Westbound Off-Ramp					
		Left	490	20		23	
		Right	490	18		18	
		Ramp	1,035	0	NO	0	NO
Q-5.	I-110 Southbound Off-Ramp to 190th Street (Interseciton #22)	I-110 Southbound Off-Ramp					
		Left	295	63		74	
		Right	295	78		82	
		Ramp	2,235	0	NO	0	NO
Q-8.	SR 91 Eastbound Off-Ramp to Albertoni Street (Intersection #28)	SR 91 Eastbound Off-Ramp					
		Left	885	45		46	
		Right	885	35		44	
		Ramp	350	0	NO	0	NO

[a] Storage length capacity is the distance from the freeway mainline gore point to the terminus of the off-ramp, expressed in feet.



[b] 95th Percentile queue results per Vistro 5 (HCM 6th Edition Methodology).

Data not available for intersections #25 & #27

Intersection Level Of Service Report
Intersection 2: Main Street & I-405 NB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	7.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.423

Intersection Setup

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Base Volume Input [veh/h]	14	296	0	0	398	26	0	0	0	61	92	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	296	0	0	398	26	0	0	0	61	92	101
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	74	0	0	100	7	0	0	0	15	23	25
Total Analysis Volume [veh/h]	14	296	0	0	398	26	0	0	0	61	92	101
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	9	35	0	0	26	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C
C, Cycle Length [s]	23	23	23	23		23	23
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	10	5	5		4	4
g / C, Green / Cycle	0.02	0.43	0.22	0.22		0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.08	0.11	0.12		0.07	0.08
s, saturation flow rate [veh/h]	1781	3560	1870	1830		1829	1477
c, Capacity [veh/h]	37	1547	411	403		325	263
d1, Uniform Delay [s]	11.22	4.05	7.97	7.99		8.48	8.52
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	6.26	0.06	1.00	1.07		0.86	1.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.19	0.52	0.53		0.42	0.45
d, Delay for Lane Group [s/veh]	17.48	4.11	8.97	9.06		9.34	9.72
Lane Group LOS	B	A	A	A		A	A
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh]	0.11	0.13	0.62	0.63		0.43	0.39
50th-Percentile Queue Length [ft]	2.81	3.34	15.57	15.73		10.77	9.80
95th-Percentile Queue Length [veh]	0.20	0.24	1.12	1.13		0.78	0.71
95th-Percentile Queue Length [ft]	5.05	6.01	28.02	28.32		19.38	17.63

Movement, Approach, & Intersection Results

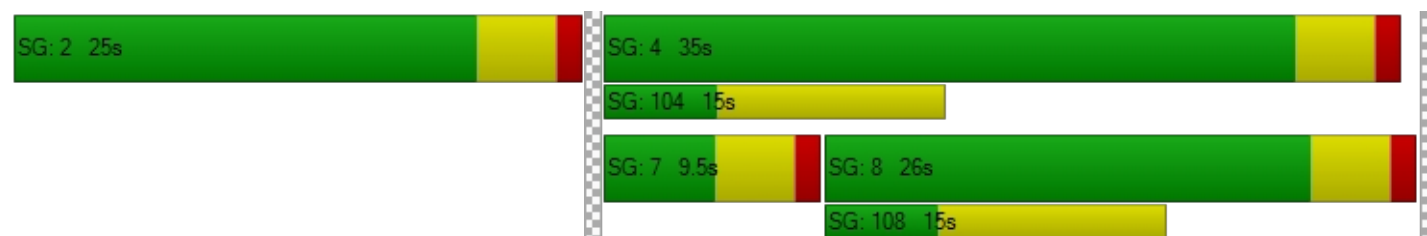
d_M, Delay for Movement [s/veh]	17.48	4.11	0.00	0.00	9.01	9.06	0.00	0.00	0.00	9.34	9.41	9.72
Movement LOS	B	A			A	A				A	A	A
d_A, Approach Delay [s/veh]	4.71			9.01			0.00			9.51		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.79											
Intersection LOS	A											
Intersection V/C	0.423											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			9.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			21.68			21.68		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			1.760			1.819		
Crosswalk LOS	F			F			A			A		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1017			717			0			683		
d_b, Bicycle Delay [s]	7.25			12.35			30.00			13.00		
I_b,int, Bicycle LOS Score for Intersection	1.815			1.909			4.132			1.769		
Bicycle LOS	A			A			D			A		

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Avalon Boulevard & I-405 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	7.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.603

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Base Volume Input [veh/h]	294	1272	0	0	1066	613	0	0	0	98	0	395
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	294	1272	0	0	1066	613	0	0	0	98	0	395
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	318	0	0	267	153	0	0	0	25	0	99
Total Analysis Volume [veh/h]	294	1272	0	0	1066	613	0	0	0	98	0	395
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Unsigna
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	14	33	0	0	19	0	0	0	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C
C, Cycle Length [s]	33	33	33		33	33
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	5	21	12		3	3
g / C, Green / Cycle	0.15	0.64	0.35		0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.09	0.36	0.21		0.03	0.03
s, saturation flow rate [veh/h]	3459	3560	5094		1781	1781
c, Capacity [veh/h]	534	2273	1776		162	162
d1, Uniform Delay [s]	12.99	3.38	8.92		14.13	14.13
k, delay calibration	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.89	0.22	0.33		1.04	1.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.56	0.60		0.30	0.30
d, Delay for Lane Group [s/veh]	13.87	3.60	9.25		15.17	15.17
Lane Group LOS	B	A	A		B	B
Critical Lane Group	No	Yes	No		Yes	No
50th-Percentile Queue Length [veh]	0.85	0.51	1.45		0.32	0.32
50th-Percentile Queue Length [ft]	21.35	12.81	36.36		8.09	8.09
95th-Percentile Queue Length [veh]	1.54	0.92	2.62		0.58	0.58
95th-Percentile Queue Length [ft]	38.42	23.06	65.45		14.55	14.55

Movement, Approach, & Intersection Results

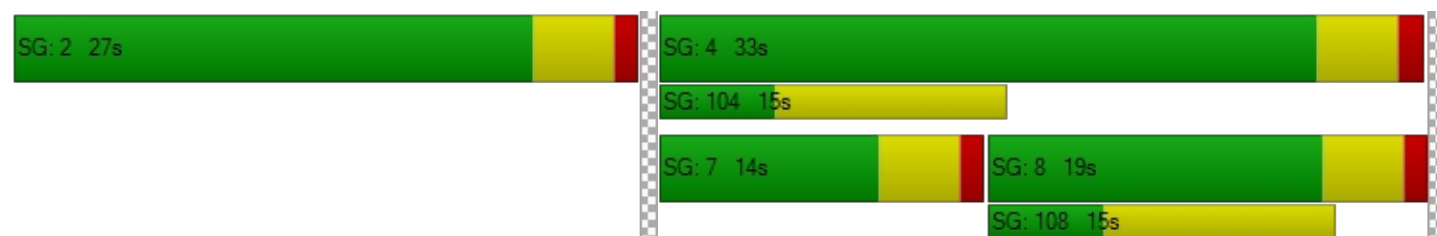
d_M, Delay for Movement [s/veh]	13.87	3.60	0.00	0.00	9.25	0.00	0.00	0.00	0.00	15.17	15.17	0.00
Movement LOS	B	A			A					B	B	
d_A, Approach Delay [s/veh]	5.53			9.25			0.00			15.17		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	7.33											
Intersection LOS	A											
Intersection V/C	0.603											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.839	1.953
Crosswalk LOS	F	F	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	950	483	0	750
d_b, Bicycle Delay [s]	8.27	17.25	30.00	11.72
I_b,int, Bicycle LOS Score for Intersection	2.852	2.146	4.132	1.721
Bicycle LOS	C	B	D	A

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Avalon Boulevard & I-405 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	9.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Base Volume Input [veh/h]	0	984	129	0	840	302	603	15	368	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	984	129	0	840	302	603	15	368	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	246	32	0	210	76	151	4	92	0	0	0
Total Analysis Volume [veh/h]	0	984	129	0	840	302	603	15	368	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	6	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	9	28	0	0	19	0	0	32	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No			No				
Maximum Recall	No	No			No			No				
Pedestrian Recall	No	No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	C	
C, Cycle Length [s]	34	34	34	34	34	34	
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50	
g_i, Effective Green Time [s]	0	16	16	11	9	9	
g / C, Green / Cycle	0.00	0.47	0.47	0.33	0.27	0.27	
(v / s)_i Volume / Saturation Flow Rate	0.00	0.30	0.30	0.24	0.17	0.00	
s, saturation flow rate [veh/h]	1781	1870	1795	3560	3459	3560	
c, Capacity [veh/h]	1	874	839	1194	934	962	
d1, Uniform Delay [s]	0.00	6.98	6.99	9.90	11.05	9.16	
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.00	0.82	0.86	0.77	0.75	0.01	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.00	0.65	0.65	0.70	0.65	0.02	
d, Delay for Lane Group [s/veh]	0.00	7.81	7.84	10.67	11.81	9.17	
Lane Group LOS	A	A	A	B	B	A	
Critical Lane Group	No	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh]	0.00	1.96	1.90	2.01	1.57	0.03	
50th-Percentile Queue Length [ft]	0.00	49.10	47.39	50.14	39.27	0.78	
95th-Percentile Queue Length [veh]	0.00	3.54	3.41	3.61	2.83	0.06	
95th-Percentile Queue Length [ft]	0.00	88.38	85.31	90.25	70.68	1.41	

Movement, Approach, & Intersection Results

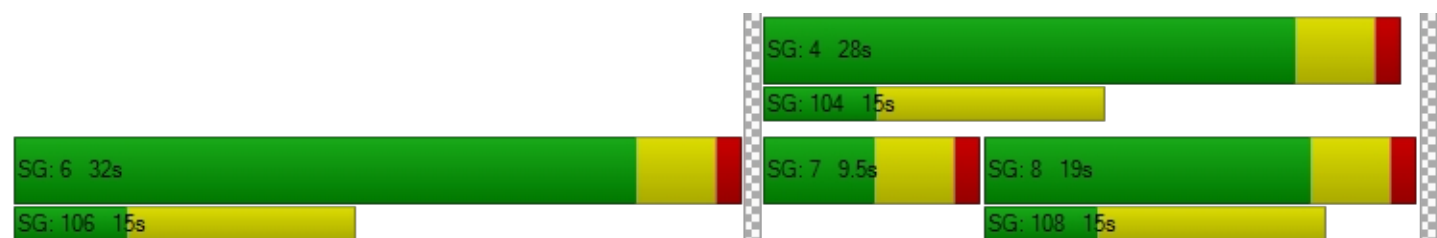
d_M, Delay for Movement [s/veh]	0.00	7.82	7.84	0.00	10.67	0.00	11.81	9.17	0.00	0.00	0.00	0.00
Movement LOS	A	A	A		B		B	A				
d_A, Approach Delay [s/veh]	7.82			10.67			11.74			0.00		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	9.70											
Intersection LOS	A											
Intersection V/C	0.738											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.661	0.000	2.534	1.766
Crosswalk LOS	B	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	783	483	917	0
d_b, Bicycle Delay [s]	11.10	17.25	8.80	30.00
I_b,int, Bicycle LOS Score for Intersection	2.478	2.253	2.069	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Main Street & SR 91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.363

Intersection Setup

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			Yes		

Volumes

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	0	185	96	35	202	0	0	0	0	108	0	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	185	96	35	202	0	0	0	0	108	0	107
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	46	24	9	51	0	0	0	0	27	0	27
Total Analysis Volume [veh/h]	0	185	96	35	202	0	0	0	0	108	0	107
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	3	8	0	0	0	0	2	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	0	0	0	5	0	0
Maximum Green [s]	30	30	0	30	30	0	0	0	0	30	0	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	0.0	0.0	3.5	0.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	22	0	9	22	0	0	0	0	29	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	2.5	2.5	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Minimum Recall	No	No		No	No					No		
Maximum Recall	No	No		No	No					No		
Pedestrian Recall	No	No		No	No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C		L	R
C, Cycle Length [s]	22	22	22	22	22		22	22
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	4	4	1	5		4	4
g / C, Green / Cycle	0.00	0.19	0.19	0.05	0.23		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.08	0.08	0.02	0.06		0.06	0.07
s, saturation flow rate [veh/h]	1781	1870	1663	1781	3560		1781	1589
c, Capacity [veh/h]	2	351	312	83	829		300	267
d1, Uniform Delay [s]	0.00	8.08	8.12	10.47	7.05		8.32	8.38
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.00	0.78	0.97	3.34	0.15		0.73	0.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.41	0.44	0.42	0.24		0.36	0.40
d, Delay for Lane Group [s/veh]	0.00	8.86	9.09	13.81	7.20		9.05	9.34
Lane Group LOS	A	A	A	B	A		A	A
Critical Lane Group	No	No	Yes	Yes	No		No	Yes
50th-Percentile Queue Length [veh]	0.00	0.42	0.41	0.19	0.22		0.33	0.34
50th-Percentile Queue Length [ft]	0.00	10.49	10.23	4.67	5.55		8.17	8.43
95th-Percentile Queue Length [veh]	0.00	0.76	0.74	0.34	0.40		0.59	0.61
95th-Percentile Queue Length [ft]	0.00	18.88	18.41	8.41	10.00		14.70	15.17

Movement, Approach, & Intersection Results

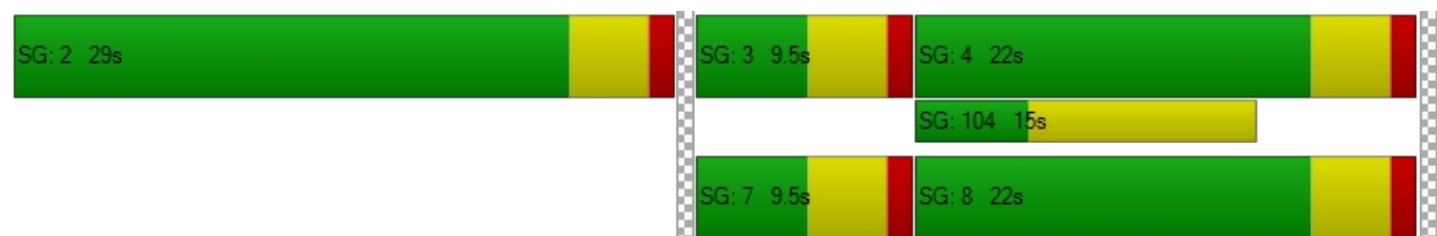
d_M, Delay for Movement [s/veh]	0.00	8.91	9.09	13.81	7.20	0.00	0.00	0.00	0.00	9.05	0.00	9.34
Movement LOS	A	A	A	B	A					A		A
d_A, Approach Delay [s/veh]	8.97			8.17			0.00			9.20		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	8.78											
Intersection LOS	A											
Intersection V/C	0.363											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			21.68		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			2.033		
Crosswalk LOS	F			F			F			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	583			583			0			0		
d_b, Bicycle Delay [s]	15.05			15.05			30.00			30.00		
I_b,int, Bicycle LOS Score for Intersection	1.791			1.755			4.132			4.132		
Bicycle LOS	A			A			D			D		

Sequence




Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: I-110 SB Off-Ramp & 190th Street

Control Type:	Signalized	Delay (sec / veh):	8.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.657

Intersection Setup

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Base Volume Input [veh/h]	232	355	0	900	472	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	232	355	0	900	472	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	89	0	225	118	0
Total Analysis Volume [veh/h]	232	355	0	900	472	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	8	0	0	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	40	0	0	20	20	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	0.0	2.5	2.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C
C, Cycle Length [s]	29	29	29	29
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	9	9	11	11
g / C, Green / Cycle	0.32	0.32	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.13	0.22	0.25	0.09
s, saturation flow rate [veh/h]	1781	1589	3560	5094
c, Capacity [veh/h]	568	507	1327	1899
d1, Uniform Delay [s]	7.78	8.72	7.69	6.33
k, delay calibration	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.47	1.77	0.61	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.70	0.68	0.25
d, Delay for Lane Group [s/veh]	8.26	10.48	8.30	6.40
Lane Group LOS	A	B	A	A
Critical Lane Group	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	0.77	1.45	1.43	0.39
50th-Percentile Queue Length [ft]	19.34	36.17	35.75	9.78
95th-Percentile Queue Length [veh]	1.39	2.60	2.57	0.70
95th-Percentile Queue Length [ft]	34.81	65.11	64.35	17.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.26	10.48	0.00	8.30	6.40	0.00
Movement LOS	A	B		A	A	
d_A, Approach Delay [s/veh]	9.60		8.30		6.40	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.23					
Intersection LOS	A					
Intersection V/C	0.657					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.982	0.000	0.000
Crosswalk LOS	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.875	4.392
Bicycle LOS	D	E	E

Sequence




Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: SR 91 EB Ramps & Albertoni Street

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.508

Intersection Setup

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Base Volume Input [veh/h]	208	118	268	263	284	67
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	208	118	268	263	284	67
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	30	67	66	71	17
Total Analysis Volume [veh/h]	208	118	268	263	284	67
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	8	0	1	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	23	0	14	37	23	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	2.5	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	29	29	29	29	29	29
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	5	5	4	14	5	5
g / C, Green / Cycle	0.19	0.19	0.16	0.49	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.12	0.07	0.08	0.07	0.09	0.10
s, saturation flow rate [veh/h]	1781	1589	3459	3560	1870	1752
c, Capacity [veh/h]	343	306	539	1756	337	316
d1, Uniform Delay [s]	10.58	10.09	11.07	3.97	10.62	10.70
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.73	0.79	0.71	0.04	1.24	1.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.39	0.50	0.15	0.52	0.56
d, Delay for Lane Group [s/veh]	12.30	10.88	11.78	4.01	11.87	12.22
Lane Group LOS	B	B	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	0.99	0.52	0.61	0.17	0.82	0.84
50th-Percentile Queue Length [ft]	24.84	12.90	15.15	4.26	20.42	20.98
95th-Percentile Queue Length [veh]	1.79	0.93	1.09	0.31	1.47	1.51
95th-Percentile Queue Length [ft]	44.71	23.23	27.26	7.67	36.76	37.76

Movement, Approach, & Intersection Results

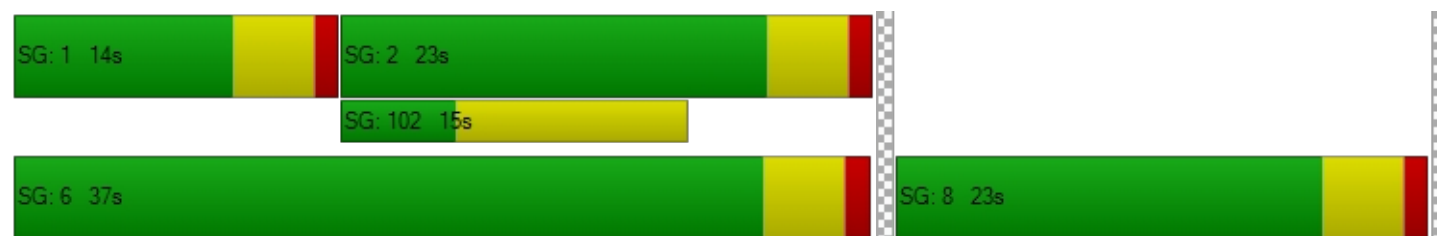
d_M, Delay for Movement [s/veh]	12.30	10.88	11.78	4.01	12.00	12.22
Movement LOS	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	11.79		7.93		12.05	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	10.17					
Intersection LOS	B					
Intersection V/C	0.508					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.273	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.570	4.422
Bicycle LOS	D	E	E

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Main Street & I-405 NB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.460

Intersection Setup

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Base Volume Input [veh/h]	14	336	0	0	453	26	0	0	0	61	92	132
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	336	0	0	453	26	0	0	0	61	92	132
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	84	0	0	113	7	0	0	0	15	23	33
Total Analysis Volume [veh/h]	14	336	0	0	453	26	0	0	0	61	92	132
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	9	35	0	0	26	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C
C, Cycle Length [s]	24	24	24	24		24	24
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	11	6	6		4	4
g / C, Green / Cycle	0.02	0.44	0.24	0.24		0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.09	0.13	0.13		0.08	0.09
s, saturation flow rate [veh/h]	1781	3560	1870	1835		1833	1446
c, Capacity [veh/h]	37	1587	446	437		332	262
d1, Uniform Delay [s]	11.65	4.09	8.02	8.04		8.82	8.90
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	6.31	0.07	1.01	1.07		1.00	1.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.21	0.54	0.55		0.46	0.50
d, Delay for Lane Group [s/veh]	17.96	4.16	9.03	9.12		9.82	10.40
Lane Group LOS	B	A	A	A		A	B
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh]	0.12	0.17	0.73	0.73		0.52	0.48
50th-Percentile Queue Length [ft]	2.90	4.13	18.20	18.37		13.03	12.06
95th-Percentile Queue Length [veh]	0.21	0.30	1.31	1.32		0.94	0.87
95th-Percentile Queue Length [ft]	5.22	7.44	32.75	33.06		23.45	21.71

Movement, Approach, & Intersection Results

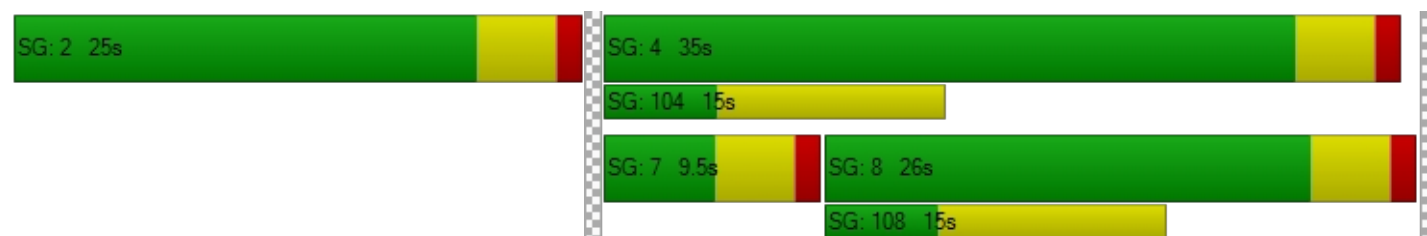
d_M, Delay for Movement [s/veh]	17.96	4.16	0.00	0.00	9.07	9.12	0.00	0.00	0.00	9.82	9.82	10.40
Movement LOS	B	A			A	A				A	A	B
d_A, Approach Delay [s/veh]	4.71			9.07			0.00			10.09		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	7.96											
Intersection LOS	A											
Intersection V/C	0.460											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.760	1.834
Crosswalk LOS	F	F	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	717	0	683
d_b, Bicycle Delay [s]	7.25	12.35	30.00	13.00
I_b,int, Bicycle LOS Score for Intersection	1.848	1.955	4.132	1.795
Bicycle LOS	A	A	D	A

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Avalon Boulevard & I-405 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	7.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.616

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Base Volume Input [veh/h]	294	1321	0	0	1121	641	0	0	0	98	0	453
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	294	1321	0	0	1121	641	0	0	0	98	0	453
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	330	0	0	280	160	0	0	0	25	0	113
Total Analysis Volume [veh/h]	294	1321	0	0	1121	641	0	0	0	98	0	453
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Unsigna
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	14	33	0	0	19	0	0	0	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C
C, Cycle Length [s]	34	34	34		34	34
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	5	22	12		3	3
g / C, Green / Cycle	0.15	0.65	0.36		0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.09	0.37	0.22		0.03	0.03
s, saturation flow rate [veh/h]	3459	3560	5094		1781	1781
c, Capacity [veh/h]	530	2302	1842		160	160
d1, Uniform Delay [s]	13.38	3.39	8.92		14.54	14.54
k, delay calibration	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.91	0.23	0.33		1.07	1.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.57	0.61		0.31	0.31
d, Delay for Lane Group [s/veh]	14.29	3.62	9.25		15.61	15.61
Lane Group LOS	B	A	A		B	B
Critical Lane Group	No	Yes	No		Yes	No
50th-Percentile Queue Length [veh]	0.89	0.56	1.57		0.34	0.34
50th-Percentile Queue Length [ft]	22.27	13.95	39.20		8.40	8.40
95th-Percentile Queue Length [veh]	1.60	1.00	2.82		0.60	0.60
95th-Percentile Queue Length [ft]	40.08	25.11	70.57		15.12	15.12

Movement, Approach, & Intersection Results

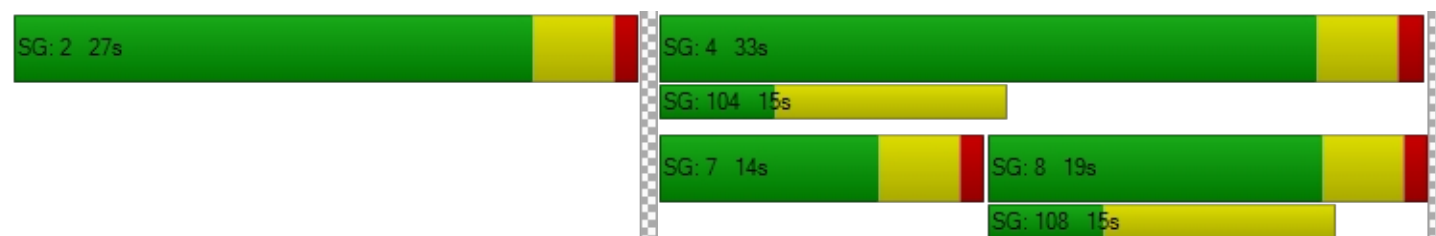
d_M, Delay for Movement [s/veh]	14.29	3.62	0.00	0.00	9.25	0.00	0.00	0.00	0.00	15.61	15.61	0.00
Movement LOS	B	A			A					B	B	
d_A, Approach Delay [s/veh]	5.56			9.25			0.00			15.61		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	7.37											
Intersection LOS	A											
Intersection V/C	0.616											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0				0.0				9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00				0.00				0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00				0.00				0.00			
d_p, Pedestrian Delay [s]	0.00				0.00				21.68			
I_p,int, Pedestrian LOS Score for Intersection	0.000				0.000				1.839			
Crosswalk LOS	F				F				A			
s_b, Saturation Flow Rate of the bicycle lane	2000				2000				2000			
c_b, Capacity of the bicycle lane [bicycles/h]	950				483				0			
d_b, Bicycle Delay [s]	8.27				17.25				30.00			
I_b,int, Bicycle LOS Score for Intersection	2.892				2.176				4.132			
Bicycle LOS	C				B				D			

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






Intersection Level Of Service Report

Intersection 16: Avalon Boulevard & I-405 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	10.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.750

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Base Volume Input [veh/h]	0	997	129	0	850	347	639	15	368	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	997	129	0	850	347	639	15	368	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	249	32	0	213	87	160	4	92	0	0	0
Total Analysis Volume [veh/h]	0	997	129	0	850	347	639	15	368	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	6	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	9	28	0	0	19	0	0	32	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No			No				
Maximum Recall	No	No			No			No				
Pedestrian Recall	No	No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	C	
C, Cycle Length [s]	35	35	35	35	35	35	
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50	
g_i, Effective Green Time [s]	0	16	16	12	10	10	
g / C, Green / Cycle	0.00	0.46	0.46	0.33	0.28	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.00	0.31	0.31	0.24	0.18	0.00	
s, saturation flow rate [veh/h]	1781	1870	1796	3560	3459	3560	
c, Capacity [veh/h]	0	867	833	1194	966	994	
d1, Uniform Delay [s]	0.00	7.26	7.27	10.17	11.16	9.14	
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.00	0.87	0.91	0.80	0.78	0.01	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.00	0.66	0.66	0.71	0.66	0.02	
d, Delay for Lane Group [s/veh]	0.00	8.14	8.18	10.97	11.95	9.14	
Lane Group LOS	A	A	A	B	B	A	
Critical Lane Group	No	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh]	0.00	2.13	2.06	2.12	1.72	0.03	
50th-Percentile Queue Length [ft]	0.00	53.24	51.42	53.12	42.90	0.79	
95th-Percentile Queue Length [veh]	0.00	3.83	3.70	3.82	3.09	0.06	
95th-Percentile Queue Length [ft]	0.00	95.83	92.55	95.61	77.22	1.43	

Movement, Approach, & Intersection Results

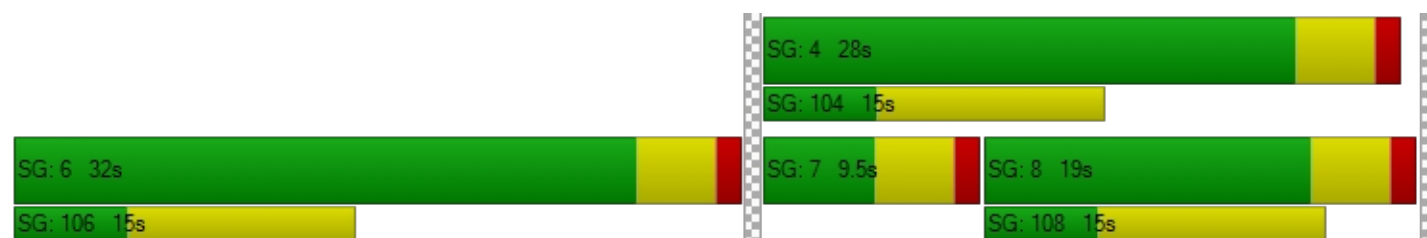
d_M, Delay for Movement [s/veh]	0.00	8.15	8.18	0.00	10.97	0.00	11.95	9.14	0.00	0.00	0.00	0.00
Movement LOS	A	A	A		B		B	A				
d_A, Approach Delay [s/veh]	8.16			10.97			11.88			0.00		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	9.99											
Intersection LOS	A											
Intersection V/C	0.750											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			0.0			9.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	21.68			0.00			21.68			21.68		
I_p,int, Pedestrian LOS Score for Intersection	2.666			0.000			2.540			1.766		
Crosswalk LOS	B			F			B			A		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	783			483			917			0		
d_b, Bicycle Delay [s]	11.10			17.25			8.80			30.00		
I_b,int, Bicycle LOS Score for Intersection	2.489			2.261			2.099			4.132		
Bicycle LOS	B			B			B			D		

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Main Street & SR 91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	8.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.382

Intersection Setup

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			Yes		

Volumes

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	0	199	120	35	220	0	0	0	0	117	0	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	199	120	35	220	0	0	0	0	117	0	107
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	50	30	9	55	0	0	0	0	29	0	27
Total Analysis Volume [veh/h]	0	199	120	35	220	0	0	0	0	117	0	107
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	3	8	0	0	0	0	2	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	0	0	0	5	0	0
Maximum Green [s]	30	30	0	30	30	0	0	0	0	30	0	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	0.0	0.0	3.5	0.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	9	22	0	9	22	0	0	0	0	29	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	2.5	2.5	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Minimum Recall	No	No		No	No					No		
Maximum Recall	No	No		No	No					No		
Pedestrian Recall	No	No		No	No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C		L	R
C, Cycle Length [s]	23	23	23	23	23		23	23
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	4	4	1	5		4	4
g / C, Green / Cycle	0.00	0.19	0.19	0.05	0.24		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.09	0.09	0.02	0.06		0.07	0.07
s, saturation flow rate [veh/h]	1781	1870	1644	1781	3560		1781	1589
c, Capacity [veh/h]	2	362	318	83	852		303	270
d1, Uniform Delay [s]	0.00	8.17	8.21	10.62	7.07		8.44	8.46
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.00	0.90	1.13	3.35	0.16		0.81	0.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.46	0.48	0.42	0.26		0.39	0.40
d, Delay for Lane Group [s/veh]	0.00	9.06	9.35	13.97	7.22		9.25	9.40
Lane Group LOS	A	A	A	B	A		A	A
Critical Lane Group	No	No	Yes	Yes	No		No	Yes
50th-Percentile Queue Length [veh]	0.00	0.49	0.48	0.19	0.25		0.36	0.34
50th-Percentile Queue Length [ft]	0.00	12.33	11.92	4.75	6.15		9.12	8.57
95th-Percentile Queue Length [veh]	0.00	0.89	0.86	0.34	0.44		0.66	0.62
95th-Percentile Queue Length [ft]	0.00	22.19	21.46	8.55	11.07		16.42	15.42

Movement, Approach, & Intersection Results

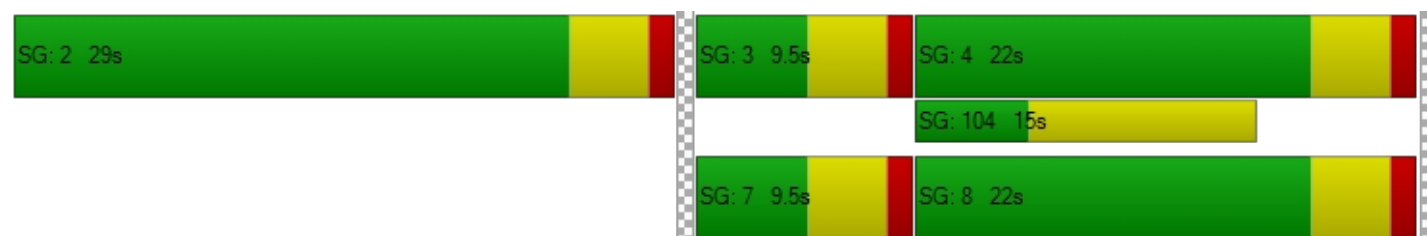
d_M, Delay for Movement [s/veh]	0.00	9.11	9.35	13.97	7.22	0.00	0.00	0.00	0.00	9.25	0.00	9.40
Movement LOS	A	A	A	B	A					A		A
d_A, Approach Delay [s/veh]	9.20			8.15			0.00			9.32		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	8.90											
Intersection LOS	A											
Intersection V/C	0.382											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			21.68		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			2.044		
Crosswalk LOS	F			F			F			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	583			583			0			0		
d_b, Bicycle Delay [s]	15.05			15.05			30.00			30.00		
I_b,int, Bicycle LOS Score for Intersection	1.823			1.770			4.132			4.132		
Bicycle LOS	A			A			D			D		

Sequence




Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: I-110 SB Off-Ramp & 190th Street

Control Type:	Signalized	Delay (sec / veh):	8.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Base Volume Input [veh/h]	259	355	0	936	500	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	259	355	0	936	500	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	89	0	234	125	0
Total Analysis Volume [veh/h]	259	355	0	936	500	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	8	0	0	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	40	0	0	20	20	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	0.0	2.5	2.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C
C, Cycle Length [s]	30	30	30	30
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	10	10	11	11
g / C, Green / Cycle	0.32	0.32	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.15	0.22	0.26	0.10
s, saturation flow rate [veh/h]	1781	1589	3560	5094
c, Capacity [veh/h]	568	507	1361	1947
d1, Uniform Delay [s]	8.17	8.99	7.79	6.37
k, delay calibration	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.57	1.78	0.63	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.70	0.69	0.26
d, Delay for Lane Group [s/veh]	8.74	10.77	8.42	6.44
Lane Group LOS	A	B	A	A
Critical Lane Group	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	0.94	1.53	1.55	0.43
50th-Percentile Queue Length [ft]	23.40	38.13	38.85	10.76
95th-Percentile Queue Length [veh]	1.69	2.75	2.80	0.77
95th-Percentile Queue Length [ft]	42.13	68.64	69.94	19.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.74	10.77	0.00	8.42	6.44	0.00
Movement LOS	A	B		A	A	
d_A, Approach Delay [s/veh]	9.91		8.42		6.44	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.38					
Intersection LOS	A					
Intersection V/C	0.663					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.995	0.000	0.000
Crosswalk LOS	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.905	4.407
Bicycle LOS	D	E	E

Sequence




Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: SR 91 EB Ramps & Albertoni Street

Control Type:	Signalized	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.510

Intersection Setup

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Base Volume Input [veh/h]	208	149	275	272	291	67
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	208	149	275	272	291	67
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	37	69	68	73	17
Total Analysis Volume [veh/h]	208	149	275	272	291	67
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	8	0	1	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	23	0	14	37	23	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	2.5	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	29	29	29	29	29	29
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	6	6	4	14	5	5
g / C, Green / Cycle	0.20	0.20	0.16	0.49	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.12	0.09	0.08	0.08	0.10	0.10
s, saturation flow rate [veh/h]	1781	1589	3459	3560	1870	1754
c, Capacity [veh/h]	352	314	538	1755	341	320
d1, Uniform Delay [s]	10.60	10.33	11.25	4.05	10.74	10.82
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.59	1.12	0.75	0.04	1.25	1.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.47	0.51	0.16	0.53	0.56
d, Delay for Lane Group [s/veh]	12.19	11.44	12.00	4.09	12.00	12.35
Lane Group LOS	B	B	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.00	0.68	0.64	0.19	0.85	0.87
50th-Percentile Queue Length [ft]	24.90	17.10	15.97	4.64	21.23	21.80
95th-Percentile Queue Length [veh]	1.79	1.23	1.15	0.33	1.53	1.57
95th-Percentile Queue Length [ft]	44.81	30.79	28.74	8.35	38.21	39.24

Movement, Approach, & Intersection Results

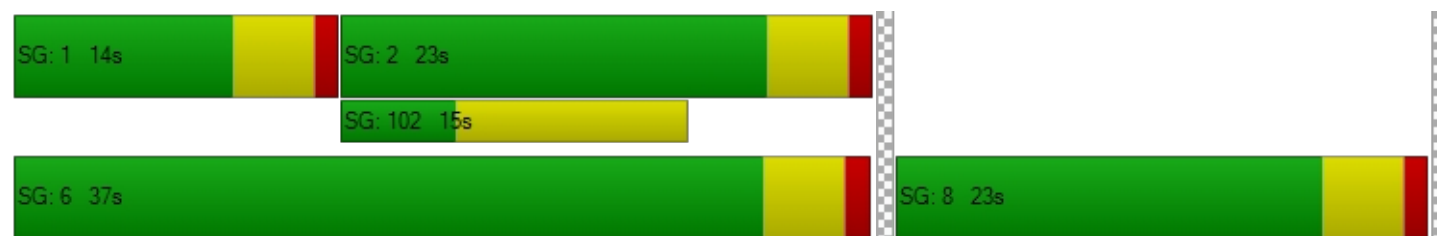
d_M, Delay for Movement [s/veh]	12.19	11.44	12.00	4.09	12.13	12.35
Movement LOS	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	11.88		8.07		12.17	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	10.31					
Intersection LOS	B					
Intersection V/C	0.510					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.282	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.584	4.428
Bicycle LOS	D	E	E

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Main Street & I-405 NB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.552

Intersection Setup

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Base Volume Input [veh/h]	14	395	0	0	556	26	0	0	0	259	93	148
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	395	0	0	556	26	0	0	0	259	93	148
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	99	0	0	139	7	0	0	0	65	23	37
Total Analysis Volume [veh/h]	14	395	0	0	556	26	0	0	0	259	93	148
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	35	0	0	25	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C
C, Cycle Length [s]	28	28	28	28		28	28
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	1	12	7	7		7	7
g / C, Green / Cycle	0.02	0.44	0.26	0.26		0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.01	0.11	0.16	0.16		0.15	0.15
s, saturation flow rate [veh/h]	1781	3560	1870	1841		1784	1530
c, Capacity [veh/h]	35	1551	482	475		442	379
d1, Uniform Delay [s]	13.77	5.09	9.27	9.30		9.46	9.49
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	7.33	0.09	1.22	1.29		1.34	1.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.25	0.60	0.61		0.61	0.61
d, Delay for Lane Group [s/veh]	21.11	5.18	10.49	10.59		10.80	11.10
Lane Group LOS	C	A	B	B		B	B
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh]	0.14	0.36	1.18	1.19		1.12	1.00
50th-Percentile Queue Length [ft]	3.47	9.09	29.53	29.77		27.98	25.04
95th-Percentile Queue Length [veh]	0.25	0.65	2.13	2.14		2.01	1.80
95th-Percentile Queue Length [ft]	6.25	16.37	53.16	53.59		50.37	45.07

Movement, Approach, & Intersection Results

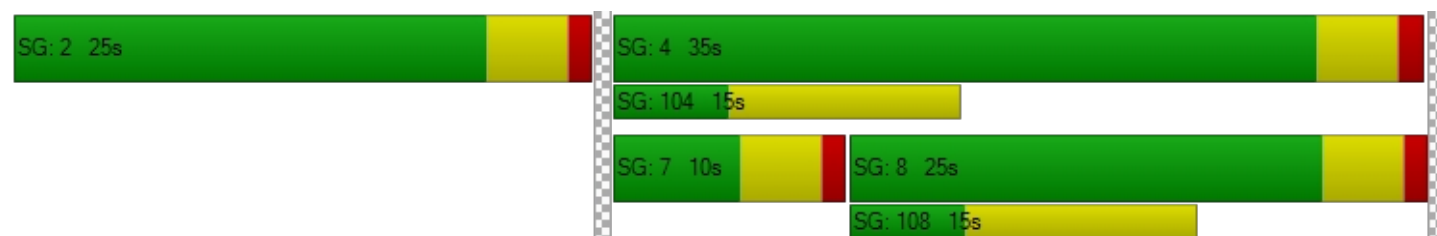
d_M, Delay for Movement [s/veh]	21.11	5.18	0.00	0.00	10.54	10.59	0.00	0.00	0.00	10.80	11.07	11.10
Movement LOS	C	A			B	B				B	B	B
d_A, Approach Delay [s/veh]	5.72			10.54			0.00			10.94		
Approach LOS	A			B			A			B		
d_I, Intersection Delay [s/veh]	9.35											
Intersection LOS	A											
Intersection V/C	0.552											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.760	1.939
Crosswalk LOS	F	F	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	683	0	683
d_b, Bicycle Delay [s]	7.25	13.00	30.00	13.00
I_b,int, Bicycle LOS Score for Intersection	1.897	2.040	4.132	1.972
Bicycle LOS	A	B	D	A

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Avalon Boulevard & I-405 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	13.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.705

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Base Volume Input [veh/h]	529	1512	0	0	1424	686	0	0	0	427	0	590
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	529	1512	0	0	1424	686	0	0	0	427	0	590
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	132	378	0	0	356	172	0	0	0	107	0	148
Total Analysis Volume [veh/h]	529	1512	0	0	1424	686	0	0	0	427	0	590
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Unsigna
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	14	34	0	0	20	0	0	0	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C
C, Cycle Length [s]	55	55	55		55	55
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	11	37	21		9	9
g / C, Green / Cycle	0.21	0.67	0.38		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.15	0.42	0.28		0.12	0.12
s, saturation flow rate [veh/h]	3459	3560	5094		1781	1781
c, Capacity [veh/h]	719	2386	1941		299	299
d1, Uniform Delay [s]	20.55	5.25	14.74		21.83	21.83
k, delay calibration	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	1.49	0.28	0.55		3.19	3.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.63	0.73		0.72	0.72
d, Delay for Lane Group [s/veh]	22.04	5.53	15.29		25.02	25.02
Lane Group LOS	C	A	B		C	C
Critical Lane Group	Yes	No	Yes		Yes	No
50th-Percentile Queue Length [veh]	3.05	2.97	4.47		2.67	2.67
50th-Percentile Queue Length [ft]	76.32	74.32	111.74		66.76	66.76
95th-Percentile Queue Length [veh]	5.50	5.35	7.94		4.81	4.81
95th-Percentile Queue Length [ft]	137.38	133.77	198.42		120.17	120.17

Movement, Approach, & Intersection Results

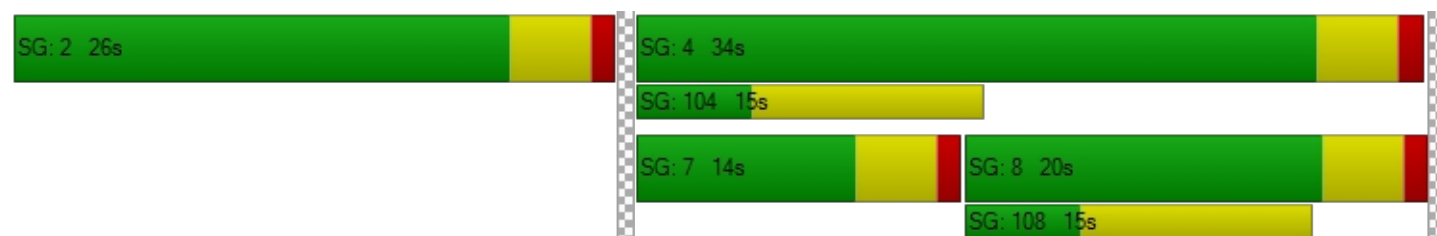
d_M, Delay for Movement [s/veh]	22.04	5.53	0.00	0.00	15.29	0.00	0.00	0.00	0.00	25.02	25.02	0.00
Movement LOS	C	A			B					C	C	
d_A, Approach Delay [s/veh]	9.81			15.29			0.00			25.02		
Approach LOS	A			B			A			C		
d_I, Intersection Delay [s/veh]	13.48											
Intersection LOS	B											
Intersection V/C	0.705											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0				0.0				9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00				0.00				0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00				0.00				0.00			
d_p, Pedestrian Delay [s]	0.00				0.00				21.68			
I_p,int, Pedestrian LOS Score for Intersection	0.000				0.000				1.953			
Crosswalk LOS	F				F				A			
s_b, Saturation Flow Rate of the bicycle lane	2000				2000				2000			
c_b, Capacity of the bicycle lane [bicycles/h]	983				517				0			
d_b, Bicycle Delay [s]	7.75				16.50				30.00			
I_b,int, Bicycle LOS Score for Intersection	3.243				2.343				4.132			
Bicycle LOS	C				B				D			

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Avalon Boulevard & I-405 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	21.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.834

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Base Volume Input [veh/h]	278	1183	178	0	1030	796	879	273	683	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	1183	178	0	1030	796	879	273	683	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	296	45	0	258	199	220	68	171	0	0	0
Total Analysis Volume [veh/h]	278	1183	178	0	1030	796	879	273	683	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	6	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	10	30	0	0	20	0	0	30	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No			No				
Maximum Recall	No	No			No			No				
Pedestrian Recall	No	No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	C	
C, Cycle Length [s]	75	75	75	75	75	75	
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50	
g_i, Effective Green Time [s]	14	43	43	25	23	23	
g / C, Green / Cycle	0.19	0.58	0.58	0.33	0.30	0.30	
(v / s)_i Volume / Saturation Flow Rate	0.16	0.37	0.38	0.29	0.25	0.08	
s, saturation flow rate [veh/h]	1781	1870	1786	3560	3459	3560	
c, Capacity [veh/h]	331	1079	1030	1178	1048	1079	
d1, Uniform Delay [s]	29.38	10.61	10.74	23.56	24.36	19.68	
k, delay calibration	0.11	0.38	0.39	0.11	0.11	0.11	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	5.74	2.22	2.55	2.21	1.89	0.12	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.84	0.64	0.65	0.87	0.84	0.25	
d, Delay for Lane Group [s/veh]	35.12	12.82	13.29	25.77	26.25	19.80	
Lane Group LOS	D	B	B	C	C	B	
Critical Lane Group	Yes	No	No	Yes	Yes	No	
50th-Percentile Queue Length [veh]	5.14	7.09	7.08	8.33	7.09	1.73	
50th-Percentile Queue Length [ft]	128.48	177.28	176.99	208.14	177.29	43.22	
95th-Percentile Queue Length [veh]	8.86	11.46	11.44	13.06	11.46	3.11	
95th-Percentile Queue Length [ft]	221.42	286.46	286.09	326.44	286.47	77.79	

Movement, Approach, & Intersection Results

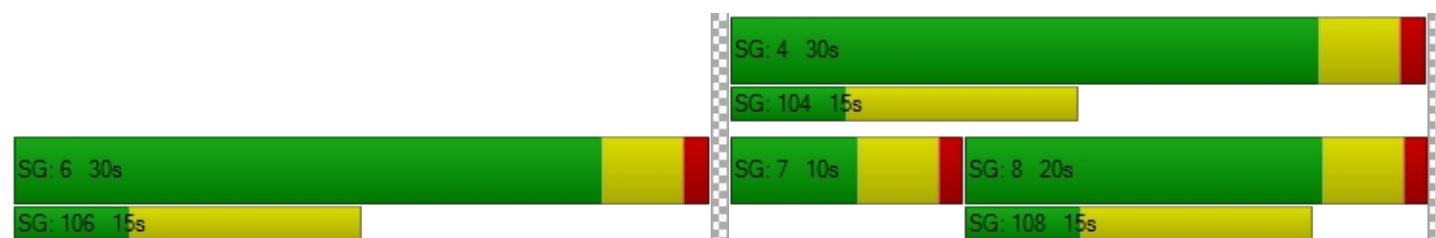
d_M, Delay for Movement [s/veh]	35.12	13.02	13.29	0.00	25.77	0.00	26.25	19.80	0.00	0.00	0.00	0.00
Movement LOS	D	B	B		C		C	B				
d_A, Approach Delay [s/veh]	16.80			25.77			24.72			0.00		
Approach LOS	B			C			C			A		
d_I, Intersection Delay [s/veh]	21.61											
Intersection LOS	C											
Intersection V/C	0.834											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.801	0.000	2.666	1.915
Crosswalk LOS	C	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	850	517	850	0
d_b, Bicycle Delay [s]	9.92	16.50	9.92	30.00
I_b,int, Bicycle LOS Score for Intersection	2.912	2.409	2.510	4.132
Bicycle LOS	C	B	B	D

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Main Street & SR 91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.436

Intersection Setup

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			Yes		

Volumes

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	0	312	138	35	333	0	0	0	0	126	0	108
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	312	138	35	333	0	0	0	0	126	0	108
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	78	35	9	83	0	0	0	0	32	0	27
Total Analysis Volume [veh/h]	0	312	138	35	333	0	0	0	0	126	0	108
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	3	8	0	0	0	0	2	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	0	0	0	5	0	0
Maximum Green [s]	30	30	0	30	30	0	0	0	0	30	0	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	0.0	0.0	3.5	0.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	22	0	10	22	0	0	0	0	28	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	2.5	2.5	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Minimum Recall	No	No		No	No					No		
Maximum Recall	No	No		No	No					No		
Pedestrian Recall	No	No		No	No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C		L	R
C, Cycle Length [s]	24	24	24	24	24		24	24
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	6	6	1	7		4	4
g / C, Green / Cycle	0.00	0.23	0.23	0.04	0.27		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.12	0.13	0.02	0.09		0.07	0.07
s, saturation flow rate [veh/h]	1781	1870	1681	1781	3560		1781	1589
c, Capacity [veh/h]	1	434	390	80	984		296	264
d1, Uniform Delay [s]	0.00	8.17	8.21	11.27	7.00		9.07	9.04
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.00	1.04	1.24	3.68	0.20		0.97	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.54	0.56	0.44	0.34		0.43	0.41
d, Delay for Lane Group [s/veh]	0.00	9.22	9.45	14.95	7.20		10.04	10.06
Lane Group LOS	A	A	A	B	A		B	B
Critical Lane Group	No	No	Yes	Yes	No		Yes	No
50th-Percentile Queue Length [veh]	0.00	0.73	0.70	0.21	0.39		0.45	0.39
50th-Percentile Queue Length [ft]	0.00	18.32	17.46	5.20	9.77		11.19	9.72
95th-Percentile Queue Length [veh]	0.00	1.32	1.26	0.37	0.70		0.81	0.70
95th-Percentile Queue Length [ft]	0.00	32.97	31.43	9.35	17.59		20.14	17.49

Movement, Approach, & Intersection Results

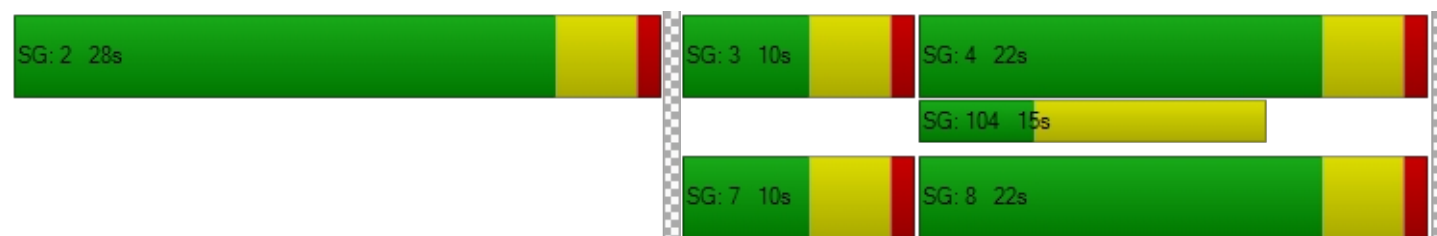
d_M, Delay for Movement [s/veh]	0.00	9.27	9.45	14.95	7.20	0.00	0.00	0.00	0.00	10.04	0.00	10.06
Movement LOS	A	A	A	B	A					B		B
d_A, Approach Delay [s/veh]	9.33			7.94			0.00			10.05		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	9.00											
Intersection LOS	A											
Intersection V/C	0.436											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			21.68		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			2.053		
Crosswalk LOS	F			F			F			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	583			583			0			0		
d_b, Bicycle Delay [s]	15.05			15.05			30.00			30.00		
I_b,int, Bicycle LOS Score for Intersection	1.931			1.863			4.132			4.132		
Bicycle LOS	A			A			D			D		

Sequence




Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: I-110 SB Off-Ramp & 190th Street

Control Type:	Signalized	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.678

Intersection Setup

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Base Volume Input [veh/h]	329	364	0	992	557	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	329	364	0	992	557	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	91	0	248	139	0
Total Analysis Volume [veh/h]	329	364	0	992	557	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	8	0	0	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	39	0	0	21	21	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	0.0	2.5	2.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C
C, Cycle Length [s]	32	32	32	32
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	10	10	13	13
g / C, Green / Cycle	0.32	0.32	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.18	0.23	0.28	0.11
s, saturation flow rate [veh/h]	1781	1589	3560	5094
c, Capacity [veh/h]	577	515	1406	2012
d1, Uniform Delay [s]	8.97	9.49	8.13	6.58
k, delay calibration	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.89	1.79	0.66	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.71	0.71	0.28
d, Delay for Lane Group [s/veh]	9.86	11.28	8.79	6.66
Lane Group LOS	A	B	A	A
Critical Lane Group	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	1.40	1.72	1.83	0.53
50th-Percentile Queue Length [ft]	34.93	43.11	45.86	13.27
95th-Percentile Queue Length [veh]	2.51	3.10	3.30	0.96
95th-Percentile Queue Length [ft]	62.87	77.60	82.55	23.89

Movement, Approach, & Intersection Results

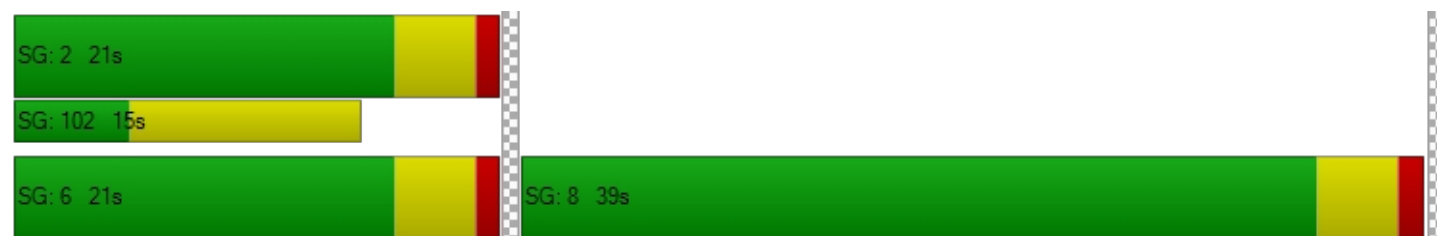
d_M, Delay for Movement [s/veh]	9.86	11.28	0.00	8.79	6.66	0.00
Movement LOS	A	B		A	A	
d_A, Approach Delay [s/veh]	10.61		8.79		6.66	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	8.82					
Intersection LOS	A					
Intersection V/C	0.678					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.033	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.951	4.439
Bicycle LOS	D	E	E

Sequence




Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: SR 91 EB Ramps & Albertoni Street

Control Type:	Signalized	Delay (sec / veh):	10.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.514

Intersection Setup

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Base Volume Input [veh/h]	209	164	288	266	287	68
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	209	164	288	266	287	68
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	41	72	67	72	17
Total Analysis Volume [veh/h]	209	164	288	266	287	68
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	8	0	1	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	23	0	14	37	23	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	2.5	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	29	29	29	29	29	29
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	6	6	5	14	5	5
g / C, Green / Cycle	0.20	0.20	0.16	0.49	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.12	0.10	0.08	0.07	0.09	0.10
s, saturation flow rate [veh/h]	1781	1589	3459	3560	1870	1752
c, Capacity [veh/h]	355	316	547	1753	337	315
d1, Uniform Delay [s]	10.60	10.43	11.28	4.06	10.84	10.92
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.56	1.31	0.79	0.04	1.28	1.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.52	0.53	0.15	0.53	0.56
d, Delay for Lane Group [s/veh]	12.16	11.75	12.06	4.10	12.12	12.49
Lane Group LOS	B	B	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.00	0.77	0.67	0.18	0.85	0.88
50th-Percentile Queue Length [ft]	25.08	19.29	16.87	4.62	21.33	21.92
95th-Percentile Queue Length [veh]	1.81	1.39	1.21	0.33	1.54	1.58
95th-Percentile Queue Length [ft]	45.14	34.71	30.37	8.31	38.40	39.46

Movement, Approach, & Intersection Results

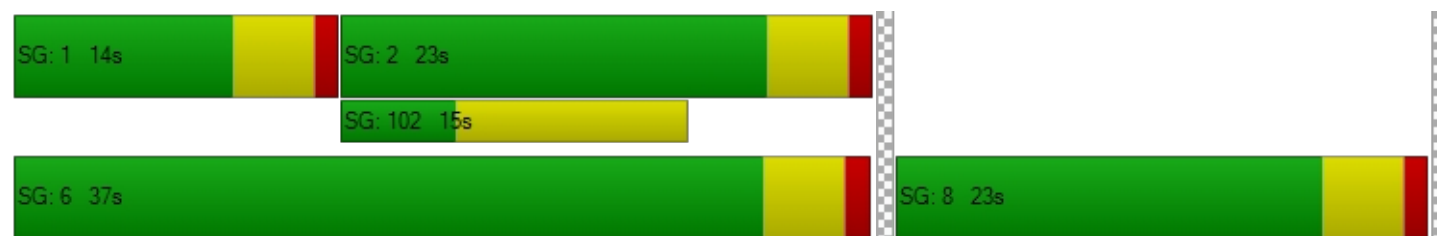
d_M, Delay for Movement [s/veh]	12.16	11.75	12.06	4.10	12.26	12.49
Movement LOS	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	11.98		8.24		12.31	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	10.45					
Intersection LOS	B					
Intersection V/C	0.514					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.289	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.589	4.425
Bicycle LOS	D	E	E

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Main Street & I-405 NB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	9.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.576

Intersection Setup

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Main Street			Main Street			I-405 NB Off-Ramp			I-405 NB Off-Ramp		
Base Volume Input [veh/h]	14	435	0	0	611	26	0	0	0	259	93	179
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	435	0	0	611	26	0	0	0	259	93	179
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	109	0	0	153	7	0	0	0	65	23	45
Total Analysis Volume [veh/h]	14	435	0	0	611	26	0	0	0	259	93	179
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	35	0	0	25	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C
C, Cycle Length [s]	30	30	30	30		30	30
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	1	13	8	8		8	8
g / C, Green / Cycle	0.02	0.44	0.27	0.27		0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.01	0.12	0.17	0.17		0.16	0.16
s, saturation flow rate [veh/h]	1781	3560	1870	1843		1789	1507
c, Capacity [veh/h]	35	1572	507	500		459	387
d1, Uniform Delay [s]	14.46	5.30	9.55	9.57		9.81	9.84
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	7.41	0.09	1.28	1.35		1.39	1.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.28	0.63	0.64		0.62	0.63
d, Delay for Lane Group [s/veh]	21.86	5.39	10.83	10.93		11.20	11.55
Lane Group LOS	C	A	B	B		B	B
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh]	0.14	0.45	1.38	1.39		1.29	1.13
50th-Percentile Queue Length [ft]	3.62	11.19	34.56	34.82		32.13	28.35
95th-Percentile Queue Length [veh]	0.26	0.81	2.49	2.51		2.31	2.04
95th-Percentile Queue Length [ft]	6.51	20.14	62.20	62.68		57.83	51.04

Movement, Approach, & Intersection Results

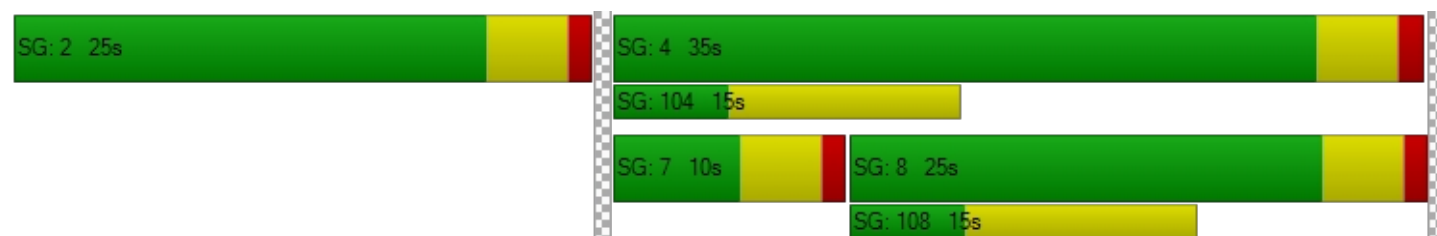
d_M, Delay for Movement [s/veh]	21.86	5.39	0.00	0.00	10.87	10.93	0.00	0.00	0.00	11.20	11.45	11.55
Movement LOS	C	A			B	B				B	B	B
d_A, Approach Delay [s/veh]	5.91			10.88			0.00			11.36		
Approach LOS	A			B			A			B		
d_I, Intersection Delay [s/veh]	9.66											
Intersection LOS	A											
Intersection V/C	0.576											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0				0.0				9.0		9.0	
M_corner, Corner Circulation Area [ft ² /ped]	0.00				0.00				0.00		0.00	
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00				0.00				0.00		0.00	
d_p, Pedestrian Delay [s]	0.00				0.00				21.68		21.68	
I_p,int, Pedestrian LOS Score for Intersection	0.000				0.000				1.760		1.954	
Crosswalk LOS	F				F				A		A	
s_b, Saturation Flow Rate of the bicycle lane	2000				2000				2000		2000	
c_b, Capacity of the bicycle lane [bicycles/h]	1017				683				0		683	
d_b, Bicycle Delay [s]	7.25				13.00				30.00		13.00	
I_b,int, Bicycle LOS Score for Intersection	1.930				2.085				4.132		1.998	
Bicycle LOS	A				B				D		A	

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Avalon Boulevard & I-405 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.713

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 NB Ramps			I-405 NB Ramps		
Base Volume Input [veh/h]	529	1561	0	0	1479	714	0	0	0	427	0	648
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	529	1561	0	0	1479	714	0	0	0	427	0	648
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	132	390	0	0	370	179	0	0	0	107	0	162
Total Analysis Volume [veh/h]	529	1561	0	0	1479	714	0	0	0	427	0	648
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Unsigna
Signal group	7	4	0	0	8	0	0	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	14	34	0	0	20	0	0	0	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C
C, Cycle Length [s]	57	57	57		57	57
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	12	39	22		9	9
g / C, Green / Cycle	0.21	0.68	0.39		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.15	0.44	0.29		0.12	0.12
s, saturation flow rate [veh/h]	3459	3560	5094		1781	1781
c, Capacity [veh/h]	713	2407	1992		296	296
d1, Uniform Delay [s]	21.23	5.33	14.91		22.54	22.54
k, delay calibration	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	1.55	0.30	0.56		3.31	3.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.65	0.74		0.72	0.72
d, Delay for Lane Group [s/veh]	22.78	5.63	15.47		25.85	25.85
Lane Group LOS	C	A	B		C	C
Critical Lane Group	Yes	No	Yes		Yes	No
50th-Percentile Queue Length [veh]	3.18	3.22	4.80		2.77	2.77
50th-Percentile Queue Length [ft]	79.42	80.48	119.90		69.35	69.35
95th-Percentile Queue Length [veh]	5.72	5.79	8.39		4.99	4.99
95th-Percentile Queue Length [ft]	142.95	144.87	209.69		124.83	124.83

Movement, Approach, & Intersection Results

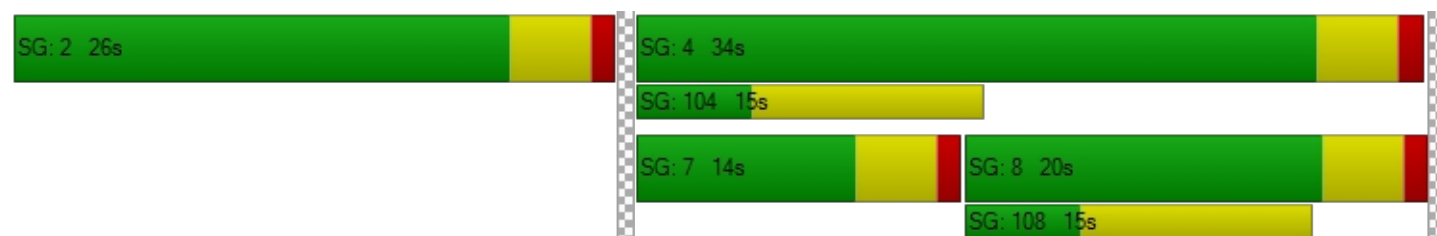
d_M, Delay for Movement [s/veh]	22.78	5.63	0.00	0.00	15.47	0.00	0.00	0.00	0.00	25.85	25.85	0.00
Movement LOS	C	A			B					C	C	
d_A, Approach Delay [s/veh]	9.97			15.47			0.00			25.85		
Approach LOS	A			B			A			C		
d_I, Intersection Delay [s/veh]	13.70											
Intersection LOS	B											
Intersection V/C	0.713											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0				0.0				9.0		9.0	
M_corner, Corner Circulation Area [ft ² /ped]	0.00				0.00				0.00		0.00	
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00				0.00				0.00		0.00	
d_p, Pedestrian Delay [s]	0.00				0.00				21.68		21.68	
I_p,int, Pedestrian LOS Score for Intersection	0.000				0.000				1.953		2.060	
Crosswalk LOS	F				F				A		B	
s_b, Saturation Flow Rate of the bicycle lane	2000				2000				2000		2000	
c_b, Capacity of the bicycle lane [bicycles/h]	983				517				0		717	
d_b, Bicycle Delay [s]	7.75				16.50				30.00		12.35	
I_b,int, Bicycle LOS Score for Intersection	3.284				2.373				4.132		2.264	
Bicycle LOS	C				B				D		B	

Sequence




Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Avalon Boulevard & I-405 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	22.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.843

Intersection Setup

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Avalon Boulevard			Avalon Boulevard			I-405 SB Ramps			I-405 SB Ramps		
Base Volume Input [veh/h]	278	1196	178	0	1040	841	915	273	683	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	1196	178	0	1040	841	915	273	683	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	299	45	0	260	210	229	68	171	0	0	0
Total Analysis Volume [veh/h]	278	1196	178	0	1040	841	915	273	683	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss
Signal group	7	4	0	0	8	0	0	6	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	10	30	0	0	20	0	0	30	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No			No				
Maximum Recall	No	No			No			No				
Pedestrian Recall	No	No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	C	
C, Cycle Length [s]	78	78	78	78	78	78	
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50	
g_i, Effective Green Time [s]	14	45	45	26	24	24	
g / C, Green / Cycle	0.18	0.57	0.57	0.33	0.31	0.31	
(v / s)_i Volume / Saturation Flow Rate	0.16	0.37	0.38	0.29	0.26	0.08	
s, saturation flow rate [veh/h]	1781	1870	1787	3560	3459	3560	
c, Capacity [veh/h]	330	1073	1026	1178	1073	1105	
d1, Uniform Delay [s]	30.61	11.24	11.39	24.61	25.17	20.05	
k, delay calibration	0.11	0.41	0.43	0.11	0.11	0.11	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	5.82	2.51	2.89	2.38	2.03	0.12	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.84	0.65	0.66	0.88	0.85	0.25	
d, Delay for Lane Group [s/veh]	36.43	13.75	14.28	26.98	27.20	20.16	
Lane Group LOS	D	B	B	C	C	C	
Critical Lane Group	Yes	No	No	Yes	Yes	No	
50th-Percentile Queue Length [veh]	5.37	7.72	7.72	8.86	7.75	1.79	
50th-Percentile Queue Length [ft]	134.22	192.92	193.02	221.53	193.86	44.71	
95th-Percentile Queue Length [veh]	9.17	12.27	12.28	13.74	12.32	3.22	
95th-Percentile Queue Length [ft]	229.22	306.82	306.95	343.58	308.04	80.49	

Movement, Approach, & Intersection Results

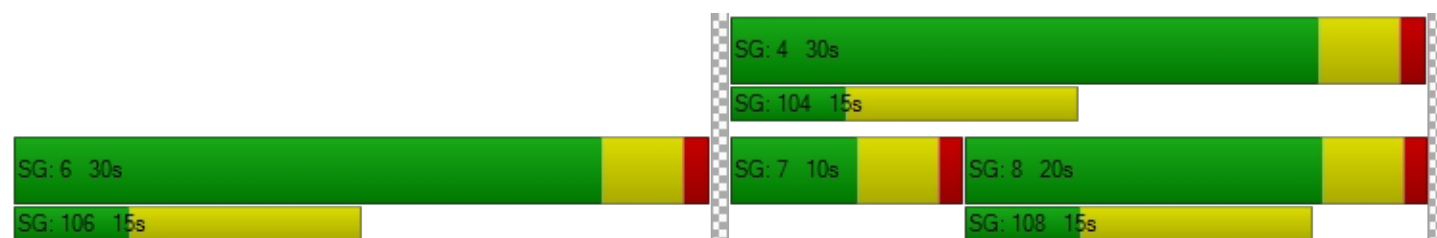
d_M, Delay for Movement [s/veh]	36.43	13.97	14.28	0.00	26.98	0.00	27.20	20.16	0.00	0.00	0.00	0.00
Movement LOS	D	B	B		C		C	C				
d_A, Approach Delay [s/veh]	17.78			26.98			25.58			0.00		
Approach LOS	B			C			C			A		
d_I, Intersection Delay [s/veh]	22.64											
Intersection LOS	C											
Intersection V/C	0.843											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.805	0.000	2.672	1.915
Crosswalk LOS	C	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	850	517	850	0
d_b, Bicycle Delay [s]	9.92	16.50	9.92	30.00
I_b,int, Bicycle LOS Score for Intersection	2.923	2.418	2.540	4.132
Bicycle LOS	C	B	B	D

Sequence

Ring 1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Main Street & SR 91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.457

Intersection Setup

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			No			Yes		

Volumes

Name	Main Street			Main Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	0	326	162	35	351	0	0	0	0	135	0	108
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	326	162	35	351	0	0	0	0	135	0	108
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	82	41	9	88	0	0	0	0	34	0	27
Total Analysis Volume [veh/h]	0	326	162	35	351	0	0	0	0	135	0	108
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	3	8	0	0	0	0	2	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	0	0	0	5	0	0
Maximum Green [s]	30	30	0	30	30	0	0	0	0	30	0	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	0.0	0.0	3.5	0.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	22	0	10	22	0	0	0	0	28	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	10	0	0
Rest In Walk		No			No					No		
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.5	2.5	0.0	2.5	2.5	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Minimum Recall	No	No		No	No					No		
Maximum Recall	No	No		No	No					No		
Pedestrian Recall	No	No		No	No					No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C		L	R
C, Cycle Length [s]	25	25	25	25	25		25	25
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50		4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50		2.50	2.50
g_i, Effective Green Time [s]	0	6	6	1	7		4	4
g / C, Green / Cycle	0.00	0.24	0.24	0.04	0.29		0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.14	0.14	0.02	0.10		0.08	0.07
s, saturation flow rate [veh/h]	1781	1870	1666	1781	3560		1781	1589
c, Capacity [veh/h]	1	459	409	80	1032		296	264
d1, Uniform Delay [s]	0.00	8.19	8.22	11.56	6.95		9.35	9.27
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.00	1.05	1.25	3.71	0.19		1.10	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.55	0.57	0.44	0.34		0.46	0.41
d, Delay for Lane Group [s/veh]	0.00	9.24	9.48	15.26	7.14		10.45	10.28
Lane Group LOS	A	A	A	B	A		B	B
Critical Lane Group	No	No	Yes	Yes	No		Yes	No
50th-Percentile Queue Length [veh]	0.00	0.81	0.77	0.21	0.42		0.51	0.40
50th-Percentile Queue Length [ft]	0.00	20.36	19.21	5.35	10.46		12.66	10.12
95th-Percentile Queue Length [veh]	0.00	1.47	1.38	0.39	0.75		0.91	0.73
95th-Percentile Queue Length [ft]	0.00	36.66	34.58	9.63	18.82		22.80	18.21

Movement, Approach, & Intersection Results

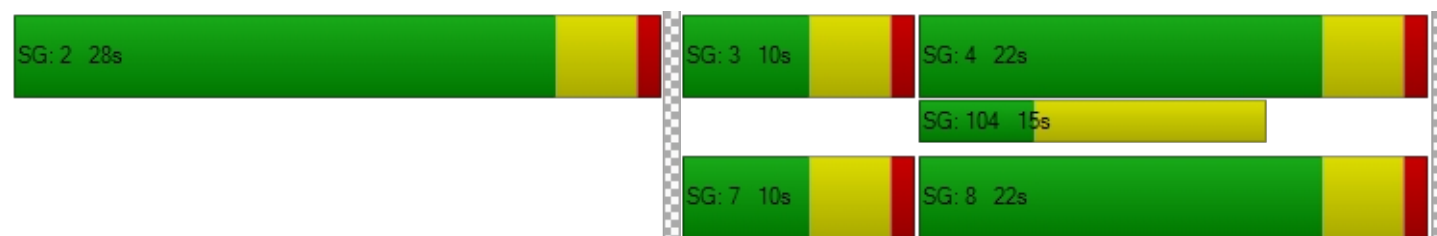
d_M, Delay for Movement [s/veh]	0.00	9.29	9.48	15.26	7.14	0.00	0.00	0.00	0.00	10.45	0.00	10.28
Movement LOS	A	A	A	B	A					B		B
d_A, Approach Delay [s/veh]	9.35			7.88			0.00			10.37		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	9.06											
Intersection LOS	A											
Intersection V/C	0.457											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			21.68		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			2.064		
Crosswalk LOS	F			F			F			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	583			583			0			0		
d_b, Bicycle Delay [s]	15.05			15.05			30.00			30.00		
I_b,int, Bicycle LOS Score for Intersection	1.962			1.878			4.132			4.132		
Bicycle LOS	A			A			D			D		

Sequence




Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: I-110 SB Off-Ramp & 190th Street

Control Type:	Signalized	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.684

Intersection Setup

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	I-110 SB Off-Ramp		190th Street		190th Street	
Base Volume Input [veh/h]	356	364	0	1028	585	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	356	364	0	1028	585	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	91	0	257	146	0
Total Analysis Volume [veh/h]	356	364	0	1028	585	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	8	0	0	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	39	0	0	21	21	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	0.0	2.5	2.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C
C, Cycle Length [s]	33	33	33	33
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	11	11	13	13
g / C, Green / Cycle	0.32	0.32	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.20	0.23	0.29	0.11
s, saturation flow rate [veh/h]	1781	1589	3560	5094
c, Capacity [veh/h]	576	514	1439	2059
d1, Uniform Delay [s]	9.45	9.81	8.24	6.62
k, delay calibration	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.09	1.82	0.67	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.71	0.71	0.28
d, Delay for Lane Group [s/veh]	10.54	11.62	8.91	6.69
Lane Group LOS	B	B	A	A
Critical Lane Group	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	1.64	1.82	1.99	0.58
50th-Percentile Queue Length [ft]	41.08	45.45	49.63	14.46
95th-Percentile Queue Length [veh]	2.96	3.27	3.57	1.04
95th-Percentile Queue Length [ft]	73.95	81.82	89.33	26.03

Movement, Approach, & Intersection Results

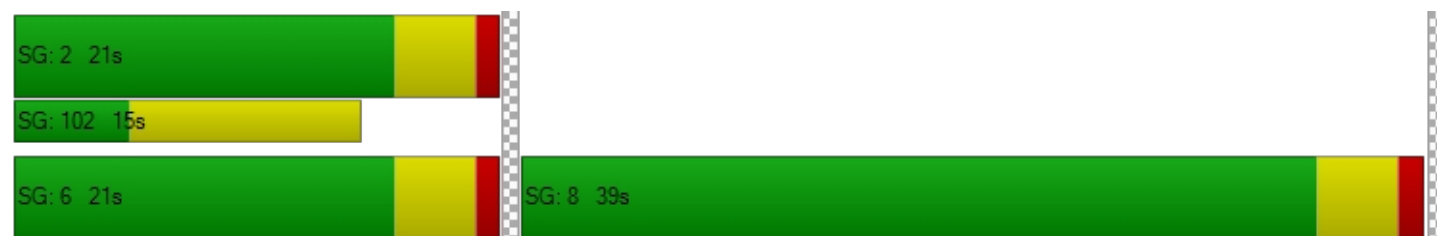
d_M, Delay for Movement [s/veh]	10.54	11.62	0.00	8.91	6.69	0.00
Movement LOS	B	B		A	A	
d_A, Approach Delay [s/veh]	11.09		8.91		6.69	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	9.03					
Intersection LOS	A					
Intersection V/C	0.684					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.047	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.981	4.454
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 28: SR 91 EB Ramps & Albertoni Street

Control Type:	Signalized	Delay (sec / veh):	10.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	SR 91 EB Ramps		Albertoni Street		Albertoni Street	
Base Volume Input [veh/h]	209	195	295	275	294	68
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	209	195	295	275	294	68
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	49	74	69	74	17
Total Analysis Volume [veh/h]	209	195	295	275	294	68
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	8	0	1	6	2	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	23	0	14	37	23	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	0.0	2.5	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	30	30	30	30	30	30
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	6	6	5	15	5	5
g / C, Green / Cycle	0.21	0.21	0.16	0.49	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.12	0.12	0.09	0.08	0.10	0.10
s, saturation flow rate [veh/h]	1781	1589	3459	3560	1870	1754
c, Capacity [veh/h]	368	329	554	1752	339	318
d1, Uniform Delay [s]	10.65	10.72	11.52	4.18	11.09	11.17
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.38	1.71	0.80	0.04	1.31	1.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.59	0.53	0.16	0.53	0.57
d, Delay for Lane Group [s/veh]	12.03	12.43	12.31	4.22	12.40	12.77
Lane Group LOS	B	B	B	A	B	B
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.01	0.97	0.72	0.21	0.90	0.93
50th-Percentile Queue Length [ft]	25.30	24.35	17.92	5.17	22.57	23.18
95th-Percentile Queue Length [veh]	1.82	1.75	1.29	0.37	1.63	1.67
95th-Percentile Queue Length [ft]	45.55	43.84	32.25	9.31	40.63	41.72

Movement, Approach, & Intersection Results

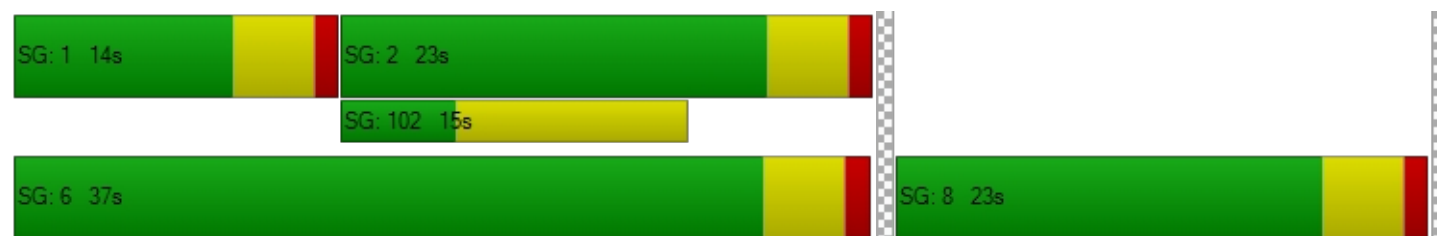
d_M, Delay for Movement [s/veh]	12.03	12.43	12.31	4.22	12.54	12.77
Movement LOS	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	12.22		8.41		12.59	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	10.69					
Intersection LOS	B					
Intersection V/C	0.521					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.299	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.603	4.431
Bicycle LOS	D	E	E

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



ATTACHMENT 3

Table 19 and Table 20

TABLE 19A
EXISTING WITH PROJECT CONDITIONS (YEAR 2018)
SIGNALIZED INTERSECTION LEVELS OF SERVICE ANALYSIS

No.	Intersection	Peak Hour	Existing Conditions		Existing with Project Conditions	
			Delay	LOS	Delay	LOS
S-1.	Main Street & I-405 NB Off-Ramp (Intersection #2)	A.M. P.M.	11.0 11.5	B B	11.1 12.0	B B
S-2.	Main Street & I-405 SB On-Ramp (Intersection #3)	A.M. P.M.	7.7 13.0	A B	7.8 13.3	A B
S-3.	Avalon Boulevard & SR-91 WB On-Ramp (Intersection #6)	A.M. P.M.	8.7 8.2	A A	8.8 8.2	A A
S-4.	Avalon Boulevard & I-405 NB Ramps (Intersection #15)	A.M. P.M.	15.4 <u>7.1</u> 7.7	B <u>A</u> A	15.5 <u>7.1</u> 7.7	B <u>A</u> A
S-5.	Avalon Boulevard & I-405 SB Ramps (Intersection #16)	A.M. P.M.	13.7 <u>8.3</u> 7.6	B <u>A</u> A	13.7 <u>8.3</u> 7.6	B <u>A</u> A
S-6.	Main Street & SR-91 WB Ramps (Intersection #17)	A.M. P.M.	13.7 12.9	B B	13.8 13.1	B B
S-7.	I-110 NB On-Ramp & 190th Street (Intersection #21)	A.M. P.M.	6.7 7.5	A A	6.7 7.5	A A
S-8.	I-110 SB Off-Ramp & 190th Street (Intersection #22)	A.M. P.M.	13.1 12.1	B B	13.3 12.3	B B
S-9.	Figueroa Street & I-110 NB Ramps (Intersection #27)	A.M. P.M.	15.8 15.7	B B	15.9 15.9	B B
S-10.	SR-91 EB Ramps & Albertoni Street (Intersection #28)	A.M. P.M.	12.3 11.7	B B	12.4 11.8	B B

Notes

Delay is measured in seconds per vehicle

LOS = Level of service

Results per Vistro 5 (HCM 6th Edition methodology).

TABLE 20A
FUTURE WITH PROJECT CONDITIONS (YEAR 2020)
SIGNALIZED INTERSECTION LEVELS OF SERVICE ANALYSIS

No.	Intersection	Peak Hour	Future without Project Conditions		Future with Project Conditions	
			Delay	LOS	Delay	LOS
S-1.	Main Street & I-405 NB Off-Ramp (Intersection #2)	A.M. P.M.	11.4 13.4	B B	11.6 14.3	B B
S-2.	Main Street & I-405 SB On-Ramp (Intersection #3)	A.M. P.M.	7.9 14.2	A B	8.0 14.6	A B
S-3.	Avalon Boulevard & SR-91 WB On-Ramp (Intersection #6)	A.M. P.M.	9.3 8.8	A A	9.3 8.9	A A
S-4.	Avalon Boulevard & I-405 NB Ramps (Intersection #15)	A.M. P.M.	20.4 <u>8.0</u> 9.3	C <u>A</u> A	20.6 <u>8.0</u> 9.3	C <u>A</u> A
S-5.	Avalon Boulevard & I-405 SB Ramps (Intersection #16)	A.M. P.M.	17.8 <u>9.3</u> 9.6	B <u>A</u> A	17.8 <u>9.3</u> 9.7	B <u>A</u> A
S-6.	Main Street & SR-91 WB Ramps (Intersection #17)	A.M. P.M.	14.3 13.4	B B	14.4 13.6	B B
S-7.	I-110 NB On-Ramp & 190th Street (Intersection #21)	A.M. P.M.	6.8 7.7	A A	6.8 7.8	A A
S-8.	I-110 SB Off-Ramp & 190th Street (Intersection #22)	A.M. P.M.	14.9 13.3	B B	15.1 13.5	B B
S-9.	Figueroa Street & I-110 NB Ramps (Intersection #27)	A.M. P.M.	17.4 17.3	B B	17.5 17.6	B B
S-10.	SR-91 EB Ramps & Albertoni Street (Intersection #28)	A.M. P.M.	12.6 11.9	B B	12.8 12.0	B B

Notes

Delay is measured in seconds per vehicle

LOS = Level of service

Results per Vistro 5 (HCM 6th Edition methodology).

ATTACHMENT 4

Updated Appendix C of the Traffic Impact Study

CHAPTER 4

MITIGATION MONITORING AND REPORTING PROGRAM

California Public Resources Code Section 21081.6 requires that, upon certification of an EIR, “[t]he public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation.”

This chapter contains the mitigation monitoring and reporting program (MMRP) that has been developed for the Carol Kimmelman Athletic and Academic Campus Project (project or proposed project). This MMRP has been developed in compliance with Public Resources Code Section 21081.6 and Section 15097 of the CEQA Guidelines. The mitigation measures in the table are coded by alphanumeric identification consistent with the EIR. The following items are identified for each mitigation measure:

- **Mitigation Monitoring.** This section of the MMRP lists the stage of the proposed project during which the mitigation measure would be implemented and the stage during which proper implementation would be monitored and verified. It also lists the agency that is responsible for ensuring that the mitigation measure is implemented and that it is implemented properly.
- **Verification of Compliance.** This section of the MMRP provides a location for the implementing party and/or enforcing agency to make notes and to record their initials and the compliance date for each mitigation measure.

The County must adopt this MMRP, or an equally effective program, if it approves the proposed project with the mitigation measures that were adopted or made conditions of project approval.

Minor changes and modifications to the MMRP are permitted, but can only be made by the Project Applicant or its successor subject to approval by the County. In conjunction with any appropriate agencies or departments, the County will determine the adequacy of any proposed change or modification. Any revisions to a Mitigation Measure in the final MMRP must achieve the same level or more of mitigation as the original mitigation measure and not result in new or more severe environmental impacts.

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<i>Air Quality</i>						
MM-AQ-1. To reduce the potential for health risks, and mass emissions of oxides of nitrogen (NOx) and diesel particulate matter as a result of the construction of the project, the applicant shall include the following requirements in its contracts with the construction contractors: <ul style="list-style-type: none"> • Equip heavy-duty diesel-powered construction equipment with Tier 4 Final or better diesel engines, except where Tier 4 Final or better engines are not available for specific construction equipment. • Minimize simultaneous operation of multiple construction equipment units. During construction, vehicles in loading and unloading queues shall not idle for more than 5 minutes, and shall turn their engines off when not in use to reduce vehicle emissions. • Properly tune and maintain all construction equipment in accordance with manufacturer's specifications; • Where feasible, employ the use of electrical or natural gas-powered construction equipment, including forklifts and other comparable equipment types. • To reduce the need for electric generators and other fuel-powered equipment, provide on-site electrical hookups for the use of hand tools such as saws, drills, and compressors used for building construction. • Develop a Construction Traffic Control Plan to ensure construction traffic and equipment use is minimized to the extent practicable. The Construction Traffic Control Plan shall route delivery and haul trucks required during construction away from sensitive receptor locations and congested intersections, to the extent feasible. The Construction Traffic Control Plan shall, to the extent 	Pre-construction; during construction; final plans and specifications	Final plans and specifications; during construction	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
feasible, include measures to: reduce the number of large pieces of equipment operating simultaneously during peak construction periods, schedule vendor and haul truck trips to occur during non-peak hours, establish dedicated construction parking areas to encourage carpooling and efficiently accommodate construction vehicles, identify alternative routes to reduce traffic congestion during peak activities, and increase construction employee carpooling. Construction Traffic Control plans shall be finalized and approved prior to issuance of grading permits.						
MM-AQ-2. Prior to the County of Los Angeles' (County's) approval of any grading permits, and during project construction, a Fugitive Dust Plan shall be prepared consistent with South Coast Air Quality Management District (SCAQMD) Rule 403. The project applicant or its designee shall require implementation of the following fugitive dust measures to minimize particulate matter less than or equal to 10 microns in diameter (PM ₁₀) and particulate matter less than or equal to 2.5 microns in diameter (PM _{2.5}) emissions as part of the Fugitive Dust Plan. All measures shall be designated on grading and improvement plans. Measures shall include but are not limited to the following: <ul style="list-style-type: none"> • Water, or utilize another SCAQMD-approved dust control non-toxic agent, on the grading areas at least three times daily to minimize fugitive dust. • All permanent roads and roadway improvements shall be constructed and paved as early as possible in the construction process to reduce construction vehicle travel on unpaved roads. To reduce fugitive dust from earth-moving operations, building pads shall be finalized as soon as possible following site preparation and grading activities. 	Pre-construction; during construction; final plans and specifications	Final plans and specifications; during construction	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> • Stabilize grading areas as quickly as possible to minimize fugitive dust. • Apply chemical stabilizer to on-site stockpiles of excavated material, install a gravel pad, or pave the last 100 feet of internal travel path within the construction site prior to public road entry. • Remove any visible track-out into traveled public streets with the use of sweepers, water trucks, or similar method as soon as possible. • Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads. Unpaved construction site egress points shall be graveled to prevent track-out. • Wet wash the construction access point at the end of the workday if any vehicle travel on unpaved surfaces has occurred. • Cover haul trucks or maintain at least 2 feet of freeboard to reduce blow-off during hauling. • Evaluate potential for reduction in dust generating activity if winds exceed 25 miles per hour. • Enforce a 15-mile-per-hour speed limit on unpaved surfaces. • Provide haul truck staging areas for the loading and unloading of soil and materials. Staging areas shall be located away from sensitive receptors, at the furthest feasible distance. Prior to construction activities, the project applicant shall employ a construction relations officer who will address community concerns regarding on-site construction activity. The applicant shall provide public notification in the form of a visible sign containing the contact information of the construction relations officer. The sign shall be placed in easily 						

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
accessible locations along South Avalon Boulevard and Martin Luther King Jr. Street and noted on grading and improvement plans.						
MM-AQ-3. The proposed project shall provide circuitry and capacity for installation of electric vehicle (EV) charging stations consistent with the County of Los Angeles criteria. The proposed project shall develop up to 5% of the available parking spaces on site as EV charging stations.	Final plans and specifications	Final plans and specifications; prior to issuance of first occupancy permit	County of Los Angeles Department of Public Works			
MM-AQ-4. The construction contractor shall require that construction vendors, contractors, and/or haul truck operators commit to using 2010 model year or newer diesel haul trucks. All construction truck operators shall maintain truck records and make these records available to the County upon request.	Pre-construction; during construction	During construction	County of Los Angeles Department of Public Works			
MM-AQ-5. The construction contractor shall encourage its construction contractors and vendors to apply for South Coast Air Quality Management Surplus Off-Road Opt-In for NOx ("SOON") funds to the extent available, which provide funds to applicable fleets for the purchase of commercially available low-emission heavy-duty engines to achieve near-term reduction of NO _x emissions from in-use off-road diesel vehicles.	Pre-construction; during construction	During construction	County of Los Angeles Department of Public Works			
MM-AQ-6. During operations, the operator of the Learning Center shall encourage school bus fleets under contract with the Learning Center to seek funding opportunities through the South Coast Air Quality Management District's Lower-Emission School Bus Program, to the extent available, to replace older diesel busses with cleaner school buses.	Project operation	Throughout operation	County of Los Angeles Department of Public Works			
MM-AQ-7. During operations, electric landscape equipment, such as lawn mowers and leaf blowers, shall be used to the extent commercially available.	Project operation	Throughout operation	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-AQ-8. During operations, the project shall utilize electric or alternatively fueled parking lot sweepers with HEPA filters.	Project operation	Throughout operation	County of Los Angeles Department of Public Works			
<i>Biological Resources</i>						
<p>MM-BIO-1. Conduct Pre-Construction Surveys. Prior to construction, a knowledgeable biologist shall conduct a preconstruction survey sweep within areas of suitable habitat for the San Diego desert woodrat. The biologist shall look for any San Diego desert woodrat in suitable habitat that may be located within or immediately adjacent to project work areas (within 100 feet).</p> <p>If individual San Diego desert woodrats are observed within project work areas during the pre-construction survey, a biological monitor shall be on site during construction to flush or move them out of harm's way to avoid direct impacts to these species. If a population of San Diego desert woodrat are observed during the pre-construction survey, and cannot be avoided by the project, consultation with California Department of Fish and Wildlife shall be required, and mitigation shall include relocation of the species and/or the purchase of compensatory habitat-based mitigation credits at a minimum 1:1 ratio for the loss of occupied habitat.</p>	Pre-construction; during construction (if applicable)	Pre-construction; during construction (if applicable)	County of Los Angeles Department of Public Works			
<p>MM-BIO-2. Nesting Bird Avoidance. Construction activities shall avoid the migratory bird nesting season (typically February 1 through August 31), to reduce any potential significant impact to birds that may be nesting within the study area. If construction activities must occur during the migratory bird nesting season, an avian nesting survey of the project site and contiguous habitat within 500 feet of all impact areas shall be conducted for protected migratory birds and active nests. The avian nesting survey shall be performed by a knowledgeable biologist within 72 hours prior to</p>	Pre-construction; during construction (if applicable)	Pre-construction; during construction (if applicable)	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
the start of construction in accordance with the Migratory Bird Treaty Act (16 USC 703–712) and California Fish and Game Code, Sections 3503, 3503.5, and 3513. If an active bird nest is found, the nest shall be flagged and mapped on the construction plans along with an appropriate no disturbance buffer, which shall be determined by the biologist based on the species' sensitivity to disturbance (typically 300 feet for passerines and 500 feet for raptors and special-status species). The nest area shall be avoided until the nest is vacated and the juveniles have fledged. The nest area shall be demarcated in the field with flagging and stakes or construction fencing.						
<i>Cultural Resources</i>						
MM-CUL-1. Unanticipated Archaeological Resource Discoveries. If archaeological resources (i.e., sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for Archaeology, can evaluate the significance of the find and determine whether or not additional study is warranted. The archaeologist shall be empowered to temporarily stop or redirect grading activities to allow removal of abundant or large artifacts. Depending upon qualified archaeologist determination of the significance of the find (14 CCR 15064.5(f); PRC, Section 21082), the archaeologist may record the find and allow work to continue. If the archaeologist determines that the discovery is significant and requires additional work, the archaeologist may require preparation and implementation of an archaeological treatment plan and data recovery. If any artifacts are discovered, the archaeologist shall curate specimens in a repository with permanent retrievable storage and submit a written report to	During construction	During construction; prior to issuance of first occupancy permit (if applicable)	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<p>the lead agency prior to occupancy of the first building on the site. Once approved, the final report will be filed with the South Central Coast Information Center (SCCIC).</p> <p>Once artifact analysis is completed, a final written report detailing the results of all research procedures and interpretation of the site shall be submitted to the lead agency for review and approval prior to occupancy of the first building on the site.</p>						
<p>MM-CUL-2. Inadvertent Discovery of Human Remains. In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found within the project site, the County coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site of the remains or any nearby area reasonably suspected to overlie adjacent remains shall occur until the county coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the “most likely descendant” (MLD) of the deceased Native American. The MLD shall complete his/her inspection within 48 hours of being granted access to the site. The designated MLD would then determine, in consultation with the property owner, the disposition of the human remains.</p>	During construction	During construction	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<i>Geology and Soils</i>						
MM-GEO-1. Paleontological Resources Monitoring. Prior to commencement of any grading activity on site, the applicant shall retain a qualified paleontologist acceptable to the County. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed project. The PRIMP shall be consistent with the guidelines of the Society of Vertebrate Paleontology (SVP 2010). The qualified paleontologist shall attend the preconstruction meeting and be on site during all rough grading and other significant ground-disturbing activities in previously undisturbed older Quaternary alluvial deposits (including old lagoonal deposits). These deposits may be encountered at depths as shallow as 5-10 feet below ground surface. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontology monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find. If determined to be significant, the paleontological resources shall be stabilized, labeled, and prepared to the point of identification before accessioning into an appropriate paleontological repository with retrievable storage. Following the paleontological monitoring program, a final monitoring report shall be submitted to the lead agency for review and approval. The report should summarize the monitoring program and include geological observations and any paleontological resources recovered during paleontological monitoring for the proposed project.	Pre-construction; during construction (rough grading and other significant ground-disturbing activities)	During construction (rough grading and other significant ground-disturbing activities)	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<i>Greenhouse Gas Emissions</i>						
PDF-GHG-1. The project includes the following design features to reduce the demand for energy use: <ul style="list-style-type: none"> • Appliances shall be Energy Star rated or equivalent. • Outdoor lighting shall be LED or other high-efficiency lightbulbs. • Facilities maintenance personnel/contractors, as applicable, shall be provided information on energy efficiency, energy efficient lighting and lighting control systems, energy management. • Electrical outlets shall be provided at building exterior areas. • Main project buildings (Learning Center, Welcome Center and Player Development building) shall meet the U.S. Green Building Council standards for cool roofs. This is defined as achieving a 3-year solar reflective index (SRI) of 64 for a low-sloped roof and 32 for a high-sloped roof. • Outdoor walkways and patios, and permanent parking lots, shall use paving materials with 3-year SRI of 0.28 or initial SRI of 0.33. • Duct insulation shall be installed to a minimum level of R-6 and modestly enhanced window insulation (for a 5% improvement over the 2016 Title 24 requirement) consistent with County of Los Angeles criteria. • HVAC equipment shall have a SEER of 12 or higher. • Water heaters shall have an energy factor of 0.92 or higher. • Some form of daylighting (e.g., skylights, windows) shall be included in rooms with exterior walls that would normally be occupied. 	Final plans and specifications	Final plans and specifications; prior to issuance of certificate of occupancy	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> Artificial lighting in at least 50% of unit fixtures shall be energy efficient. Waterless urinals, and high-efficiency faucets and toilets shall be used in the project. 						
PDF-GHG-2. The project shall include the installation of a solar photovoltaic rooftop system on the Learning Center, Welcome Center and/or Player Development buildings to the extent feasible.	Final plans and specifications	Final plans and specifications; prior to issuance of certificate of occupancy	County of Los Angeles Department of Public Works			
PDF-GHG-3. The project's landscape shall use recycled water.	Final plans and specifications	Final plans and specifications; prior to issuance of certificate of occupancy	County of Los Angeles Department of Public Works			
<i>Hazards and Hazardous Materials</i>						
MM-HAZ-1. Prior to issuance of the first excavation or grading permit for project development, the County shall confirm that the Department of Toxic Substances Control (DTSC) has no objections to issuance of the excavation/grading permit.	Pre-construction	Prior to issuance of the first excavation or grading permit	County of Los Angeles Department of Public Works			
MM-HAZ-2. If excavation or grading occurs in areas with potential for residual contamination in the subsurface in the maintenance area (Figure 4.8-1), then a qualified environmental professional retained by the project applicant and approved by the County shall screen soils in the identified area prior to excavation and grading based on the nature of the potential contamination. In the event that potential contamination is encountered the contamination shall be evaluated by the qualified environmental professional using appropriate collection and sampling techniques as determined by the environmental professional based on the nature of the contamination. The nature and extent of contamination shall	During construction (excavation and grading) (if applicable)	During construction (grading and excavation)	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
be determined and the appropriate handling, disposal, and/or treatment shall be implemented in accordance with applicable regulatory requirements.						
PDF-HAZ-1. Prior to the issuance of any demolition permit or permit for remodeling of existing buildings, if applicable, the applicant shall provide a letter to the applicable authority indicating that the demolition/renovation contract provides for a qualified asbestos abatement contractor/specialist to remove or otherwise abate or manage asbestos during demolition or renovation activities in accordance with the South Coast Air Quality Management District's Rule 1403. The applicant shall comply with State and federal regulations to test for asbestos prior to issuance of any demolition permit. If asbestos-containing materials are found to be present, it shall be abated in compliance with the South Coast Air Quality Management District's Rule 1403, as well as all other applicable state and federal rules and regulations.	Pre-construction	Prior to the issuance of any demolition permit or permit for remodeling of existing buildings (if applicable)	County of Los Angeles Department of Public Works			
PDF-HAZ-2. Prior to the issuance of any permit for demolition or alteration of an existing structure, if applicable, a lead-based paint survey shall be performed in compliance with applicable State and federal regulations. Should lead-based paint materials be identified, the applicant shall provide evidence to the applicable authority demonstrating that the demolition/renovation contract provides that standard handling and disposal practices would be implemented pursuant to Occupational Safety and Health Act regulations. The applicant shall comply with State and federal regulations to test for lead-based paint prior to issuance of any demolition permit. Should lead-based paint materials be identified, standard handling and disposal practices shall be implemented pursuant to Occupational Safety and Health Act regulations.	Pre-construction	Prior to the issuance of any demolition permit or permit for remodeling of existing buildings (if applicable)	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<i>Noise</i>						
MM-NOI-1. Noise Barrier Installation. The following measure shall be incorporated into the project contract specifications. Prior to commencement of construction activities involving heavy equipment within the areas shown on Figure 4.11-2, Location of Required Temporary Barrier for Construction Noise Mitigation, temporary construction noise barriers shall be constructed in the locations shown in Figure 4.11-2. The eastern noise barrier shall be erected along the top edge of the slope that exists along the eastern edge of the property. The noise barriers shall be 8 feet in height, have a surface density of at least four pounds per square foot, and be free of openings and cracks (with the exception of expansion joints gaps and other construction techniques, which could create an opening or crack). Sound blankets or panels with a minimum 20 Sound Transmission Class (STC) rating may be used as the surface of the noise barrier; such blankets or panels should be constructed for outdoor use, and may be supported on a metal framework.	Pre-construction; final plans and specifications	Final plans and specifications; during construction				
MM-NOI-2. Pile Driving. The following measure shall be incorporated into the project contract specifications. Pile driving within the areas shown on Figure 4.11-3, Boundaries of Area Where Sonic Pile Drive is Required for Noise Mitigation, shall employ a vibratory (sonic) pile driver if technically feasible as determined by the project geologist.	Final plans and specifications; during construction (if applicable)	Final plans and specifications; during construction (if applicable)	County of Los Angeles Department of Public Works			
MM-NOI-3. Construction Hours. Construction activities shall take place during the permitted time and day per Section 12.08.440 of the County Code. The applicant shall ensure that construction activities for the proposed project are limited to the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday, and not at all during other hours or on Sundays or holidays.	During construction	During construction	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-NOI-4. Construction Noise Reduction. The County of Los Angeles shall require the contractor to adhere to the following measures as a condition of granting a grading permit to the contractor: <ul style="list-style-type: none"> • All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. • Construction noise reduction methods such as shutting off idling equipment, construction of a temporary noise barrier, maximizing the distance between construction equipment staging areas and adjacent residences, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible. • During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors. • Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances. • At the request of the school administration for Towne Avenue Elementary School, the contractor will meet with the school principal or other representative each week to discuss anticipated upcoming construction activities and applicable noise reduction measures. 	Pre-construction; during construction	Final plans and specifications; prior to issuance of a grading permit during construction	County of Los Angeles Department of Public Works			
<i>Traffic and Transportation</i>						
<p>The Traffic and Transportation Project Design Features and Mitigation Measures set forth in the Environmental Impact Report and this MMRP include several off-site improvements and fair-share funding obligations. These traffic-related Project Design Features and Mitigation Measures may be revised, where appropriate and as determined, by the County: (1) upon demonstration that Mitigation Measures are equivalent or superior to the original Project Design Feature and/or Mitigation Measures, and/or (2) upon demonstration that approval or implementation of Project Design Features or Mitigation Measures that require other jurisdiction approvals have been delayed or might not be completed, provided that the Project Applicant or its successor has demonstrated reasonable efforts and due diligence to the satisfaction of the County. Those Mitigation Measures that require physical improvements may be completed by the Project Applicant or guaranteed by bond.</p>						

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-TRAF-1. No. 7 Avalon Boulevard/Albertoni Street. The proposed project shall implement the following improvements at Avalon Boulevard/Albertoni Street: <ul style="list-style-type: none"> • Restripe existing (cross-hatched) pavement on the northbound approach to a second (dual) northbound left-turn lane. This improvement could be accomplished within the existing right-of-way. • Modify existing protected left-turn phasing on the northbound and southbound approaches for a lead/lag operation (for opposing left-turn clearance purposes). 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-2. No. 18 Main Street/Albertoni Street. The proposed project shall implement the following improvements at Main Street/Albertoni Street: <ul style="list-style-type: none"> • Add new eastbound right-turn lane. This improvement could be accomplished within the existing right-of-way, but would require the removal of approximately 5 on-street parking spaces approximately 100 feet west of the intersection. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-3. No. 19 Main Street/Victoria Street. The proposed project shall implement the following improvements at Main Street/Victoria Street: <ul style="list-style-type: none"> • Add new eastbound right-turn lane. This improvement could be accomplished within the existing right-of-way, but would require the removal of approximately 5 on-street parking spaces approximately 100 feet west of the intersection. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-4. No. 25 Hamilton Avenue/I-110 Southbound Ramps. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Hamilton Avenue/I-110 southbound ramps:	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			

Table 4-1
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Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> Installation of a new traffic signal at Hamilton Avenue/I-110 southbound ramps consisting of a northbound/southbound split phase and westbound permitted phase with overlapping right-turns. Reconfiguration of the southbound approach to provide a dedicated left-turn lane and a left-turn/through lane. 						
MM-TRAF-5. No. 1 Main Street/Martin Luther King Jr. Street. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Main Street/Martin Luther King, Jr. Street: <ul style="list-style-type: none"> Reconfigure the westbound approach to provide a left-turn, shared left/right-turn, and right-turn lanes; Add new northbound right-turn lane 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-6. No. 3 Main Street/I-405 southbound ramps. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Main Street/I-405 southbound ramps: <ul style="list-style-type: none"> Convert the eastbound left-turn lane to a shared through-left-turn lane (onto the I-405 on-ramp). 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-7. No. 4 Main Street/Del Amo Boulevard. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Main Street/Del Amo Boulevard: <ul style="list-style-type: none"> Add new second (dual) westbound left-turn lane; Add new northbound right-turn lane; Widening of the westbound approach will be required. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-TRAF-8. No. 8 Avalon Boulevard/Victoria Street. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Avalon Boulevard/Victoria Street: <ul style="list-style-type: none"> • On the eastbound approach, restripe the right-turn lane into a shared through/right-turn lane; • On the eastbound departure, restripe to provide three through lanes. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-9. No. 10 Avalon Boulevard/University Avenue. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following physical improvements at Avalon Boulevard/University Avenue: <ul style="list-style-type: none"> • On the westbound approach, reconfigure to provide two left-turn lanes and one right-turn lane; this is anticipated to require some modification to the existing medians located on Avalon Boulevard and University Avenue • Reclassify a section of the existing dedicated westbound bicycle lane as a shared lane. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-10. No. 14 Avalon Boulevard/Del Amo Boulevard. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Avalon Boulevard/Del Amo Boulevard: <ul style="list-style-type: none"> • Add second (dual) northbound left-turn lane. • Reconfigure southbound approach to provide a right-turn lane. • Reconfigure eastbound right-turn lane into a shared through/right-turn lane. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-TRAF-11. No. 16 Avalon Boulevard/I-405 southbound ramps. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Avalon Boulevard/I-405 Southbound Ramps: <ul style="list-style-type: none"> • Upgrade traffic control equipment to provide a new southbound right-turn overlap signal phase. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-12. No. 22 I-110 southbound ramps/190th Street. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following physical improvements at I-110 southbound ramps/190th Street: <ul style="list-style-type: none"> • Provide an additional eastbound lane for a total of three through lanes by reducing the width of the existing painted median on 190th Street to accommodate the additional eastbound lane. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-13. No.24 Hamilton Avenue/Del Amo Boulevard. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Hamilton Avenue/Del Amo Boulevard: <ul style="list-style-type: none"> • Convert the second northbound through lane to a dedicated right-turn lane. • Modify the traffic signal to provide an overlap phase for the northbound right-turn and add protected-permitted phasing for the westbound left-turn movements. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			

Table 4-1
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Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-TRAF-14. No. 26 Figueroa Street/Del Amo Boulevard. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Figueroa Street/Del Amo Boulevard: <ul style="list-style-type: none"> • Restripe the westbound approach to provide two left-turn lanes, a through lane, and a shared through-right lane. • Restripe the eastbound approach to provide a left-turn lane, two through lanes, and a shared through-right turn lane. • Modify the traffic signal to provide an overlap phase for the northbound and southbound right-turns. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
PDF-TRAF-1. The proposed project will include a Special Event Management Plan (SEMP) for Special Events. The SEMP measures would be implemented at the following thresholds: <ol style="list-style-type: none"> 1. All on-site measures would be implemented when weekend Soccer and weekend Tennis Center tournaments operate simultaneously. The on-site measures are discussed in more detail in the proposed project's TIA (Appendix K) and may include, but not be limited to: <ul style="list-style-type: none"> • Physical site design • Parking operations • Guest communications 2. All on-site measures and selected off-site measures, as identified through coordination with the lead agency, would be implemented when: <ol style="list-style-type: none"> a. Weekend Soccer and weekend Tennis Center tournaments operate simultaneously plus the full use of the Tennis Center exhibition venue; OR, 	Pre-operation; Project operation	Prior to issuance of a certificate of occupancy; throughout operation	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<p>b. The scheduling of a special event at the Soccer Center (e.g., nontypical event, professional sports exhibition, etc.).</p> <p>The off-site measures are discussed in more detail in the proposed project's TIA (Appendix K) and may include, but not be limited to:</p> <ul style="list-style-type: none"> • Traffic management (off site) • Coordinated traffic control • Traffic control officers • Schedule coordination <p>The SEMP is intended to be an evolving document subject to modification over time in coordination and consultation with the County, in order to respond to changes in traffic patterns and mobility/parking technologies which may alter the travel to and attendance of events at the project.</p>						
<p>PDF-TRAF-2. Prior to issuance of a grading permit, the proposed project will develop a Construction Traffic Management Plan for construction activities that would impact public streets.</p> <p>The Construction Traffic Management Plan shall be based on the nature and timing of the specific construction and other projects in the vicinity of the project site and shall include the following elements as appropriate:</p> <ul style="list-style-type: none"> • Advance notification to adjacent property owners and occupants, as well as, nearby schools, of upcoming construction activities, including durations and daily hours of construction. 	Pre-construction; during construction	Prior to issuance of a grading permit; during construction	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> • The project's construction manager shall contact LAUSD's Transportation Branch at (213) 580-2950 regarding the potential impact upon existing school bus routes, and the expected start and ending dates for various portions of the project construction that may affect traffic within nearby school areas. • Prohibition of construction worker parking on adjacent residential streets, and identify construction employee parking locations and protocols. • Temporary traffic control during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways (e.g., flag men flagmen). The temporary traffic controls shall minimize traffic delays for LAUSD transported students. • Prohibition of construction-related vehicle parking on surrounding public streets. • Safety precautions for pedestrian and bicyclists through such measures as alternate routing and protection barriers as appropriate, including along all identified Los Angeles Unified School District (LAUSD) and Compton Unified School District (CUSD) pedestrian routes to nearby schools. • Scheduling of construction-related deliveries, haul trips, etc., so as to occur outside the commuter peak hours to the extent feasible, and so as to not impede school drop-off and pick-up activities and students using LAUSD/CUSD's identified pedestrian routes to nearby schools. • Coordination with public transit agencies to provide advanced notifications of any anticipated stop relocations and durations. 						

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> • Provision of advanced notification of any temporary on-street parking removals and duration of removals. • Establish construction hours that are in compliance with Carson Municipal Code (CMC). • Establish a construction phone number which shall be posted on the site, and appoint a construction liaison officer to respond to concerns or inquiries regarding project construction. • Construction trucks and other vehicles are required to stop when encountering school buses using red-flashing-lights must-stop-indicators per the California Vehicle Code. • Contractors shall install and maintain appropriate traffic controls (signs and signals) for vehicular safety. • Contractors shall maintain ongoing communication with LAUSD school administrators, for the school to provided sufficient notice to children and parents when existing vehicle and pedestrian routes to school may be impacted. • Maintain unimpeded emergency access to the project site and nearby properties. • Establish truck access and staging areas, and review haul route approved with the project. • Provide construction site security. • Prohibition of staging or parking of construction-related vehicles, including worker-transport vehicles, on or adjacent to a school property without the express written permission of the applicable school district. 						

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> Funding for crossing guards at the contractor's expense to the extent required when safety of children may be compromised by construction-related activities at impacted school crossings. 						
<i>Tribal Cultural Resources</i>						
MM-TCR-1. Unanticipated Discovery While no tribal cultural resources (TCRs) have been identified that may be affected by the project, the following approach for the unanticipated discovery of TCRs has been prepared to reduce potential impacts to unanticipated resources. Should a potential TCR be encountered, construction activities near the potential TCR shall be temporarily halted within 50 feet of the potential TCR and the County of Los Angeles (County) notified. The County will notify Native American tribes that have been identified by the Native American Heritage Commission (NAHC) to be traditionally and culturally affiliated with the geographic area of the project. If the unanticipated resource is archaeological in nature, appropriate management requirements shall be implemented as outlined in Mitigation Measure (MM-) CUL-1 (see Section 4.4.5, Mitigation Measures). If the County determines that the potential resource is a TCR (as defined by Public Resources Code, Section 21074), tribes consulting under AB 52 would be provided a reasonable period of time, typically 5 days from the date a new discovery is made, to conduct a site visit and make recommendations regarding future ground disturbance activities as well as the treatment and disposition of any discovered TCRs. A qualified archaeologist shall implement a plan for the treatment and disposition of any discovered TCRs based on the nature of the resource and considering the recommendations of the	During construction	During construction	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	<i>Implementing Phase</i>	<i>Monitoring Phase</i>	<i>Enforcing Agency</i>	<i>Initial</i>	<i>Date</i>	<i>Comments</i>
tribe(s). All activities shall be conducted in accordance with regulatory requirements. If human remains are found within the project site, management recommendations as outlined in MM-CUL-3 (see Section 4.4.5) should be implemented.						



SOURCE: USDA 2016

DUDEK



0 250 500 Feet

FIGURE 4.8-1

Maintenance Area Location

Carol Kimmelman Athletic and Academic Campus

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FIGURE 4.11-2

Location of Required Temporary Barrier for Construction Noise Mitigation

Carol Kimmelman Athletic and Academic Campus

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SOURCE: Bing Maps 2018

FIGURE 4.11-3

Boundaries of Area Where Sonic Pile Driver is Required for Noise Mitigation

Carol Kimmelman Athletic and Academic Campus

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CHAPTER 4

MITIGATION MONITORING AND REPORTING PROGRAM

California Public Resources Code Section 21081.6 requires that, upon certification of an EIR, “[t]he public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation.”

This chapter contains the mitigation monitoring and reporting program (MMRP) that has been developed for the Carol Kimmelman Athletic and Academic Campus Project (project or proposed project). This MMRP has been developed in compliance with Public Resources Code Section 21081.6 and Section 15097 of the CEQA Guidelines. The mitigation measures in the table are coded by alphanumeric identification consistent with the EIR. The following items are identified for each mitigation measure:

- **Mitigation Monitoring.** This section of the MMRP lists the stage of the proposed project during which the mitigation measure would be implemented and the stage during which proper implementation would be monitored and verified. It also lists the agency that is responsible for ensuring that the mitigation measure is implemented and that it is implemented properly.
- **Verification of Compliance.** This section of the MMRP provides a location for the implementing party and/or enforcing agency to make notes and to record their initials and the compliance date for each mitigation measure.

The County must adopt this MMRP, or an equally effective program, if it approves the proposed project with the mitigation measures that were adopted or made conditions of project approval.

Minor changes and modifications to the MMRP are permitted, but can only be made by the Project Applicant or its successor subject to approval by the County. In conjunction with any appropriate agencies or departments, the County will determine the adequacy of any proposed change or modification. Any revisions to a Mitigation Measure in the final MMRP must achieve the same level or more of mitigation as the original mitigation measure and not result in new or more severe environmental impacts.

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Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<i>Air Quality</i>						
MM-AQ-1. To reduce the potential for health risks, and mass emissions of oxides of nitrogen (NOx) and diesel particulate matter as a result of the construction of the project, the applicant shall include the following requirements in its contracts with the construction contractors: <ul style="list-style-type: none"> • Equip heavy-duty diesel-powered construction equipment with Tier 4 Final or better diesel engines, except where Tier 4 Final or better engines are not available for specific construction equipment. • Minimize simultaneous operation of multiple construction equipment units. During construction, vehicles in loading and unloading queues shall not idle for more than 5 minutes, and shall turn their engines off when not in use to reduce vehicle emissions. • Properly tune and maintain all construction equipment in accordance with manufacturer's specifications; • Where feasible, employ the use of electrical or natural gas-powered construction equipment, including forklifts and other comparable equipment types. • To reduce the need for electric generators and other fuel-powered equipment, provide on-site electrical hookups for the use of hand tools such as saws, drills, and compressors used for building construction. • Develop a Construction Traffic Control Plan to ensure construction traffic and equipment use is minimized to the extent practicable. The Construction Traffic Control Plan shall route delivery and haul trucks required during construction away from sensitive receptor locations and congested intersections, to the extent feasible. The Construction Traffic Control Plan shall, to the extent 	Pre-construction; during construction; final plans and specifications	Final plans and specifications; during construction	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
feasible, include measures to: reduce the number of large pieces of equipment operating simultaneously during peak construction periods, schedule vendor and haul truck trips to occur during non-peak hours, establish dedicated construction parking areas to encourage carpooling and efficiently accommodate construction vehicles, identify alternative routes to reduce traffic congestion during peak activities, and increase construction employee carpooling. Construction Traffic Control plans shall be finalized and approved prior to issuance of grading permits.						
MM-AQ-2. Prior to the County of Los Angeles' (County's) approval of any grading permits, and during project construction, a Fugitive Dust Plan shall be prepared consistent with South Coast Air Quality Management District (SCAQMD) Rule 403. The project applicant or its designee shall require implementation of the following fugitive dust measures to minimize particulate matter less than or equal to 10 microns in diameter (PM ₁₀) and particulate matter less than or equal to 2.5 microns in diameter (PM _{2.5}) emissions as part of the Fugitive Dust Plan. All measures shall be designated on grading and improvement plans. Measures shall include but are not limited to the following: <ul style="list-style-type: none"> • Water, or utilize another SCAQMD-approved dust control non-toxic agent, on the grading areas at least three times daily to minimize fugitive dust. • All permanent roads and roadway improvements shall be constructed and paved as early as possible in the construction process to reduce construction vehicle travel on unpaved roads. To reduce fugitive dust from earth-moving operations, building pads shall be finalized as soon as possible following site preparation and grading activities. 	Pre-construction; during construction; final plans and specifications	Final plans and specifications; during construction	County of Los Angeles Department of Public Works			

Table 4-1
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Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> • Stabilize grading areas as quickly as possible to minimize fugitive dust. • Apply chemical stabilizer to on-site stockpiles of excavated material, install a gravel pad, or pave the last 100 feet of internal travel path within the construction site prior to public road entry. • Remove any visible track-out into traveled public streets with the use of sweepers, water trucks, or similar method as soon as possible. • Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads. Unpaved construction site egress points shall be graveled to prevent track-out. • Wet wash the construction access point at the end of the workday if any vehicle travel on unpaved surfaces has occurred. • Cover haul trucks or maintain at least 2 feet of freeboard to reduce blow-off during hauling. • Evaluate potential for reduction in dust generating activity if winds exceed 25 miles per hour. • Enforce a 15-mile-per-hour speed limit on unpaved surfaces. • Provide haul truck staging areas for the loading and unloading of soil and materials. Staging areas shall be located away from sensitive receptors, at the furthest feasible distance. Prior to construction activities, the project applicant shall employ a construction relations officer who will address community concerns regarding on-site construction activity. The applicant shall provide public notification in the form of a visible sign containing the contact information of the construction relations officer. The sign shall be placed in easily 						

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
accessible locations along South Avalon Boulevard and Martin Luther King Jr. Street and noted on grading and improvement plans.						
MM-AQ-3. The proposed project shall provide circuitry and capacity for installation of electric vehicle (EV) charging stations consistent with the County of Los Angeles criteria. The proposed project shall develop up to 5% of the available parking spaces on site as EV charging stations.	Final plans and specifications	Final plans and specifications; prior to issuance of first occupancy permit	County of Los Angeles Department of Public Works			
MM-AQ-4. The construction contractor shall require that construction vendors, contractors, and/or haul truck operators commit to using 2010 model year or newer diesel haul trucks. All construction truck operators shall maintain truck records and make these records available to the County upon request.	Pre-construction; during construction	During construction	County of Los Angeles Department of Public Works			
MM-AQ-5. The construction contractor shall encourage its construction contractors and vendors to apply for South Coast Air Quality Management Surplus Off-Road Opt-In for NOx ("SOON") funds to the extent available, which provide funds to applicable fleets for the purchase of commercially available low-emission heavy-duty engines to achieve near-term reduction of NO _x emissions from in-use off-road diesel vehicles.	Pre-construction; during construction	During construction	County of Los Angeles Department of Public Works			
MM-AQ-6. During operations, the operator of the Learning Center shall encourage school bus fleets under contract with the Learning Center to seek funding opportunities through the South Coast Air Quality Management District's Lower-Emission School Bus Program, to the extent available, to replace older diesel busses with cleaner school buses.	Project operation	Throughout operation	County of Los Angeles Department of Public Works			
MM-AQ-7. During operations, electric landscape equipment, such as lawn mowers and leaf blowers, shall be used to the extent commercially available.	Project operation	Throughout operation	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-AQ-8. During operations, the project shall utilize electric or alternatively fueled parking lot sweepers with HEPA filters.	Project operation	Throughout operation	County of Los Angeles Department of Public Works			
<i>Biological Resources</i>						
<p>MM-BIO-1. Conduct Pre-Construction Surveys. Prior to construction, a knowledgeable biologist shall conduct a preconstruction survey sweep within areas of suitable habitat for the San Diego desert woodrat. The biologist shall look for any San Diego desert woodrat in suitable habitat that may be located within or immediately adjacent to project work areas (within 100 feet).</p> <p>If individual San Diego desert woodrats are observed within project work areas during the pre-construction survey, a biological monitor shall be on site during construction to flush or move them out of harm's way to avoid direct impacts to these species. If a population of San Diego desert woodrat are observed during the pre-construction survey, and cannot be avoided by the project, consultation with California Department of Fish and Wildlife shall be required, and mitigation shall include relocation of the species and/or the purchase of compensatory habitat-based mitigation credits at a minimum 1:1 ratio for the loss of occupied habitat.</p>	Pre-construction; during construction (if applicable)	Pre-construction; during construction (if applicable)	County of Los Angeles Department of Public Works			
<p>MM-BIO-2. Nesting Bird Avoidance. Construction activities shall avoid the migratory bird nesting season (typically February 1 through August 31), to reduce any potential significant impact to birds that may be nesting within the study area. If construction activities must occur during the migratory bird nesting season, an avian nesting survey of the project site and contiguous habitat within 500 feet of all impact areas shall be conducted for protected migratory birds and active nests. The avian nesting survey shall be performed by a knowledgeable biologist within 72 hours prior to</p>	Pre-construction; during construction (if applicable)	Pre-construction; during construction (if applicable)	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
the start of construction in accordance with the Migratory Bird Treaty Act (16 USC 703–712) and California Fish and Game Code, Sections 3503, 3503.5, and 3513. If an active bird nest is found, the nest shall be flagged and mapped on the construction plans along with an appropriate no disturbance buffer, which shall be determined by the biologist based on the species' sensitivity to disturbance (typically 300 feet for passerines and 500 feet for raptors and special-status species). The nest area shall be avoided until the nest is vacated and the juveniles have fledged. The nest area shall be demarcated in the field with flagging and stakes or construction fencing.						
<i>Cultural Resources</i>						
MM-CUL-1. Unanticipated Archaeological Resource Discoveries. If archaeological resources (i.e., sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for Archaeology, can evaluate the significance of the find and determine whether or not additional study is warranted. The archaeologist shall be empowered to temporarily stop or redirect grading activities to allow removal of abundant or large artifacts. Depending upon qualified archaeologist determination of the significance of the find (14 CCR 15064.5(f); PRC, Section 21082), the archaeologist may record the find and allow work to continue. If the archaeologist determines that the discovery is significant and requires additional work, the archaeologist may require preparation and implementation of an archaeological treatment plan and data recovery. If any artifacts are discovered, the archaeologist shall curate specimens in a repository with permanent retrievable storage and submit a written report to	During construction	During construction; prior to issuance of first occupancy permit (if applicable)	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<p>the lead agency prior to occupancy of the first building on the site. Once approved, the final report will be filed with the South Central Coast Information Center (SCCIC).</p> <p>Once artifact analysis is completed, a final written report detailing the results of all research procedures and interpretation of the site shall be submitted to the lead agency for review and approval prior to occupancy of the first building on the site.</p>						
<p>MM-CUL-2. Inadvertent Discovery of Human Remains. In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found within the project site, the County coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site of the remains or any nearby area reasonably suspected to overlie adjacent remains shall occur until the county coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the “most likely descendant” (MLD) of the deceased Native American. The MLD shall complete his/her inspection within 48 hours of being granted access to the site. The designated MLD would then determine, in consultation with the property owner, the disposition of the human remains.</p>	During construction	During construction	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<i>Geology and Soils</i>						
MM-GEO-1. Paleontological Resources Monitoring. Prior to commencement of any grading activity on site, the applicant shall retain a qualified paleontologist acceptable to the County. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed project. The PRIMP shall be consistent with the guidelines of the Society of Vertebrate Paleontology (SVP 2010). The qualified paleontologist shall attend the preconstruction meeting and be on site during all rough grading and other significant ground-disturbing activities in previously undisturbed older Quaternary alluvial deposits (including old lagoonal deposits). These deposits may be encountered at depths as shallow as 5-10 feet below ground surface. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontology monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find. If determined to be significant, the paleontological resources shall be stabilized, labeled, and prepared to the point of identification before accessioning into an appropriate paleontological repository with retrievable storage. Following the paleontological monitoring program, a final monitoring report shall be submitted to the lead agency for review and approval. The report should summarize the monitoring program and include geological observations and any paleontological resources recovered during paleontological monitoring for the proposed project.	Pre-construction; during construction (rough grading and other significant ground-disturbing activities)	During construction (rough grading and other significant ground-disturbing activities)	County of Los Angeles Department of Public Works			

Table 4-1
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Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<i>Greenhouse Gas Emissions</i>						
PDF-GHG-1. The project includes the following design features to reduce the demand for energy use: <ul style="list-style-type: none"> • Appliances shall be Energy Star rated or equivalent. • Outdoor lighting shall be LED or other high-efficiency lightbulbs. • Facilities maintenance personnel/contractors, as applicable, shall be provided information on energy efficiency, energy efficient lighting and lighting control systems, energy management. • Electrical outlets shall be provided at building exterior areas. • Main project buildings (Learning Center, Welcome Center and Player Development building) shall meet the U.S. Green Building Council standards for cool roofs. This is defined as achieving a 3-year solar reflective index (SRI) of 64 for a low-sloped roof and 32 for a high-sloped roof. • Outdoor walkways and patios, and permanent parking lots, shall use paving materials with 3-year SRI of 0.28 or initial SRI of 0.33. • Duct insulation shall be installed to a minimum level of R-6 and modestly enhanced window insulation (for a 5% improvement over the 2016 Title 24 requirement) consistent with County of Los Angeles criteria. • HVAC equipment shall have a SEER of 12 or higher. • Water heaters shall have an energy factor of 0.92 or higher. • Some form of daylighting (e.g., skylights, windows) shall be included in rooms with exterior walls that would normally be occupied. 	Final plans and specifications	Final plans and specifications; prior to issuance of certificate of occupancy	County of Los Angeles Department of Public Works			

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Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> Artificial lighting in at least 50% of unit fixtures shall be energy efficient. Waterless urinals, and high-efficiency faucets and toilets shall be used in the project. 						
PDF-GHG-2. The project shall include the installation of a solar photovoltaic rooftop system on the Learning Center, Welcome Center and/or Player Development buildings to the extent feasible.	Final plans and specifications	Final plans and specifications; prior to issuance of certificate of occupancy	County of Los Angeles Department of Public Works			
PDF-GHG-3. The project's landscape shall use recycled water.	Final plans and specifications	Final plans and specifications; prior to issuance of certificate of occupancy	County of Los Angeles Department of Public Works			
<i>Hazards and Hazardous Materials</i>						
MM-HAZ-1. Prior to issuance of the first excavation or grading permit for project development, the County shall confirm that the Department of Toxic Substances Control (DTSC) has no objections to issuance of the excavation/grading permit.	Pre-construction	Prior to issuance of the first excavation or grading permit	County of Los Angeles Department of Public Works			
MM-HAZ-2. If excavation or grading occurs in areas with potential for residual contamination in the subsurface in the maintenance area (Figure 4.8-1), then a qualified environmental professional retained by the project applicant and approved by the County shall screen soils in the identified area prior to excavation and grading based on the nature of the potential contamination. In the event that potential contamination is encountered the contamination shall be evaluated by the qualified environmental professional using appropriate collection and sampling techniques as determined by the environmental professional based on the nature of the contamination. The nature and extent of contamination shall	During construction (excavation and grading) (if applicable)	During construction (grading and excavation)	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
be determined and the appropriate handling, disposal, and/or treatment shall be implemented in accordance with applicable regulatory requirements.						
PDF-HAZ-1. Prior to the issuance of any demolition permit or permit for remodeling of existing buildings, if applicable, the applicant shall provide a letter to the applicable authority indicating that the demolition/renovation contract provides for a qualified asbestos abatement contractor/specialist to remove or otherwise abate or manage asbestos during demolition or renovation activities in accordance with the South Coast Air Quality Management District's Rule 1403. The applicant shall comply with State and federal regulations to test for asbestos prior to issuance of any demolition permit. If asbestos-containing materials are found to be present, it shall be abated in compliance with the South Coast Air Quality Management District's Rule 1403, as well as all other applicable state and federal rules and regulations.	Pre-construction	Prior to the issuance of any demolition permit or permit for remodeling of existing buildings (if applicable)	County of Los Angeles Department of Public Works			
PDF-HAZ-2. Prior to the issuance of any permit for demolition or alteration of an existing structure, if applicable, a lead-based paint survey shall be performed in compliance with applicable State and federal regulations. Should lead-based paint materials be identified, the applicant shall provide evidence to the applicable authority demonstrating that the demolition/renovation contract provides that standard handling and disposal practices would be implemented pursuant to Occupational Safety and Health Act regulations. The applicant shall comply with State and federal regulations to test for lead-based paint prior to issuance of any demolition permit. Should lead-based paint materials be identified, standard handling and disposal practices shall be implemented pursuant to Occupational Safety and Health Act regulations.	Pre-construction	Prior to the issuance of any demolition permit or permit for remodeling of existing buildings (if applicable)	County of Los Angeles Department of Public Works			

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Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<i>Noise</i>						
MM-NOI-1. Noise Barrier Installation. The following measure shall be incorporated into the project contract specifications. Prior to commencement of construction activities involving heavy equipment within the areas shown on Figure 4.11-2, Location of Required Temporary Barrier for Construction Noise Mitigation, temporary construction noise barriers shall be constructed in the locations shown in Figure 4.11-2. The eastern noise barrier shall be erected along the top edge of the slope that exists along the eastern edge of the property. The noise barriers shall be 8 feet in height, have a surface density of at least four pounds per square foot, and be free of openings and cracks (with the exception of expansion joints gaps and other construction techniques, which could create an opening or crack). Sound blankets or panels with a minimum 20 Sound Transmission Class (STC) rating may be used as the surface of the noise barrier; such blankets or panels should be constructed for outdoor use, and may be supported on a metal framework.	Pre-construction; final plans and specifications	Final plans and specifications; during construction				
MM-NOI-2. Pile Driving. The following measure shall be incorporated into the project contract specifications. Pile driving within the areas shown on Figure 4.11-3, Boundaries of Area Where Sonic Pile Drive is Required for Noise Mitigation, shall employ a vibratory (sonic) pile driver if technically feasible as determined by the project geologist.	Final plans and specifications; during construction (if applicable)	Final plans and specifications; during construction (if applicable)	County of Los Angeles Department of Public Works			
MM-NOI-3. Construction Hours. Construction activities shall take place during the permitted time and day per Section 12.08.440 of the County Code. The applicant shall ensure that construction activities for the proposed project are limited to the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday, and not at all during other hours or on Sundays or holidays.	During construction	During construction	County of Los Angeles Department of Public Works			

Table 4-1
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Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-NOI-4. Construction Noise Reduction. The County of Los Angeles shall require the contractor to adhere to the following measures as a condition of granting a grading permit to the contractor: <ul style="list-style-type: none"> • All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. • Construction noise reduction methods such as shutting off idling equipment, construction of a temporary noise barrier, maximizing the distance between construction equipment staging areas and adjacent residences, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible. • During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors. • Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances. • At the request of the school administration for Towne Avenue Elementary School, the contractor will meet with the school principal or other representative each week to discuss anticipated upcoming construction activities and applicable noise reduction measures. 	Pre-construction; during construction	Final plans and specifications; prior to issuance of a grading permit during construction	County of Los Angeles Department of Public Works			
<i>Traffic and Transportation</i>						
<p>The Traffic and Transportation Project Design Features and Mitigation Measures set forth in the Environmental Impact Report and this MMRP include several off-site improvements and fair-share funding obligations. These traffic-related Project Design Features and Mitigation Measures may be revised, where appropriate and as determined, by the County: (1) upon demonstration that Mitigation Measures are equivalent or superior to the original Project Design Feature and/or Mitigation Measures, and/or (2) upon demonstration that approval or implementation of Project Design Features or Mitigation Measures that require other jurisdiction approvals have been delayed or might not be completed, provided that the Project Applicant or its successor has demonstrated reasonable efforts and due diligence to the satisfaction of the County. Those Mitigation Measures that require physical improvements may be completed by the Project Applicant or guaranteed by bond.</p>						

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Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-TRAF-1. No. 7 Avalon Boulevard/Albertoni Street. The proposed project shall implement the following improvements at Avalon Boulevard/Albertoni Street: <ul style="list-style-type: none"> • Restripe existing (cross-hatched) pavement on the northbound approach to a second (dual) northbound left-turn lane. This improvement could be accomplished within the existing right-of-way. • Modify existing protected left-turn phasing on the northbound and southbound approaches for a lead/lag operation (for opposing left-turn clearance purposes). 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-2. No. 18 Main Street/Albertoni Street. The proposed project shall implement the following improvements at Main Street/Albertoni Street: <ul style="list-style-type: none"> • Add new eastbound right-turn lane. This improvement could be accomplished within the existing right-of-way, but would require the removal of approximately 5 on-street parking spaces approximately 100 feet west of the intersection. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-3. No. 19 Main Street/Victoria Street. The proposed project shall implement the following improvements at Main Street/Victoria Street: <ul style="list-style-type: none"> • Add new eastbound right-turn lane. This improvement could be accomplished within the existing right-of-way, but would require the removal of approximately 5 on-street parking spaces approximately 100 feet west of the intersection. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-4. No. 25 Hamilton Avenue/I-110 Southbound Ramps. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Hamilton Avenue/I-110 southbound ramps:	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			

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Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> Installation of a new traffic signal at Hamilton Avenue/I-110 southbound ramps consisting of a northbound/southbound split phase and westbound permitted phase with overlapping right-turns. Reconfiguration of the southbound approach to provide a dedicated left-turn lane and a left-turn/through lane. 						
MM-TRAF-5. No. 1 Main Street/Martin Luther King Jr. Street. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Main Street/Martin Luther King, Jr. Street: <ul style="list-style-type: none"> Reconfigure the westbound approach to provide a left-turn, shared left/right-turn, and right-turn lanes; Add new northbound right-turn lane 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-6. No. 3 Main Street/I-405 southbound ramps. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Main Street/I-405 southbound ramps: <ul style="list-style-type: none"> Convert the eastbound left-turn lane to a shared through-left-turn lane (onto the I-405 on-ramp). 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-7. No. 4 Main Street/Del Amo Boulevard. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Main Street/Del Amo Boulevard: <ul style="list-style-type: none"> Add new second (dual) westbound left-turn lane; Add new northbound right-turn lane; Widening of the westbound approach will be required. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			

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Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-TRAF-8. No. 8 Avalon Boulevard/Victoria Street. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Avalon Boulevard/Victoria Street: <ul style="list-style-type: none"> • On the eastbound approach, restripe the right-turn lane into a shared through/right-turn lane; • On the eastbound departure, restripe to provide three through lanes. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-9. No. 10 Avalon Boulevard/University Avenue. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following physical improvements at Avalon Boulevard/University Avenue: <ul style="list-style-type: none"> • On the westbound approach, reconfigure to provide two left-turn lanes and one right-turn lane; this is anticipated to require some modification to the existing medians located on Avalon Boulevard and University Avenue • Reclassify a section of the existing dedicated westbound bicycle lane as a shared lane. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-10. No. 14 Avalon Boulevard/Del Amo Boulevard. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Avalon Boulevard/Del Amo Boulevard: <ul style="list-style-type: none"> • Add second (dual) northbound left-turn lane. • Reconfigure southbound approach to provide a right-turn lane. • Reconfigure eastbound right-turn lane into a shared through/right-turn lane. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			

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Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-TRAF-11. No. 16 Avalon Boulevard/I-405 southbound ramps. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Avalon Boulevard/I-405 Southbound Ramps: <ul style="list-style-type: none"> • Upgrade traffic control equipment to provide a new southbound right-turn overlap signal phase. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-12. No. 22 I-110 southbound ramps/190th Street. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following physical improvements at I-110 southbound ramps/190th Street: <ul style="list-style-type: none"> • Provide an additional eastbound lane for a total of three through lanes by reducing the width of the existing painted median on 190th Street to accommodate the additional eastbound lane. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
MM-TRAF-13. No.24 Hamilton Avenue/Del Amo Boulevard. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Hamilton Avenue/Del Amo Boulevard: <ul style="list-style-type: none"> • Convert the second northbound through lane to a dedicated right-turn lane. • Modify the traffic signal to provide an overlap phase for the northbound right-turn and add protected-permitted phasing for the westbound left-turn movements. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			

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Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
MM-TRAF-14. No. 26 Figueroa Street/Del Amo Boulevard. The proposed project shall pay its fair-share, as calculated based on the County's methodology, toward the implementation of the following improvements at Figueroa Street/Del Amo Boulevard: <ul style="list-style-type: none"> • Restripe the westbound approach to provide two left-turn lanes, a through lane, and a shared through-right lane. • Restripe the eastbound approach to provide a left-turn lane, two through lanes, and a shared through-right turn lane. • Modify the traffic signal to provide an overlap phase for the northbound and southbound right-turns. 	Pre-operation	Prior to issuance of a certificate of occupancy	County of Los Angeles Department of Public Works			
PDF-TRAF-1. The proposed project will include a Special Event Management Plan (SEMP) for Special Events. The SEMP measures would be implemented at the following thresholds: <ol style="list-style-type: none"> 1. All on-site measures would be implemented when weekend Soccer and weekend Tennis Center tournaments operate simultaneously. The on-site measures are discussed in more detail in the proposed project's TIA (Appendix K) and may include, but not be limited to: <ul style="list-style-type: none"> • Physical site design • Parking operations • Guest communications 2. All on-site measures and selected off-site measures, as identified through coordination with the lead agency, would be implemented when: <ol style="list-style-type: none"> a. Weekend Soccer and weekend Tennis Center tournaments operate simultaneously plus the full use of the Tennis Center exhibition venue; OR, 	Pre-operation; Project operation	Prior to issuance of a certificate of occupancy; throughout operation	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<p>b. The scheduling of a special event at the Soccer Center (e.g., nontypical event, professional sports exhibition, etc.).</p> <p>The off-site measures are discussed in more detail in the proposed project's TIA (Appendix K) and may include, but not be limited to:</p> <ul style="list-style-type: none"> • Traffic management (off site) • Coordinated traffic control • Traffic control officers • Schedule coordination <p>The SEMP is intended to be an evolving document subject to modification over time in coordination and consultation with the County, in order to respond to changes in traffic patterns and mobility/parking technologies which may alter the travel to and attendance of events at the project.</p>						
<p>PDF-TRAF-2. Prior to issuance of a grading permit, the proposed project will develop a Construction Traffic Management Plan for construction activities that would impact public streets.</p> <p>The Construction Traffic Management Plan shall be based on the nature and timing of the specific construction and other projects in the vicinity of the project site and shall include the following elements as appropriate:</p> <ul style="list-style-type: none"> • Advance notification to adjacent property owners and occupants, as well as, nearby schools, of upcoming construction activities, including durations and daily hours of construction. 	Pre-construction; during construction	Prior to issuance of a grading permit; during construction	County of Los Angeles Department of Public Works			

Table 4-1
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Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> • The project's construction manager shall contact LAUSD's Transportation Branch at (213) 580-2950 regarding the potential impact upon existing school bus routes, and the expected start and ending dates for various portions of the project construction that may affect traffic within nearby school areas. • Prohibition of construction worker parking on adjacent residential streets, and identify construction employee parking locations and protocols. • Temporary traffic control during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways (e.g., flag men flagmen). The temporary traffic controls shall minimize traffic delays for LAUSD transported students. • Prohibition of construction-related vehicle parking on surrounding public streets. • Safety precautions for pedestrian and bicyclists through such measures as alternate routing and protection barriers as appropriate, including along all identified Los Angeles Unified School District (LAUSD) and Compton Unified School District (CUSD) pedestrian routes to nearby schools. • Scheduling of construction-related deliveries, haul trips, etc., so as to occur outside the commuter peak hours to the extent feasible, and so as to not impede school drop-off and pick-up activities and students using LAUSD/CUSD's identified pedestrian routes to nearby schools. • Coordination with public transit agencies to provide advanced notifications of any anticipated stop relocations and durations. 						

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> • Provision of advanced notification of any temporary on-street parking removals and duration of removals. • Establish construction hours that are in compliance with Carson Municipal Code (CMC). • Establish a construction phone number which shall be posted on the site, and appoint a construction liaison officer to respond to concerns or inquiries regarding project construction. • Construction trucks and other vehicles are required to stop when encountering school buses using red-flashing-lights must-stop-indicators per the California Vehicle Code. • Contractors shall install and maintain appropriate traffic controls (signs and signals) for vehicular safety. • Contractors shall maintain ongoing communication with LAUSD school administrators, for the school to provided sufficient notice to children and parents when existing vehicle and pedestrian routes to school may be impacted. • Maintain unimpeded emergency access to the project site and nearby properties. • Establish truck access and staging areas, and review haul route approved with the project. • Provide construction site security. • Prohibition of staging or parking of construction-related vehicles, including worker-transport vehicles, on or adjacent to a school property without the express written permission of the applicable school district. 						

Table 4-1
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Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	Implementing Phase	Monitoring Phase	Enforcing Agency	Initial	Date	Comments
<ul style="list-style-type: none"> Funding for crossing guards at the contractor's expense to the extent required when safety of children may be compromised by construction-related activities at impacted school crossings. 						
<i>Tribal Cultural Resources</i>						
MM-TCR-1. Unanticipated Discovery While no tribal cultural resources (TCRs) have been identified that may be affected by the project, the following approach for the unanticipated discovery of TCRs has been prepared to reduce potential impacts to unanticipated resources. Should a potential TCR be encountered, construction activities near the potential TCR shall be temporarily halted within 50 feet of the potential TCR and the County of Los Angeles (County) notified. The County will notify Native American tribes that have been identified by the Native American Heritage Commission (NAHC) to be traditionally and culturally affiliated with the geographic area of the project. If the unanticipated resource is archaeological in nature, appropriate management requirements shall be implemented as outlined in Mitigation Measure (MM-) CUL-1 (see Section 4.4.5, Mitigation Measures). If the County determines that the potential resource is a TCR (as defined by Public Resources Code, Section 21074), tribes consulting under AB 52 would be provided a reasonable period of time, typically 5 days from the date a new discovery is made, to conduct a site visit and make recommendations regarding future ground disturbance activities as well as the treatment and disposition of any discovered TCRs. A qualified archaeologist shall implement a plan for the treatment and disposition of any discovered TCRs based on the nature of the resource and considering the recommendations of the	During construction	During construction	County of Los Angeles Department of Public Works			

Table 4-1
Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring			Verification of Compliance		
	<i>Implementing Phase</i>	<i>Monitoring Phase</i>	<i>Enforcing Agency</i>	<i>Initial</i>	<i>Date</i>	<i>Comments</i>
tribe(s). All activities shall be conducted in accordance with regulatory requirements. If human remains are found within the project site, management recommendations as outlined in MM-CUL-3 (see Section 4.4.5) should be implemented.						



SOURCE: USDA 2016

DUDEK



0 250 500 Feet

FIGURE 4.8-1

Maintenance Area Location

Carol Kimmelman Athletic and Academic Campus

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FIGURE 4.11-2

Location of Required Temporary Barrier for Construction Noise Mitigation

Carol Kimmelman Athletic and Academic Campus

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SOURCE: Bing Maps 2018

FIGURE 4.11-3

Boundaries of Area Where Sonic Pile Driver is Required for Noise Mitigation

Carol Kimmelman Athletic and Academic Campus

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